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1989

# Aussat: the social shaping of a satellite system

S. R. Paltridge

*University of Wollongong*

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# **AUSSAT : The Social Shaping of a Satellite System.**

**A thesis submitted in fulfilment of the requirements for the Award  
of the degree of**

**DOCTOR OF PHILOSOPHY**

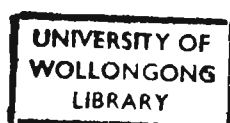
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**S. R. PALTRIDGE, B.A.(Hons), M.A.(Hons).**

**Department of  
Science and Technology Studies,  
1989**





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## DECLARATION

This work has not been submitted for a degree to any other university or institution.

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S.R PALTRIDGE.

## **Author's Publications Relating to this Topic**

"Crucial Issues in Spaceport Plan Ignored", The Australian, Monday May 23 1988.

"Pie in the Sky: The Heterogeneous Engineering of Aussat", Presented to the AAHPSS Annual Conference, Melbourne University, May 27 1988.

"Aussat & Distance Education", Paper presented at the STS Postgraduate Conference, University of Wollongong, July 1988.

"Satellite Technology and Distance Education in Australia", Submission to the House of Representatives Standing Committee on Employment, Education and Training inquiry into 'New Technology in Education', July 1988.

'Satellite Broadcasting in Australia', Address at the Postgraduate Open Day, University of Wollongong, November 1988.

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## ABSTRACT

This thesis examines the planning process for the first and second generations of Australia's domestic satellite system (Aussat). It focuses on the development of a large sociotechnical system over more than a ten year period and the constellation of interest that became embroiled in one of Australia's most controversial projects. The present work seeks to call forth and highlight those factors most relevant to the shaping of particular aspects of technological development to produce an understanding of how participants in the negotiation of the sociotechnical design sought to assert their interests. In addition, the thesis examines Aussat's effect on its 'impact constituency' and how Australia's experience with the first generation of satellites, in turn shaped an on-going sociotechnical system. It closely details how organizations evolved and developed strategies to maintain the project's momentum.

## **Introduction**

### **Introduction**

This thesis examines the planning process for the first and second generations of Australia's domestic satellite system (Aussat). It focuses on the development of a large sociotechnical system over more than a ten year period and the constellation of interests that became embroiled in one of Australia's most controversial projects.

### **Theoretical Background**

As this study emanates from a belief that contextual histories offer a richer prospect for understanding the formation of sociotechnical systems, the approach taken firmly locates developments within a broad cultural ambience.<sup>1</sup> This is necessary if we are not to take the advent of Aussat for granted and assume that the emergent system followed an autonomous course, determined by an internal logic. Treatments of sociotechnical projects cast in this mould have produced what Rurup calls 'company history', recounting technological achievements as if they represented the inevitable unfolding of progress.<sup>2</sup>

This thesis approaches its field of inquiry in a manner antithetical to Whiggish or internalist treatments which seek to sever method and content from context. Instead the objective is to

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<sup>1</sup>.Refer to the introduction of The Social Shaping of Technology, Donald MacKenzie and Judy Wajcman (Eds), Open University Press, Milton Keynes, 1985. pp 2-25

<sup>2</sup>.Rurup, Reinhard. "Historians and modern technology: Reflections on the development and current problems of the history of technology", Technology and Culture, Vol 15, No 2, April 1974. pp 161-193

pursue an understanding of sociotechnical development with reference to the rich tapestry of social relations from which Aussat emerged. Staudenmaier has aptly summarized the contextual tradition in the following,

Genuine contextualism is rooted in the proposition that technical designs cannot be meaningfully interpreted in abstraction from their human context. The human fabric is not simply an envelope around a culturally neutral artifact. The values and world views, the intelligence and stupidity, the bias and vested interests of those who design, accept and maintain the technology are embedded in the technology itself. Contrary to Heilbroner's 'one and only grand avenue of advance', contextual history of technology affirms as a central insight that specific designs chosen by individuals and institutions necessarily embody specific values. In summary, contextualism and the myth of autonomous progress are at odds because the progress myth assumes a value free method divorced from every context and because it assumes one inevitable line of advance hindered only by those who violate the purity of the method and attempt to stop progress through value laden subjective critique.<sup>1</sup>

Recent work on the contextual history of technology has focused on tracing the general mechanisms of the shaping process.<sup>2</sup> John Law and Michel Callon have studied why particular technologies have followed specific paths.<sup>3</sup> As part of this process there has been a call for detailed case studies. There has also been a call for case studies into how Australian communications policy is formulated.<sup>4</sup> While the present work aims to produce a detailed case study, explaining the specificity of Aussat, it also provides insights useful for addressing both these concerns.

Critics and investigators have labeled present case studies available, on the shaping of

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<sup>1</sup>.Staudenmaier, John M. Technology's Storytellers: Reweaving the Human Fabric, The MIT Press, Cambridge, 1986. pp 165-166

<sup>2</sup>.Scott, Pam. "The social shaping of a laboratory: the establishment of the Australian Animal Health Laboratory, Prometheus, Vol 6, No 2, December 1988. p 250

<sup>3</sup>.Callon, Michel. "The State and Technical Innovation: A Case Study of the Electric Vehicle in France", Research Policy, Vol 9, 1980. pp 358-76, "The Sociology of an Actor Network" in M. Callon, John Law and Ari Rip. (Eds), Mapping the Dynamics of Science and Technology, MacMillan, London 1986. ; Wiebe Bijker, Trevor Pinch and Thomas Hughes, The Social Construction of Technological Systems, MIT Press, Cambridge, MA, 1987.; Michel Callon and John Law "On Interests and their Transformation: Enrollments and Counter Enrollments", Social Studies of Science, Vol 12, 1982. p 615-25; John Law, "The Structure of Sociotechnical Engineering: A Review of the New Sociology of Technology", (First draft - Submitted to Sociological Review) University of Keele, 16 July 1986. Refer also Thomas P. Hughes, Networks of Power: Electrification in Western Society, 1880-1930, John Hopkins University Press, Baltimore, MD, 1983. and "The Seamless Web: Technology, Science, Etcetera Etcetera", Social Studies of Science, Vol 16, 1986. pp 281-92

<sup>4</sup>.Armstrong, Mark. Introduction to Australian Communications Technology and Policy, Elizabeth More and Glen Lewis (Eds), Centre for Information Studies Publications, Kurig-gai CAE, Australian Communications Association & Australian Film, Television & Radio School, Sydney 1988.

sociotechnical systems, as inadequate.<sup>1</sup> Law and Callon, concede their understanding has been limited by the availability of the resources necessary to adequately follow the actors in their respective fields of inquiry. In one case study of the development of a tactical fighter plane, Law points out,

The story of the rise and fall of the TSR-2 is a story of political and bureaucratic struggle, of technical and financial controversy and management disagreement. A proper analysis will have to cover at least ten years and will involve access to material that is not at present in the public domain.<sup>2</sup>

The Aussat story has many of the above ingredients but the investigator has been able to gain access to the resources necessary to carry out a detailed case study. This has allowed the investigator to show how differing actors arrived at their respective positions towards the satellite and how they influenced, and evolved in response to, the direction the project took.

This reconstruction has been important not merely for showing how protagonists decided whether their interests lay in supporting or opposing a domestic satellite system but how they developed and implemented strategies to assert their objectives. Thus, while Law's analysis of the TSR-2 project notes that the Ministry of Supply and Air Staff were able to resist the efforts of Treasury to cancel the project, he admits not being able to show how this was accomplished because the relevant data was not available.<sup>3</sup> In contrast, the present work details closely, the strategies adopted by proponents to insulate the project against external pressure and embed their objectives in the sociotechnical system. Privileged access to relevant resources has meant that this process has been described in detail, often with the actor's personal (confidential) assessment of what these strategies were designed to achieve. This has enabled the investigator to follow the perspectives of various actors involved in the policy process and highlight the very real differences that arise within groups.

As part of this process of studying the shaping of sociotechnical systems, Law and Callon

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<sup>1</sup>.Russell, Stewart. "The Social Construction of Artefacts: A Response to Pinch and Bijker", Social Studies of Science, Vol 16, 1986. pp 331-46

<sup>2</sup>.Law, John. "Anatomy of a Sociotechnical Struggle: The Design of the TSR-2", Paper prepared for Conference on Technology and Social Change, University of Edinburgh, 12-13 June 1986. p 6

<sup>3</sup>.Ibid. p 23

have developed general categories. Although in general these concepts are not used to structure this research, a number of concepts, particularly those of 'Negotiation Space' and 'Translation Centre',<sup>1</sup> have been found useful as a shorthand description of certain key processes in the shaping of Aussat. For Law and Callon, a 'Negotiation Space' is a time and space created by proponents of sociotechnical systems in which they endeavour to shape the project according to their interests, while they define 'Translation Centres', as locations in which strategies are evolved and attempts made to control diverse elements of newly formed sociotechnical systems. The latter concept is useful because the locus of decision making power shifted through various planning structures, while still maintaining a continuity through the retention of key actors. This concept has allowed the author to illustrate continuity in decision making despite a plethora of organizational structures.

It was found, however, that the general extensive conceptual framework employed by Law and Callon did not draw attention to some of the key themes dealt with in the present work. In this respect three points deserve to be highlighted in the Aussat policy process:

(a) Fluidity of Goals and Interests

While the objective of securing or blocking the acquisition of a satellite, was an initial goal for various protagonists, this was eventually surpassed in importance by questions over the shape of the sociotechnical project. After consideration was given to this first goal a multiplicity of interests drove the actions of protagonists in shaping the design of the technology and controlling organization. For instance while proponents shared the goal of creating the system their objectives for it varied dramatically. The same is true of opponents who resisted the introduction but embraced widely disparate positions over the question of who would own and operate a working system. In some cases opponents and proponents diametrically reversed their positions over the course of the decade long field of study, as they determined that their interests had shifted. Some actors were allies at one stage of the

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<sup>1</sup>Law, John and Michel Callon, "The Life and Death of an Aircraft: A Network Analysis of Technical Change", Paper prepared for International Workshop on the Integration of Social and Historical Studies of technology, University of Twente, Enschede, the Netherlands, 4-6 September, 1987.

project, only to find themselves opposed as new issues emerged. Previous case studies have failed to pay attention to the shifting goals of actors as they have not focused on on-going projects.

(b) Over Concentration on the Initial Stages of Projects, Failed Projects and a General Neglect of the 'Impact Constituency'.

One of the chief differences, between the projects studied by Law and Callon and Aussat, is that the particular systems they examined 'failed'. This has meant that Law and Callon have not developed an analysis of how proponents maintain a sociotechnical system, in the face of continuing hostility. The TSR-2, Advanced Passenger Train (APT) and an electric vehicle (VEL) were all artefacts developed within existing sociotechnical systems and were modifications or partial innovations of existing technologies. Law and Callon have shown how proponents were able to draw resources from these wider networks and create a space within them to develop embryonic projects. They judge these projects to have failed based on their definition of a successful project as one which is self sustaining.

Their selection of technologies was possibly influenced by the fact that the demise of the various systems they consider neatly delineates the site of historical reconstruction. Yet what if an investigator wants to take the analysis further? This approach is at its weakest when applied in analysing contemporary sociotechnical systems which have 'successfully' survived and become part of the wider sociotechnical system (which in the case of Aussat was Australia's communications infrastructure). They offer little guidance on how the strategies developed to maintain a system different from those designed to foster its emergence. Thus Law and Callon's approach can neglect concerns with actors who fell away over the decade long field of study.

Because Law and Callon have focused on 'failed projects' they have not examined in any detail the effect of a working system on what Staudenmaier calls the 'impact constituency'. As Staudenmaier notes, this group is often "...ignored in treatments of technology despite its

ability to reveal the historical limitations of every technical design."<sup>1</sup> Therefore to continue an analysis past the stage leading to implementation, the basis on which success is measured must be extended. The first question which should be asked about problem is "success for who?". Yet this would be difficult if we continued to only follow actors which made their presence felt as Law and Callon require. The actor's own assessment of 'success' or 'failure' would not be based on the sociotechnical system's capability to routinely sustain itself but on how effectively they saw its ability to meet their interests. An added difficulty in the 'follow the actor' method is that the 'impact constituency' may not be aware of what they have lost through a certain design feature or social arrangement.<sup>2</sup> In addition, the case of Aussat shows how certain actors, important in the initial stages of a project's justification fell away as the system was not used for their intended purpose. If an investigator followed only those groups that made their presence felt it would not be possible to assess the 'success' of a project from the perspective of those unable to maintain that influence. A measure of success would have to take into account the original objectives of protagonists. The third point highlights that Law and Callon do not provide categories to describe how strategies are evolved to maintain a system. In short, how are those disaffected with a 'working system', or those endeavouring to chart a different course excluded from exerting influence?

(c) How Organizations Evolve to Maintain a Project's Momentum.

As will be shown in the present work, one group within the planning structure captured the project because of the way it positioned itself within the 'translation centre' and were able to draw support from crucial actors in the outside world. This consequently gave rise to tensions as the new group's interests diverged from the other elements of the original planning structure. It is suggested in the present work that an important element of on-going projects is how the original planning structure evolves to become an organization which endeavours to maintain a sociotechnical project. If actors within the original planning network

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<sup>1</sup>.Staudenmaier, Op.Cit. p 198 & Russell, Op.Cit. p 337

<sup>2</sup>.Staudenmaier, Op.Cit.

can't break out of a structure designed to plan and implement rather than maintain a system, they will not be able to develop a new 'negotiation space' excluding former allies. As will be shown, in the case of Aussat, if the second generation planning process had occurred through the planning structure designed to foster emergence rather than maintenance, it would have proved far more difficult to sustain the project. This is particularly acute where collaborators had become critics i.e. Overseas Telecommunications Commission (OTC) & the Australian Broadcasting Corporation (ABC). Thus the very art in ensuring the continuance of the project in this case, involved cutting loose from the types of strategies and structures which characterized and were so important to the planning process for the first generation. The second time around there would be no inquiries, less committees, and intermediaries of a different nature.

### Brief History of Aussat

The Department of Communications (then Postal & Telecommunications, now Transport & Communications) did not 'know' in 1977, that Australia needed a satellite. The role played by media magnate Kerry Packer, in initiating the process which led to the acquisition of a satellite, could be described as 'problematization'. For while Packer had his own agenda for any satellite system, he was able to convince Prime Minister Malcolm Fraser, that this technology could solve Australia's remote communications 'problems'. Fraser's request for documentation was the first in a series of texts produced to support the acquisition of a satellite system. Known as the *Bond Report* this document was the first instrument used to encapsulate the sociotechnical world, proponents of a satellite system envisaged creating. It would be followed by many more of what Law and Callon call 'material intermediaries', which they define as documents and devices for collecting necessary information about elements of sociotechnical systems and in turn informing and controlling these elements.

Yet a project of this magnitude, funded from the public purse, could not be justified by one



text alone. Prompted by Packer's study the Fraser Government began a much wider process of enrolling support for the project. This resulted in the establishment of the National Communications Satellite Task Force under the chairmanship of Harold White.<sup>1</sup> Set up ostensibly to examine the need for a satellite, the White Inquiry was actually a method through which supporters were identified, enrolled and networked. Task Force member John Coleman would later recall, that the question the Inquiry examined was not really whether to have a satellite but what form it should take.<sup>2</sup> The White Task Force Inquiry was followed by the creation of an Inter-Departmental Working Group, which reported in 1979, recommending the establishment of a domestic satellite system.<sup>3</sup>

Government inquiries and working groups of this sort, not only identify supporters that can be drawn into a planning structure (and therefore seek to speak for them), but also rival protagonists, whose claims need to be contested if their neutrality can not be secured. In this case the main opponents of a satellite system were the Department of Finance (DOF), Telecom and the Australian Telecommunications Employees Association (ATEA). Supporters included the ABC (subject to its costs being met), remote area lobby groups, OTC, and certain large corporations, such as Publishing and Broadcasting Limited (PBL) & International Business Machines (IBM, Australia) and even other nation states such as Canada. In between these two sets of protagonists, yet firmly convinced that the project should proceed, were the Department of Communications (DOC) and the Satellite Project Office (SPO), the organization it spawned to plan and implement the system which would eventually become Aussat.

The 'translation centre' became a central point or location where strategies were evolved and attempts made to control disparate elements that made up the planning structure. It also

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<sup>1</sup>.Commonwealth Government Task Force, National Communications Satellite System, Report, July 1978, AGPS, Canberra 1978. (The White Task Force) Peter White has suggested the Task Force Inquiry was an administrative response to a previous inability to coordinate communications planning. Refer "A DOMSAT for Australia: Communications planning under strain", Telecommunications Policy, December 1980.

<sup>2</sup>.Coleman, John. Personal Interview with Author, Canberra, 30 August 1988.

<sup>3</sup>.Working Group Report, National Communication Satellites System, Report, August 1979, AGPS, Canberra, 1979.

became an obligatory passage through which actors had to operate if they hoped to influence the project.<sup>1</sup> The 'translation centre' asserted its own influence over other actors by defining their roles within the planning structure and through that attempting to derive the authority to speak for them. In instances where these actors interpreted the SPO actions (while the 'translation centre' was located within this planning structure), as an impoverished betrayal or over simplification of their own position, they would seek to rebel against this authority and in some cases attempt to circumvent the planning structure.

It is important to note the project had what Law calls 'variable geometry'.<sup>2</sup> It was different things to different people. Partly this was due to the enrolment process<sup>3</sup>, during which Aussat's proponents were able to 'problematise' issues of concern to different groups. For instance, the satellite was sold to outback residents as a means for improving School of The Air while for certain business groups it meant their chance to compete with Telecom.

### Brief Aussat Chronology

#### **1976**

March - Telecom and the ABC agree to establish a joint study group on the potential of a domestic satellite.

#### **1977**

August - *Bond Report* submitted after Publishing and Broadcasting Limited had commissioned Donald S. Bond to prepare a report on the potential for a domestic satellite.

September - Eric Robinson, Minister for P&T proposes to establish a Task Force to inquire into a domestic satellite system.

October - Telecom submits its satellite study, *National Satellite Communications System Studies*.

November - Fraser Government announces appointment of Harold White CBE, as Chairman of a Task Force to inquire into the possibility of introducing a domestic satellite. Inaugural meeting 17th November 1977.

December - Malcolm Fraser announces Tony Staley is the new Minister for Post and Telecommunications.

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<sup>1</sup>.Callon, Michel. "Introduction to a Political Economy of Translation Networks", Working Paper, Centre for the Sociology of Innovation, Ecole des Mines de Paris, July 1986. p 33

<sup>2</sup>.Bijker calls this 'interpretive flexibility' arguing that different groups attach different meanings to artefacts. Refer W.E. Bijker, "The Social Construction of Fluorescent Lighting - An effort to integrate the analyses of social shaping and social impact of technology", Paper presented for the International Workshop on the Integration of Social and Historical Studies of Technology, University of Twente, 3-5 September 1987.

<sup>3</sup>.Law and Callon define 'enrolment' as the definition and distribution of roles by protagonists.

## 1978

March - ATEA convenes meeting of the Media Workers Council to discuss the proposal for a domestic satellite with the Australian Labor Party.

July - White Task Force Inquiry submits its Report, *National Communication Satellite System Report*. (July 1978)

September - Staley tables Task Force Report and announces establishment of Working Group to develop the White Inquiry's findings.

## 1979

February - Staley holds a press conference in London after an international tour and announces a Canadian 'breakthrough in world thinking'.

July - Announcement of field trials with a Canadian Satellite beaming television signals into remote areas of New South Wales.

August - Workshop held in Canberra to examine the Canadian experience with satellites.

October - Staley tables Working Group Report, *National Communication Satellite System* (August 1978). The Minister announces the establishment of a Satellite Project Office within his Department.

## 1980

January - Inter-Departmental Committee convened to consider the question of ownership.

April - Industry Briefing on the progress of planning

May - Western Union offer to sell the Australian Government a ready made satellite system.

September - Establishment of the Carver Committee to review the satellite design in the face of criticism from PBL. Government announces OTC will be the interim owner of the satellite system. Staley announces Government's firm commitment in his farewell speech to Parliament.

October - Ian Sinclair becomes Minister for Communications (Formerly P&T) Government releases Request for Tender documents.

## 1981

January - Government announces that talks would begin with more than fifty private firms who had expressed an interest in investing in a company to own and operate a domestic satellite system.

October - Sinclair announces the Chairman of the proposed satellite owning company will be Mr Stan Owens, CBE.

November - Government establishes Aussat as a 100% Commonwealth owned proprietary company to assume responsibility from OTC. Aussat board announced.

December - Hughes Communications International is announced as the prime contractor.

## 1982

March - Hill Samuel, after being appointed as Aussat's financial advisers, submit the results of its financial modelling to the satellite authority.

May - Satellite system given the go-ahead. The Government authorizes placement of contracts.

October - The new Minister for Communications Neil Brown, announces that a \$5 million contract has been placed with AWA by Hughes Communications as part of their offsets commitments.

## 1983

March - Bob Hawke leads the Labor Party to victory over the Fraser Government. Michael Duffy becomes the new Minister for Communications.

June- ATEA campaigns against the satellite.

July - Federal Labor Caucus gives go-ahead for the satellite system and appoints six new directors to the Board of Aussat. Alice Springs Conference on Aussat's future.

November- Government decides to retain Aussat as a separate 100% Commonwealth owned company. Government invites Telecom to purchase 25% of its holding. Government directs Australian broadcasting tribunal to hold an inquiry into Satellite Program Services (SPS).

## 1984

February - PAL transmission system used for terrestrial television in Australia has been chosen as the standard for extending ABC services to remote areas via satellite.

July - ABT releases its report on satellite program services.

August - Telecom Australia purchases 25% of the Commonwealth shareholding in Aussat.

September - B-MAC preferred as the transmission system to PAL.

November - Bob Lansdown writes to Graham Gosewinckel to suggest that planning be initiated on a second generation of satellites.

## 1985<sup>1</sup>

April - Aussat proposes to modify its third satellite to give it the potential to provide communications to the South Pacific.

June - Aussat announces plans to raise \$455 million to help fund the satellite communications system. Madigan Report released, entitled *A Space Policy for Australia*.

August - Australian Associated Press signs a contract with Aussat to establish Australia's first privately owned satellite communications network. US Space Shuttle 'Discovery' launches Aussat's first satellite. ABC Staff Association takes industrial action to protest that the Broadcaster has not been provided with adequate funds to use the satellite.

September - Government announces it will waive sales tax on earth stations for domestic use to receive satellite radio and television signals.

October- Aussat replaces Intelsat for transmission of ABC remote services.

November - Aussat second satellite launched by the Space Shuttle 'Atlantis'.

## 1986

March - Construction of Aussat's third satellite completed, Aussat briefs the Department of Communications of its plans for a second generation.

April - PBL approaches Aussat with a proposal to use a 12 watt transponder in the South Pacific.

June - OTC suggests that there be no second generation and instead that Intelsat be used to provide services.

December - Government agrees to allow Aussat to proceed with the planning of its second generation.

## 1987

May - Aussat Board approves design concept for second generation, which will contain 19x

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<sup>1</sup>.For a more detailed chronology leading up to 1985, refer to "Aussat - A Chronology", Department of Communications Library, Canberra, September 1986.

50 watt transponders and 1x150 watt transponder (for mobile communications).

June - Aussat estimates second generation will cost between \$590-660 million.

September - Aussat's third satellite launched by an Ariane rocket. Tenders issued for the construction of a second generation.

## 1988

June - Hughes announced as the successful tenderer to construct the second generation satellites. Aussat announces its intention to launch the second generation satellites aboard China's Long march rockets.

## 1989

February - Government releases report on Pay-TV, entitled *Future Directions For Pay Television in Australia*. Aussat recommends the introduction of Pay-TV services via satellite.

## Thesis Structure

An important element in Aussat proponent's strategy to interest others in the acquisition of a satellite system, was being able to point to the uses others were making of satellites overseas. With this in mind the present work seeks to locate the origins of the domestic satellite debate in Australia, within a broad historical context. Chapter One analyses the historical development of satellites and the current state of the industry world wide. In discussing the origins of satellites the point is made that communications satellites were initially developed within a sociotechnical process whose overall direction was not towards the purpose to which Aussat was targeted. Satellites were a by product of the militarization of space. The civilian satellite industry can not be meaningfully isolated from the military context. Civilian uses of satellites form a very small part of the aerospace industry and Aussat an even smaller segment of that fraction. Chapter One traces the development of communications satellites and shows why the technology was taken up after the 1960's through to the failure of Satellite Business Systems (SBS) whose initial establishment was an influential factor in Australia acquiring Aussat. In addition, Chapter One seeks to describe and analyse the problems facing the civilian satellite communications industry to set the background for understanding how these forces have shaped Aussat.

Chapters Two and Three, consider the strategies used by proponents of a domestic satellite system to construct an organization to plan Aussat. In particular how Aussat's system builders were able to maintain the momentum of a project they regarded as financially marginal against the claims of rival protagonists within and outside the decision making process. These chapters focus on how Aussat's proponents created a series of defensive resources which enabled them to embed their own values and interests within the sociotechnical system. The means by which a defensive resource was initiated and maintained should be thought of as elements of the sociotechnical system. Two strategies deserve specific mention in fostering 'negotiation spaces'. Firstly, the process by which roles were defined and in particular the structuring of the dominant organizational coalition. Secondly, the use of 'intermediaries' such as the inquiry process; the creation of texts as instruments to forward interests; and importantly the use of financial models.

Within the space and time granted Aussat's proponents they were able to draw in the resources they needed from the outside world and shape the technology in a manner they envisaged would ensure the project's survival. The way a 'negotiation space' was used against collaborators and critics alike by the 'translation centre' is an important theme of these two chapters.<sup>1</sup> The 'translation centre' was able to deal with PBL and the DOF through diverse strategies tailored to meet specific challenges made by these actors as their interests coincided and conflicted. Both PBL and DOF were part of an actor network but rarely adopted the roles which had been defined for them by the 'translation centre'.

Alternatively Chapter Four treats the strategies of opponents of the system outside the decision making process created by Aussat's proponents. It documents how the position of the ATEA and the Australian Labor Party (ALP) were shaped and evolved over the course of the project. It describes how the ATEA developed two campaigns against the satellite and why the ALP shifted from critic to collaborator.

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<sup>1</sup>Latour, Bruno. "How to Write 'The Prince' for Machines as well as for Machinations", A Working paper for the Seminar on Technology and Social Change, Edinburgh, 12-13 June 1986. Latour discusses 'softer' techniques devised to keep collaborators at bay.

Chapter Five is divided into three parts which seek to document Aussat's implications for its 'impact constituency'. The purpose of these reviews is to measure the accomplishments of the system against the claims made for acquiring a satellite. What goes unnoticed in Law and Callon's work is that the success or failure of a project is socially negotiated.<sup>1</sup> While this endeavour is part of that process its importance for this thesis is two fold. Firstly, it highlights strategies used to justify the first generation, particularly 'problematization' in distance education and remote broadcasting. Secondly, it is a necessary exercise to set the contextual background for the second generation planning process. Where the interests of Aussat's system builders and the impact constituency diverged based on the experience of using or not using the first generation, new strategies were developed.

Chapter Six describes how the second generation planning process unraveled. It explores the process whereby Aussat attempted to shrug off the remnants of the initial organizational structure, while other actors involved in the first generation planning process sought to assert their interests. It is argued that Aussat's strategies to maintain the project's momentum were markedly different from the first generation. Certainly they changed in response to the shifting interests of various actors. This made it necessary for Aussat to bring as much of the 'translation centre' as possible, in house. Allies from the first generation planning process, such as OTC, now threatened the very existence of Aussat and broadcasters were critical of the proposed design. For Aussat an 'appropriate' planning structure, still had to be created and reluctantly the satellite company recognized that they need the cooperation of DOC to win approval from the Government. For their part the Department wanted to monitor Aussat's plans in relation to its other policy considerations. Yet, if potential rivals such as OTC or Telecom or customers such as the ABC and Commercial Networks had access to the planning process in the same way they did in the first generation, it would have made the process far more difficult. If the first generation planning process was typified by a glut of inquiries the

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<sup>1</sup> Johnston, Ron. "Controlling Technology: An issue for the Social Studies of Science", Social Studies of Science, Vol 14, 1984. pp 97-113

second was remarkable for the absence of any. Planning was deliberately kept within a smaller network.

Similarly the second generation did not generate the public debate which had been an integral part of the initial planning process. The absence of these features was an indication of the different strategies employed by Aussat's system builders but also the fact that public attention was drawn more to the highly publicized media restructuring associated with the initial years of the first generation. The Inquiry process turned to what to do with the satellite in areas such as broadcasting and distance education. Against a background of increased networking, concentration of ownership, equalisation and remote broadcasting, questions surrounding the shaping of the second generation went largely unnoticed in the wider political arena. These factors were, however, influential in shaping the design of the second generation satellites, and as argued earlier it is in this area that the present work aims to augment that body of knowledge concerned with understanding the contextual development of contemporary sociotechnical systems.

The differences between first and second generation planning process were reflective of wider changes in Australian politics. The majority of the planning for the first generation took place under the Fraser Government. Malcolm Fraser led the Liberal/National party Coalition government from 1975-1983. These years were typified by a flourish of reports, inquiries and conferences concerned with communications policy.<sup>1</sup> Armstrong has pointed out that as well as the various satellite forums, inquiry topics included cable TV, subscription TV; defamation law; ethnic broadcasting; group control of newspapers; and a new telecommunications structure.<sup>2</sup> Against this backdrop there was also some major disputes involving Telecom and the ATEA over the introduction of new technology. In 1978 confrontation between the two occurred over maintenance arrangements for new exchanges.<sup>3</sup>

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<sup>1</sup>.Armstrong, Op.Cit. p 3

<sup>2</sup>.Ibid.

<sup>3</sup>.For an account of this dispute refer Ian Reinecke and Julianne Schultz. The Phone Book, Penguin, Melbourne, 1983. pp 159-162.



This prompted the Government to set up a wider inquiry into the effects of technological change. This Committee of Inquiry into Technological Change (CITCA or Myers Committee) coopted Bill Mansfield, the Secretary of the ATEA to represent Australian Trade Unions. The satellite planning process was therefore symptomatic and very much part of the Fraser Government's wider response to technological controversies.

In 1983 Robert Hawke led the ALP into office. Armstrong has argued that the new Government was determined not to make policy in the same way as the Coalition. The Hawke Government operated in a corporatist manner consulting with peak groups before decision making. This was reflected in the lack of public discussion and debate which had been manifest in the initial acquisition of a satellite system. In terms of Australian politics the growth of corporatism would sit within the context of the decline of parliament thesis.<sup>1</sup> The diminished importance of the responsible government model<sup>2</sup> for students of Australian politics has also been evident in the Hawke Government thrust towards the creation of Government Business Enterprises.<sup>3</sup> One of the most debated issues in the Aussat policy process was the appropriate institutional form to house satellite operations. The current work will demonstrate dangers in allowing technological development to take place in a political climate where the role of responsible government is diluted, and draw together this argument in Chapter Seven.

The third point which should be made about the Australian state and policy making relates to wider theoretical debates about the nature of the state. Any interpretation of why successive governments initiated and continued the satellite project must inevitably involve a complex assessment of the motives and aspirations of the major actors. To answer this question an

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<sup>1</sup>. On the decline of Parliament thesis refer to John Summers, "Parliament and Responsible Government in Australia", in Government, Politics & Power in Australia, (Eds) John Summers *et al.*, University Relations Unit, Flinders University, 1979. Bob Jessop makes the point regarding corporatism and the decline of parliamentarism in The Capitalist State, Martin Robertson, Oxford, 1983. p 224 For a comprehensive appreciation of the literature focusing on Australian Politics, refer Don Aitkin (Ed) Surveys of Australian Political Science, George Allen and Unwin, Sydney 1985

<sup>2</sup>. Emy, Hugh V. The Politics of Australian Democracy: An introduction to Political Science, MacMillan, South Melbourne, 1974.

<sup>3</sup>. Stretton, Hugh. Political Essays, Georgian House, Melbourne 1987.

investigator's approach would be shaped by further questions of determining who were the actors, at what stage were they important, and whether or not to accept their explanation of why they acted in a certain way. The 'answer' to this question will also depend on the theoretical perspective adopted by an investigator. As will be demonstrated the advent of Aussat has been interpreted by some to have been because an influential business figure was able to convince a Prime Minister, and the Australian Government, that a satellite was in the national interest. In this scenario the state is seen as an instrument to be used by one section of business to further its own interests over others. The problem with this approach is that although Kerry Packer's wish for a satellite system was eventually acceded to, the current work illustrates that he lost just about every battle he fought over the satellite's design, ownership, and allocation of transponders. Although he was later able to sell his television network for over a billion dollars, perhaps three times its net worth, Packer became a vociferous critic of the planning process. Others see this as the outcome of the state having to look after the interests of either a wider business class<sup>1</sup> or in a pluralistic sense a mass of competing groups. The point is that an interpretation of the actions of decision makers will depend on the theoretical perspective chosen.

State theorists have recognized the development of a single theory to comprehend the state is problematic.<sup>2</sup> The problem of taking a body of theory relating to why the state acts in a certain way and interpreting Aussat's development as an inevitable consequence predetermined by some form of autonomous logic (technological, economic or other) is that it is at a loss to explain how the state arrived at any particular decision. If the state is acting in the interest of one section of society in the selection, planning and establishment of a particular technology how does it decide which course to adopt? From an instrumental perspective it could be suggested that the state takes on board the advice from whoever is deemed to be wielding

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<sup>1</sup>. Chanter, Alaine. "A Satellite for Australia - Who Really Benefits?", Paper presented at the First Canberra Conference on International Communication, Canberra, 1986. For a broader discussion of this general approach, refer J.D. Slack, Communication Technologies and Society: Conceptions of Causality and the Politics of Technological Intervention, Ablex Publishing Company, Norwood, 1984.

<sup>2</sup>. Jessop, Op.Cit. 211

power and acts accordingly. Yet how does the state define what is in the best interest of one company let alone an entire class when the advice it receives is contradictory? The analysis presented in Chapter Two will show that not only did the state act against the expressed wishes of Kerry Packer on numerous occasions, but that his company's position on certain issues was in constant flux. If the state had been an instrument its planning decisions would have followed a dizzy path instead of exhibiting a stubborn continuity. In addition not only did different sections of business have widely differing positions on the need for a satellite and on subsequent planning directions but often those in the same business sector held diametrically opposing views. Just as there were deep divisions in the outside world over the direction of the project it would be incorrect to treat the state as a monolithic entity. The point needs to be emphasized is that there are real differences between actors within the state. Aussat as an individual entity has interests which are at times opposed to those of other Government Business Enterprises, such as Telecom & OTC or the Ministries of Treasury & Finance, DOTAC etc.

Aussat also has long term interests that are opposed to its major customers. This again is where an instrumental theory lacks persuasion because Aussat has pursued a design for the second generation against the wishes not only of its largest market but also the industry which provided the initial impetus to acquire a satellite system. As will be shown the Australian television industry became vociferous critics of Aussat as its operating experience grew.

Understanding why Aussat shaped satellite technology in a way which put the broadcasters, its core business, completely offside is central to understanding the design of the second generation. What the current work does is show how decision makers chose one course over another and how they attempted to embed their interests in the socio-technical system within a political, economic and social context. The only way to understand the resultant technological system is to investigate the forces that shaped its construction. This work focuses on the constellation of interests different actors pursued in relation to one of Australia's most

controversial projects. The objective is to determine what the interests of major actors were and how they related to each other. It will be argued that these same interests, and the means by which they have been pursued, has fundamentally shaped the resulting socio-technical system. Chapter Seven will draw together this argument and forward some policy options and implications for consideration.

## Methodology

### **Literature Search**

The research for this thesis commenced with a literature search covering the Aussat policy process and the history and current state of the world satellite industry. The author reviewed the annual reports of all major satellite agencies and manufacturers. Industry Journals and Newsletters during the period 1976-1989, were also reviewed.

### **Network of Contacts**

A network of contacts was established within Australia and overseas including people in Academia, Industry, and Government. This network was further developed when the author attended several industry and academic conferences over the course of writing this thesis.

### **Archives and Libraries**

The historical parts of the thesis, relating to the development of satellites, rely on information obtained through the United States, Freedom of Information Act, which was used extensively. Overseas archives, including those of NASA, the United States Navy and Air Force were also used. The Smithsonian Institute was also an important resource for the historical aspects of space development. In Australia a useful historical resource was Sydney University's RAND Corporation repository. Where this collection was incomplete, relevant papers were obtained directly from the RAND Corporation.

Within Australia, particularly useful resources for keeping abreast of contemporary issues

related to this thesis, were the specialist communications libraries, including those of OTC & Telecom, Australian Film & Television School in Sydney, and the Department of Communications library in Canberra. At a more general level, the author used the libraries of the Australian National University, the University of Sydney and the University of Wollongong.

### **Government Reports and Inquiries**

The author reviewed all Commonwealth Government Reports associated with the acquisition of a domestic satellite system. In addition the transcripts of Inquiries, Conferences, Workshops and Seminars over the period 1976-1989 relating to the Aussat policy process were reviewed.

### **Primary Data Bases**

The most important set of research resources for this thesis were the primary data bases which had not hitherto been made available to investigators. Access was granted to the archives and working files of the Department of Communications(Canberra), the Australian Broadcasting Corporation(Sydney) and the Australian Telecommunications Employees Association (Melbourne). The collections were too large to be read entirely, within the time available for doctoral research (and the patience of organizations). In the case of the DOC there were over 1500 files, relating to the Aussat policy process. Approximately 200 DOC files were selected based on their relevance to the major concerns of this thesis. The selection technique involved careful treatment of a sample group of files under DOC's own classification system. Those classifications found to be most relevant were then systematically examined. This method was also applied to the files of the ABC and ATEA. The selection of files was also discussed with appropriate officials from the various organizations, who were able to offer helpful suggestions.

As the centre of the policy process DOC's files contained documents from all other actors. It was possible to cross reference information to test reliability and accuracy from the different data bases.

Other research material hitherto unavailable to researchers was obtained from the Department of Finance, the Australian Labor Party, Telecom(Australia), Federation of Australian Commercial Television Stations and PBL.

While some documents have not been cited on the request of various actors or because the Australian law prohibits publication (i.e. Cabinet in Confidence documents), there have been no crucial omissions.

### **Interviews**

The second major source of information in relation to the Aussat policy process, came from open-ended interviews with key actors. The point was often made to the author by actors, that the full story would not be found within the files. Interviews were conducted with actors from the following groups (although many have retired or changed organizations from the time they were connected to the Aussat policy process): Department of Communications, Department of Finance, Department of Foreign Affairs, Australian Telecommunications Employees Association, Australian Broadcasting Corporation, Overseas Telecommunications Commission (Australia), Publishing and Broadcasting Limited, Australian Labor Party, Liberal Party, Telecom (Australia) and Aussat. As with the data bases it was possible to compare the information received from different interviews. Most actors consented to interviews being taped.

### **Private Papers**

Some actors made their private papers available to the author.

## Chapter 1

### The Development of Satellites

Most treatises on communication satellites begin with an obligatory reference to Arthur C. Clarke's article in the October 1945 *Wireless World*, entitled "Extra-Terrestrial Relays: Can rocket stations give World Wide Coverage".<sup>1</sup> They go on to credit Clarke with being the first person to propose launching artificial satellites into geosynchronous orbit. While it is true that Clarke's article has entered into the mythology of satellite development, it is not equally correct to claim that he was the first to suggest the idea of communication satellites or to propose placing satellites in geosynchronous orbit. Nor was he the first person to combine these ideas. It is important to debunk this myth because in endless works on satellite development Clarke's exposition is treated as seminal. This presents a distorted account of satellite development, ignoring the military and strategic origins which owe more to Wernher von Braun and the RAND Corporation than to Arthur C. Clarke. Indeed, if Clarke's paper had never been written it would have mattered little to the course of satellite development. Clarke himself goes to great lengths to put his own contribution into perspective, dismissing as ridiculous, for instance, the claim that he

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<sup>1</sup>. Ploman, Edward.W. Space, Earth and Communication, Quorum Books, Westport, 1984. p 50; Robert S. Magnant, Domestic Satellite: An FCC Giant Step, Westview Press, Boulder 1977; John Wicklein, Electronic Nightmares, Beacon Press, Boston 1982. p 158. For an example of an academic commencing an article with a reference to Clarke refer to Heather Hudson, "Satellite Broadcasting in the United States" in Satellite Broadcasting: The Politics and Implications of the New Media, Ralph Negrine (Ed), Routledge, London, 1988. p 216 and Everett M. Rogers, The New Media In Society, Collier MacMillan Publishers, New York, 1986. p 58 Rogers makes no acknowledgement of the Military's role in the development of communication satellites. Examples of journalists attributing to Clarke the 'discovery' of satellites and geostationary orbit continually appear in the media, such as Peter Quiddington's "Spy Now, Buy Later", Sydney Morning Herald, 13 August 1988.

'discovered geostationary orbit'.<sup>1</sup>

Debunking the place others have given to Clarke's article in the scheme of satellite development is important in order to understand that the technology has been primarily developed for the military, rather than as an artefact for civilian communications. It has been used for the latter purpose only where it has been politically expedient for various nation states, or as a tool of large multinational companies.<sup>2</sup> This thesis also suggests that although the civilian communications industry is firmly dependent upon military support, that the latter's interests are now moving in directions that will not benefit the former.

### Origins

It is misleading to place the origin of any technology at one fixed or uncontested point of departure. That technology is 'invented' is undeniable, but it takes place within an overall technical environment. As Witold Rybczynski has noted "Inventors rely on earlier discoveries and previously known skills."<sup>3</sup> Because of this the decision to assign responsibility for originating the idea of satellites to any one person or moment in time becomes purely an arbitrary one. Sir Issac Newton could be accredited with laying the theoretical base for satellite development, yet he drew on the work of Copernicus and Gallileo. Using his general theory of gravitation and motion Newton postulated that if an object could be fired fast enough to defy Earth's gravity it would go into orbit. In 1687 Newton surmised a that projectile launched from a mountain top would,

...never fall to the earth, but go forwards into the celestial spaces and proceed in its motion *in infinitum*. And after the same manner that a projectile, by force of gravity, may be made to revolve in an orbit, and go around the whole earth.<sup>4</sup>

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<sup>1</sup>.Clarke, Arthur C. Ascent to Orbit, John Wiley, Chichester 1984. p 54

<sup>2</sup>.Hills, Jill. Deregulating Telecoms, Frances Pinter, London 1986. p 12; Jonathan Galloway, The Politics and Technology of Satellite Communications, Lexington Books, Massachusetts, 1972. p 2; A. Matalart, Multinational Corporations and the Control of Culture, Harvester Press, Brighton, 1979.

<sup>3</sup>.Rybczynski, Witold. Taming the Tiger. Viking Penguin, New York, 1983. p 218 On invention refer also to Edward W. Constant II "On Diversity and Co-Evolution of Technological Multiples: Steam Engines and Pelton Water Wheels", Social Studies of Science, Vol 8, 1978. pp 183-210

<sup>4</sup>.Winston, Brian. Misunderstanding Media, Routledge & Kegan Paul, London 1986. p 225



In acknowledged fiction the idea of satellites occurs in the writings of Edward Everett Hale, a Boston Clergyman, in 1869.<sup>1</sup> Later that century, Russian school teacher Konstantin Tsiolkovsky developed detailed equations showing that a rocket could place a satellite into the Earth's orbit. In his 1895 short story *Dreams of Heaven and Earth*, Tsiolkovsky wrote,

...an imaginary earth satellite, like the moon, but brought arbitrarily closer to our planet, to a point barely outside the limits of its atmosphere, that is, about 300 versts from its surface, constitutes if its mass is very small, an example of a gravity free environment.<sup>2</sup>

A suggestion to place a satellite in geosynchronous orbit was also made by an Austrian named Captain H. Potocnik, who wrote under the name Herman Noordung,<sup>3</sup> a point acknowledged by Clarke.<sup>4</sup> In the *Problems of Spaceflight*, written in 1929, Noordung pre-empted Clarke's orbiting space station suggestion by sixteen years.

Perhaps though, the first person to specifically associate an orbiting space station with communications, was the Rumanian rocket pioneer, Herman Oberth. In 1923 Oberth published *The Rocket into Interplanetary Space*, after it had been rejected as a thesis by his Heidelberg faculty.<sup>5</sup> In this work, Oberth suggested that space stations,

With their powerful instruments...would be able to see fine detail on earth and could communicate by means of mirrors reflecting sunlight. This might be useful for communication with places on the ground which have no cable connexions with places and cannot be reached by electric waves. Since they, provided the sky is clear, could see a candle flame at night and the reflection from a hand mirror by day, if they only knew where to look, they could maintain communications between expeditions and their homeland, far distant colonies and their motherland, ships at sea...The strategic value is obvious especially in the case of war in areas of low population density...<sup>6</sup>

After the publication of his book, Oberth went on to become a pivotal figure in the formation of the German Society for Space Flight (*Verein für Raumschiffahrt* or VfR) in 1927. Unlike his reclusive American contemporary Robert Goddard, Oberth was not

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<sup>1</sup>.Pelton, Joseph. N. Global Talk, Harvester Press, Sussex, 1981. p 16

<sup>2</sup>.Winston, Op.Cit. p 233

<sup>3</sup>.Pelton, Op.Cit. p 19

<sup>4</sup>.Clarke, Op.Cit. p 55

<sup>5</sup>.McDougall, Walter A. ...the Heavens and the Earth: A Political History of the Space Age, Basic Books, New York, 1985. p 26

<sup>6</sup>.Oberth cited in Clarke, Op.Cit. p 55

adverse to using any means available to financially support experimental work or seek publicity.<sup>1</sup> For this reason Oberth worked on Fritz Lang's 1930 silent film *Frau in Mond*.<sup>2</sup> Brian Winston has suggested that it was this film that rekindled the interest of the German military in rocketry.<sup>3</sup>

As such, the German Army became the main financial supporter of the experimental work of Oberth's society. While not being interested in spaceflight, the *Wehrmacht* could see advantages in terms of long range artillery, a field in which the *Treaty of Versailles* did not preclude German rearmament. In 1929 the Ordnance Ballistic Section of the German Army assigned Captain Walter Dornberger to develop a liquid fuel rocket of longer range than any existing gun.<sup>4</sup> With a young German named Werhner von Braun, who had been inspired by the work of Oberth, Dornberger recruited members of what was to become known as the 'Rocket Team'. Together they established the first military 'rocket port' at Peenemunde on the Baltic coast. Without the intervention of the German Military, it is doubtful that Oberth's society could have progressed rocketry greatly during the 1930's. Willy Ley would later write,

The more I have time to think about it, the more I have arrived at the conclusion that the VfR progressed as far as any club can progress...Experimentation had reached a state where continuation would have been too expensive for any organization except a millionaires' club.<sup>5</sup>

Hitler's rise to power in 1933, brought with it the resources Dornberger and von Braun needed to transform the experimental rockets of that year to operational V-2s by 1943. At its height the programme accounted for at least a third of the resources devoted to Germany's entire aerodynamic and technological research establishment.<sup>6</sup> On 8th September 1944, the first combat V-2 was fired at London and by March the following

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<sup>1</sup>.Perry, Robert L. Origins of the USAF Space Program 1945-1956, prepared as Volume V (Space Systems Division Supplement) History of DCAS, 1961. AFSC Historical Publications Series 62-24-10 p 4

<sup>2</sup>.McDougall, Op.Cit. p 26

<sup>3</sup>.Winston, Op.Cit. p 230

<sup>4</sup>.McDougall, Op.Cit. p 43

<sup>5</sup>.Ibid.

<sup>6</sup>.Perry, Op.Cit. p 4

year more than 1,300 had been directed at England.<sup>1</sup>

### Nazis, V-2s and von Braun

Oberth's ideas were certainly the focus of discussion at Peenemunde. Dornberger would later recall "With our big rocket motors and step rockets we could build space ships which would circle the earth like moons...Space stations...could be put into orbit around the earth. An expedition to the moon was a popular topic too."<sup>2</sup> In March 1944 Wernher von Braun and two of his engineers were imprisoned for a short time by the Gestapo after they had spoken of their plans for 'earth satellites and space vehicles' at a meeting in Zinnowitz.<sup>3</sup>

Clarke's first published exposition of the satellite idea appeared in a letter to *Wireless World* in February 1945.

Clarke's October 1945 article in the same journal, arose from a shorter memorandum entitled "The Space Station:its radio applications", which was circulated privately among the British Interplanetary Society in late May 1945.<sup>4</sup> At this time Clarke did not believe he would see the advent of communications satellites in his lifetime. Earlier in that same month Wernher Von Braun was briefing US military scientists on German views on the prospects and potentials of satellites. In May 1945, with the war still on, Clarke did not know of von Braun's ideas. However by the time Clarke published his October article in *Wireless World*, the German proposal for a space-station had been publicly announced at an Allied press conference in Paris.<sup>5</sup> Clarke made reference to his awareness of this work in "Extraterrestrial Relays" and started correspondence with von Braun in 1946. The pair

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<sup>1</sup>.Ibid.

<sup>2</sup>.Perry, Op.Cit. p 5

<sup>3</sup>.Klee, Ernst and Otto Merk. The Secrets of Peenemunde, George G. Harrap & Co. Ltd, London 1965. p 111.

<sup>4</sup>.Clarke, Arthur C. "The Space-Station: Its Radio Applications" (Six copies typed:privately circulated May 1945. Top copy now in National Air and Space Museum, Smithsonian Institute, Washington, D.C. Reprinted in Spaceflight, Vol 10, No. 3, March 1968, pp 85-6.

<sup>5</sup>.McDougall, Op.Cit. p 69

later became good friends.<sup>1</sup>

Thus, it was von Braun after WWII, rather than Clarke, that interested the US Military in the prospects and potentials of satellites.<sup>2</sup>

### Operation Paperclip & the Wizard's War

Winston Churchill dubbed WWII the Wizard's War, aptly denoting the increased prominence accorded by military strategists to science and technology. It is hardly surprising then that even before the cessation of hostilities the US, UK, France and the USSR had teams of experts scouring Germany for its technological and scientific spoils. The most prized of this included the work of von Braun and his rocket team.

Von Braun had a ruthless fanaticism for the development of space technology.<sup>3</sup> He actively cooperated with the Nazis while it suited his ends and rose to the position of Major in the SS. When it was clear that the war was lost he commenced planning to surrender to the US Army. A member of the rocket team would later explain this choice in the following terms: "We despise the French; we are mortally afraid of the Soviets; we do not believe the British can afford us; so that leaves the Americans".<sup>4</sup>

Although the US military's Joint Intelligence Objectives Agency had been instructed to 'screen' surrendered Germans to root out war criminals, this order was not applied in the case of von Braun and his followers. When the rocket team surrendered to Charles L. Stewart, a special agent of Army Intelligence, he told them "...it made no difference if all were brothers of Hitler, because their unique knowledge made them extremely valuable militarily and from a national standpoint."<sup>5</sup> This was the philosophy behind 'Operation

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<sup>1</sup>.Private Correspondence from Arthur C. Clarke (25th May,1987)

<sup>2</sup>.Augustein, Bruno. "Evolution of the U.S. Military Space Program, 1945-1960: Some Key Events in Study, Planning, and Program Development", RAND Paper Series P-6814, Santa Monica, 1982. p 3

<sup>3</sup>.Pacey, Arnold. The Culture of Technology, Basil Blackwell, Oxford 1983. p 124

<sup>4</sup>.Ordway, Frederick and Mitchell Sharpe. Rocket Team, Thomas Y. Crowell, New York, 1979. p 274

<sup>5</sup>.Von Braun, Wernher and Frederick Ordway, History of Rocketry and Space Travel, Thomas Y Crowell, New York, 1966. p 116

Paperclip', which made it possible for von Braun and his team to be on their way to the US by July 1945. Despite the fact that von Braun had joined the Nazi Party in 1937, was a Major in the SS and a member of four other Nazi organizations, the Office of Military Government U.S. decided it could not determine whether he was an 'ardent Nazi', the official State Department measure for excluding 'security threats'.<sup>1</sup>

Thus the war crimes of von Braun, Dornberger, Arthur Rudolf<sup>2</sup> and other members of the rocket team, graphically described in Tom Bower's *The Paperclip Conspiracy*, would be ignored over the next thirty years. Bower's description of the conditions at Nordhausen, the production site for V-2s, illustrates the barbarous atrocities the allies were prepared to overlook in a bid to secure the Nazi's scientific booty.<sup>3</sup>

Concentration camp survivor Jean Michael would later comment,

English, French, Americans and Russians have shared the scientists and technicians who were our masters. And I could not watch the Apollo mission without remembering that that triumphant walk was made possible by our initiation to inconceivable horror.<sup>4</sup>

Although the American soldiers that liberated the slaves of Nordhausen were filmed with tears of outrage as they cared for survivors, little of this was of concern to the US Naval technical team which sat down to be briefed by von Braun in a small town of Kochel, Bavaria on 5th May 1945.<sup>5</sup>

Von Braun and Dornberger's strategy for these briefings was simple. They retained a military style control over the Peenemunde scientists, carefully coordinating the information they were willing to pass to the American intelligence officers, including the military potential of satellites.<sup>6</sup>

After briefing team members Clark Millikan and Hsue-shen Tsien, von Braun assisted

<sup>1</sup>.Hunt, Linda "US Coverup of Nazi Scientists", *Bulletin of Atomic Scientists*, April 1985. This criterion is similar to Australian cartoonist Patrick Cook's description of Kurt Waldheim as a "small 'n' Nazi".

<sup>2</sup>.*Ibid.*

<sup>3</sup>.Bowers, Tom. *The Paperclip Conspiracy*, Michael Joseph, London, 1987. pp 106-107 and Personal Correspondence with the Author 1987.

<sup>4</sup>.Hunt, *Op.Cit.* p 23

<sup>5</sup>.McDougall, *Op.Cit.* p 101

<sup>6</sup>.Bowers, *Op.Cit.* p 110

them to write a report entitled, *Survey of Development of Liquid Rockets in Germany and their Future Prospects*, in June 1945.<sup>1</sup> In this essay von Braun did his best to sell the military possibilities of his team's work to the Americans, including long range supersonic bombers and intercontinental missiles.<sup>2</sup> Von Braun also proposed,

Construction of multistage rockets, which would reach a maximum speed of over 7,500 metres per second outside the earth's atmosphere. At such speeds the rocket would not return to earth, as gravity and centrifugal force would balance each other out. In such a case the rocket would fly along a gravitational trajectory, without any power, around the earth in the same way as the moon.<sup>3</sup>

Von Braun added,

The whole of the Earth's surface would be continuously observed from such a rocket. The crew could be equipped with very powerful telescopes, and be able to observe even small objects, such as ships, icebergs, troop movements, constructional work, etc...The importance of such a platform in the scientific economic and military spheres is obvious.<sup>4</sup>

Von Braun did not only envisage placing rocket-like satellites in geosynchronous orbit, he also suggested placing what would now be termed space-stations in permanent orbits. Apart from acting as an 'observational platform', von Braun told his American captors of Oberth's idea that a space-station could also be used as an offensive weapon. Von Braun averred,

According to a proposal by the German scientist Prof. Oberth, an observation station of this type, could be equipped with an enormous mirror, consisting of a huge net of steel wire on to which thin metal foils could be suspended. A mirror of this nature would have a diameter of many kilometres, and its component facets could be controlled by the station which would enable the heat and light of the Sun to be concentrated on selected points of the Earth's surface...it would even appear possible to generate deadly degrees of heat at certain spots on the Earth's surface.<sup>5</sup>

As a result of von Braun's briefing a Committee for Evaluating the Feasibility of Space Rocketry (CEFSR), was established in the US Navy's Bureau of Aeronautics (BuAer) on 3rd October 1945.<sup>6</sup> One of the submissions received by the CEFSR was from the Space

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<sup>1</sup>.McDougall,Op.Cit. p 101

<sup>2</sup>.von Braun, Werhner. "Survey of Liquid Rockets in Germany and their Future Prospects", June 1945, reprinted in Spaceflight, Vol 14, November 1972. pp 409 - 412

<sup>3</sup>.Ibid.

<sup>4</sup>.Ibid.

<sup>5</sup>.Ibid.

<sup>6</sup>.BuAer Memo Aer-E-203-KWN, 3 October 1945. Refer also Dr. Harvey Hall "Committee for Evaluation of Space Rocketry (BuAer): Pre Rand Satellite Proposal October 3, 1945f." NASA Historical Archives,

Missile Committee on 22nd October 1945. This committee had carried out extensive theoretical calculations which led it to recommend the construction and launch of an experimental Earth Satellite Vehicle (ESV). By the end of that same month the Secretary of the CEFSR submitted recommendations to BuAer to the effect that the prospect for an ESV was sufficient to warrant a detailed study.<sup>1</sup> As a result of this BuAer placed research contracts worth approximately one million dollars over the next three years. Harvey Hall reports that the first of these was made to the "...Californian Institute of Technology to conduct a theoretical determination of the relationship between the orbit (altitude), rocket motor and fuel performance, structural characteristics (mass ratio), and payload."<sup>2</sup> Contracts were also placed with Aerojet, North American Aviation, Glen L. Martin and the Douglas Aircraft Company.<sup>3</sup> It was in this work in late 1945, that the idea first emerged of powering satellites by solar means. Hall states that work was conducted on the design of a solar engine,

...needed to recharge batteries supplying energy to the electronics equipment to be carried in the ESV. Work was also conducted on the electronics control problem of placing the ESV in a suitable orbit [BuAer Memo Aer-E-31T-HH, CX-281360 of 27 Nov 1945]. With respect to the first of these, it was felt that long life-time electronic components could be designed, but that, unless a light weight energy source could be supplied that would permit at least intermittent operation of equipment over a long period of time, the ESV would only be an interesting curiosity, and of little scientific or military value. The light weight solar engine, with a small but useful power output of about 30 watts, was considered preferable to a higher power but heavier nuclear energy power source.<sup>4</sup>

While BuAer was convinced of the technical feasibility of the ESV and regarded its development as a high priority, it became apparent that the Navy would not make the necessary financial commitment for a test vehicle. The cost of this phase was estimated to

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NASA B10, 29 November 1957. von Braun's report also prompted Lieutenant R.P. Havilland to study the technical feasibility of satellites and his work was submitted to Project Rex in August 1945. McDougall *Op.Cit.* p 101 Havilland was perhaps the only person working in the American military process who had read Clarke's letter to *Wireless World*. R.Cargill Hall, "Earth Satellites, A First Look by the United States Navy", in Fourth History Symposium of the International Academy of Astronautics, Proceedings Editor R. Cargill Hall, Constance, German Federal Republic, October 1970. p 268

<sup>1</sup>.BuAer Memo by Temporary Secretary of the Committee to Evaluate the Feasibility of Space Rocketry, 29 October 1945.

<sup>2</sup>.Hall, *Op.Cit.* p 2

<sup>3</sup>.BuAer discontinued its association with the Douglas Aircraft Co when the Airforce contracted RAND to work on the satellite proposal, because of the interservice rivalry between the Navy and Airforce. At that stage RAND was still under the control of Douglas.

<sup>4</sup>.Hall, *Op.Cit.* p 3

be between US\$5-\$8 million in November 1945.<sup>1</sup> This induced BuAer to make overtures to the Army Air Forces (AAF) to establish a joint project and the first meeting to discuss the proposal was held in the Pentagon on 7th March 1946.<sup>2</sup> At this meeting Hall proposed a joint AAF - Navy experimental programme and although he would later recall that the Air Force representatives were 'receptive', he found it difficult to convince them that the military applications warranted the projected expenditure. One justification proffered by Hall was the "...potential significance for applications to guided missiles."<sup>3</sup>

Due to interservice rivalry the proposal to create a joint programme foundered. When Hall's report of the meeting was reviewed by General Curtis LeMay of the Army Air Forces, he "...inquired bluntly what the Navy was doing in this field of investigation...which so obviously was the province of the AAF."<sup>4</sup> Recognizing that the Navy had a head start over the AAF, the latter hastily commissioned the fledgling RAND corporation to study the proposal and identify the military potential of satellites. Hall reports,

Attempts to arrange the subsequent joint conference between the Navy and AAF...met with repeated delays at the request of the AAF representatives, but the meeting was finally held after many weeks I believe in May or June 1946...At this meeting Major General Carneige, AAF, introduced a study report by project RAND, on which the ink was hardly dry, as the basis of a bargaining position that the AF was on an equal, or similar, developmental basis with the Navy. From this point no further progress was made toward a joint project.<sup>5</sup>

Thus, the first detailed technical look at the military potential of satellites was carried out by the RAND corporation in just three weeks. From the organization which later brought us a circular slide rule, - which when twirled to the correct setting for its three variables showed defence intellectuals the 'probability of kill' for various weapon systems,<sup>6</sup> - came in 1946, *Preliminary Design of an Experimental World Circling Spaceship*.<sup>7</sup>

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<sup>1</sup>.Ibid.

<sup>2</sup>.Ibid. Commander Hall attended this meeting in his capacity as a member of the CEFSR.

<sup>3</sup>.Ibid. p 4

<sup>4</sup>.Ibid.

<sup>5</sup>.Ibid.

<sup>6</sup>.Fallows, James. National Defense, Random House, New York, 1981. p 148

<sup>7</sup>.RAND Corporation (Douglas Aircraft Company, Inc.), Preliminary Design of an Experimental World-



### RAND Report to Sputnik (1946-57)

The authors of the RAND report were conscious of the fact that they needed to justify the development of satellites in military terms. In November 1945 the Commanding General of the Army Air Forces H.H. Arnold delivered his Third Report to the US Secretary Of War. In that report Arnold broached the the future use of German V-2s to deliver atomic strikes, primarily because he believed anti-aircraft technology would improve to the point of making strategic bombing difficult. Arnold stated,

When improved antiaircraft defenses make this impractical, we should be ready with a weapon of the general type of the German V-2 rocket, having greatly improved range and precision, and launched from great distances. V-2 is ideally suited to deliver atomic explosives, because effective defense against it would prove extremely difficult. If defenses which can cope with such a 3,000-mile-per-hour projectile are developed, we must be ready to launch such projectiles nearer the target, to give them a shorter time of flight and make them hard to destroy. We must be ready to launch them from unexpected directions. This can be done from true spaceships, capable of operating outside the earth's atmosphere. The design of such a ship is all but practicable today; research will unquestionably bring it into being within the foreseeable future.<sup>1</sup>

Not everyone was convinced that developing satellites was practical or even necessary.<sup>2</sup>

Arnold's recommendations were derided by Vannevar Bush the influential head of the Office for Scientific Research and Development (OSRD) and Chairman of the Joint Committee on New Weapons of the Joint Chiefs of Staff, who stated,

...some eminent military men, exhilarated perhaps by a short immersion in matters scientific,[who] have publicly asserted that we are [interested in high trajectory guided missiles spanning thousands of miles]. We have been regaled by scary articles,...we even have the exposition of missiles fired so fast that they leave the earth and proceed around it indefinitely as satellites, like the moon, for some vaguely specified military purposes.<sup>3</sup>

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Circling Spaceship, Report No. SM-11827, Santa Monica, 2 May 1946.

<sup>1</sup>.Arnold, General H.H. Third Report of the Commanding General of the Army Air Forces to the Secretary of War, 12 November 1945. p 68

<sup>2</sup>.Arthur C. Clarke was among supporters of Arnold's thesis. In a less well known article than his work on satellites Clarke proffered in support of Arnold in March 1946 "The least of the achievements we may expect to see is the establishment of stations in closed orbits at heights of a thousand miles or more, circling the world in periods of a few hours like artificial moons. The Germans were indeed planning such stations, and they present an attractive solution to the problem of world surveillance and control." Arthur C. Clarke. "The Rocket and the Future of Warfare", Royal Air Force Quarterly, March 1946, p 66 In this article Clarke presents perhaps the earliest thesis on deterrence in the nuclear age arguing, "A country's armed forces can no longer defend it; the most they can do is the destruction of the attacker." p 79

<sup>3</sup>.McDougall, Op.Cit. pp 101-102 In December 1945 Bush made the following comments to a Special Senate Committee on Atomic Energy, "Let me say this: There has been a great deal said about 3,000-mile high-angle rocket. In my opinion such a thing is impossible and will be impossible for many years. The

Against this background of skepticism the authors of the RAND report looked to von Braun's May 1945 briefing for a military justification. Compare for instance von Braun's statement,

A prophecy regarding the development of aviation made in 1895 and covering the next 50 years, and corresponding to the actual facts, would have appeared at least as fantastic then as does the present forecast of the possibilities of rocket development.<sup>1</sup>

with RAND's 1946 words,

In making a decision as to whether or not to undertake construction of such a craft now, it is not inappropriate to view our present situation as similar to that in airplanes prior to the flight of the Wright brothers. We can see no more clearly all the utility and implications of spaceships than the Wright brothers could see fleets of B-29's bombing Japan...<sup>2</sup>

Yet many officials remained to be convinced of the value of satellites, believing it still sounded like the stuff of comic book hero 'Buck Rogers'. Accordingly RAND would later hire a Hollywood script-writer to co-ordinate its research. Fred Kaplan reported in *The Wizard's of Armageddon*, that by day Leo Rosten "...was writing a murder mystery slated to star Rosalind Russell. When night fell, Rosten worked on the psychological and political uses of an earth-circling satellite for Project RAND".<sup>3</sup> However, in the late 1940's RAND was struggling to find a justification for the ESV programme. In 1947 James Lipp had written in a RAND report,

Before long, someone will start on the construction of a satellite vehicle, whether in the United States or elsewhere. History shows that the human race does not allow physical development to lag very far behind the mental realization that a step can be taken. This is particularly true of progress which has a direct bearing on man's conquest of his environment...Since the United States is far ahead of any other country in both airplanes and sea power, and since others are abreast of the United States in rocket applications, we can expect strong competition in the latter field as being the quickest shortcut for challenging this country's position. No promising avenues of progress in rockets can be neglected by the United States without great danger of falling behind the world race for armaments.<sup>4</sup>

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people who have been writing these things that annoy me have been talking about a 3,000-mile high-angle rocket shot from one continent to another carrying an atomic bomb, and so directed as to be a precise weapon which would land on a certain target such as this city. I say technically I don't think anybody in the world knows how to do such a thing and I feel confident it will not be done for a very long time to come. I think we can leave that out of our thinking. I wish the American public would leave it out of their thinking." R. Cargill Hall "Early U.S Satellite Proposals", in The History of Rocket Technology, Eugene M. Emme (Ed), Wayne State University Press, Detroit, 1964. p 68

<sup>1</sup>. von Braun, Op.Cit. p 412

<sup>2</sup>. RAND, Op.Cit. p 1

<sup>3</sup>. Kaplan, Fred. Wizard's of Armageddon, Touchstone, New York 1983. p 69

<sup>4</sup>. Lipp J.E. "Reference Papers Relating to a Satellite Study", RAND Report RA-15032, 1 February 1947, cited in Perry, Op.Cit. Lipp's later work for RAND included calculating the deaths that would result from a limited nuclear exchange in Europe. His conclusions used to bring on nausea. Kaplan, Op.Cit. p

RAND was not, however, able to convince the Truman Administration, which decided the project was not a priority and canceled funding on 22nd June 1948. This was done on the recommendation of the Technical Evaluation Group of the Committee on Guided Missiles which concluded,

In our opinion the feasibility of building an earth satellite vehicle is clearly established...[but]...neither the Navy nor the USAF has as yet established either a military or a scientific utility commensurate with the presently expected cost of a satellite vehicle. However, the question of utility deserves further study and examination. We believe that no satellite vehicle should be built until utility commensurate with cost is clearly established.<sup>1</sup>

RAND continued its attempt to find a justification for a satellite programme. In 1949 RAND convened a study conference specifically to deal with satellites as a political and psychological weapon. To follow this up RAND commissioned a still classified study, by Paul Kecskemeti in 1950, entitled "The Satellite Vehicle: Political and Psychological Problems", which, McDougall argues "...deserves to be considered the birth certificate of American space policy."<sup>2</sup> The report spelt out the strategic value satellites would have for gathering military data. In 1946 James Lipp had stated,

The psychological effect of a satellite will in less dramatic fashion parallel that of the atom bomb. It will make possible an unspoken threat to every other nation that we can send a guided missile to any spot on earth.<sup>3</sup>

Kecskemeti played on the psychological effect the satellite would have on the perceptions of the rest of the world toward the technological strength of the two major combatants in the 'Cold War'. RAND was aware that any launch of a satellite would not be able to be kept secret and that a major battle would have to be fought over the legitimacy of intelligence gathering from space.<sup>4</sup> Uppermost in these considerations was the reaction of the Soviet Union which had labeled the idea of reconnaissance satellites as 'Hitlerite'.<sup>5</sup>

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78 However Lipp's primary role, first in the Air Force Satellite programme and then for RAND, was his work on satellites. In 1946 Lipp wrote "The Time Factor in the Satellite Program" in which he argued that, "The possibility of constructing a satellite has been well publicized both here and in Germany and the data of the Germans are available to various possible enemies of the United States. Thus, from a competitive point of view, the decision to carry through a satellite development is a matter of timing, depending upon whether this country can afford to wait an appreciable length of time before launching definite activity..." R Cargill Hall, "Early US Satellite Proposals" Op.Cit. p 80

<sup>1</sup>.BuAer Memo, Op.Cit. pp 4-5

<sup>2</sup>.McDougall, Op.Cit. p 108

<sup>3</sup>.Lipp, James. "The Time Factor in the Satellite Program", Op.Cit.

<sup>4</sup>.McDougall, Op.Cit. p 109

<sup>5</sup>.Cargill Hall, "Early US Satellite Proposals", Op.Cit. p 86

As the Korean conflict and the development of nuclear weapons by the Soviet Union intensified the Cold War, RAND's ideas were reconsidered by the US Administration. At the request of President Truman, Aristid.V.Grosse carried out a study on satellites in 1952. Working closely with von Braun, Grosse argued that there were three primary reasons - scientific, military and psychological - for the United States to develop and launch an unmanned satellite. While noting the significance for the military, if a satellite could be equipped with television devices, as a valuable observation post, Grosse suggested,

In the opinion of this writer the last item, i.e., the psychological effect, would be considered of utmost value by the members of the Soviet Politbureau. They would recognize that in the case of the atomic and hydrogen bombs the people of the belligerent countries would be subjected to their effects only after the die of World War III is already cast. On the other hand, the satellite would have the enormous advantage of influencing the minds of millions of people the world over during the so called period of "Cold War" or during the peace years preceding a possible World War III. In the countries of Asia, where the star gazer since time immemorial has been influencing his countrymen, the spectacle of a man made satellite would make a profound impression on the minds of the people. The Soviet Union has demonstrated that it has been able to develop the atomic bomb and recently to follow that up with the accomplishment of a thermonuclear reaction on August 12, 1953, as confirmed by the Chairman of the U.S. Atomic Energy Commission, Admiral L. Strauss, much faster than had been generally expected by our scientists and engineers. The building of an unmanned satellite would be a feat of much smaller magnitude than the construction of an atomic bomb since all the basic information was available to the Germans at the end of World War II and is since known both to this country and the Soviet Union...Since the Soviet Union has been following us in the atomic and hydrogen bomb developments, it should not be excluded that the Politbureau might like to take the lead in the development of a satellite...If the Soviet Union should accomplish this ahead of us it would be a serious blow to the technical and engineering prestige of America the world over. It would be used by Soviet propaganda for all it is worth. Of course, the probable reaction of the American people to a Soviet satellite circling about 300 miles above Washington, New York, Chicago and Los Angeles, would have to be considered.<sup>1</sup>

During this time RAND and the USAF continued studies on reconnaissance satellites under the title 'Project Feedback', under which the Air Force secured the cooperation of the Atomic Energy Commission (AEC) to study atomic powered satellites.<sup>2</sup> Von Braun

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<sup>1</sup>.Grosse, A.V. Report on the Present Status of the Satellite Problem, The Research Institute of Temple University, Philadelphia, 25 August 1953.

<sup>2</sup>.Augenstein, Op.Cit. p 6 and Herbert F. York & G. Allen Greb, "Strategic Reconnaissance", Bulletin of Atomic Scientists, April 1977. pp 33-42 Refer also Paul B. Stares, Space Weapons and US Strategy: Origins and Development, Croom Helm, London, 1985. Stares documents the important role the CIA played during the mid 1950's.

was also conducting a campaign to be allowed to develop and launch a satellite on his Redstone rocket.<sup>1</sup> In 1954 he wrote,

The establishment of a man made satellite, no matter how humble would be a scientific achievement of tremendous impact. Since it is a project that could be realized within a few years with rocket and guided missile experience available now, it is only logical to assume that other countries could do the same. It would be a blow to U.S. prestige if we did not do it first.<sup>2</sup>

In non military circles a proposal to launch a satellite had again been forwarded by von Braun's friend Arthur C. Clarke and Dr Fred Singer. With the support of the British Interplanetary Society, Singer, Clarke and A.V. Cleaver proposed the development of a Minimum Orbital Unmanned Satellite, Earth (MOUSE).<sup>3</sup> This was also the year the first civilian paper on satellite communications was produced (Clarke was in the Royal Air Force in 1945) by John Pierce of Bell Telephone Laboratories.<sup>4</sup>

In addition 1954 was the time when a committee associated with International Geophysical Year (IGY) recommended launching an artificial satellite.<sup>5</sup> This was attractive to the Eisenhower Administration because if it was carried out without challenge from the USSR, it would set a precedent for the flight of satellites over the territory of other states.<sup>6</sup> By the mid-Fifties the United States' primary aim was to develop a technology capable of providing reconnaissance over the Soviet Union.<sup>7</sup> One avenue was the U2 programme, but it was always envisaged that this would be a short term measure.<sup>8</sup> For America's military strategists the long term solution was the development of spy

<sup>1</sup>.Perry, Op.Cit. p 46

<sup>2</sup>.Von Braun, Wernher. "A Minimum Satellite Vehicle", Guidance Missile Development Division, Ordnance Missile Laboratories, Redstone Arsenal, Huntsville, Alabama, 15 September 1954.p 2 I am grateful to Mitchell R. Sharpe for making this available from his personal archives.

<sup>3</sup>.Perry, Op.Cit. p 46

<sup>4</sup>.Pierce, J.R. The Beginnings of Satellite Communications, San Francisco Press, San Francisco, 1968. p 4 Pierce was also unaware of Clarke's 1945 article. Refer also Clarke "Ascent into Orbit", Op.Cit. p 11.

<sup>5</sup>.Wilson, J.Tuzo. I.G.Y., the year of the new moons, Alfred A. Knopf, New York, 1961.

<sup>6</sup>.McDougall, Op.Cit. p 187

<sup>7</sup>.Burrows, William. Deep Black: Space Espionage and National Security, Random House, New York, 1986. Refer also Phillip J. Klass, Secret Sentries in Space, Random House, New York, 1971.

<sup>8</sup>.Military strategists were surprised that it took so long for the Soviets to shoot down a U2. The programme commenced in 1956 and Gary powers was shot down in 1960. Burrows, Ibid. p 103 Refer also Michael R. Beschloss, Mayday: Eisenhower, Khrushchev and the U-2 Affair, Faber and Faber, London, 1986.

satellites. However, the perennial problem remained which for the military was convincing the skeptics, who asked "What can a satellite do that an airplane can not do?"<sup>1</sup> While the development of spy satellites and a scientific satellite for the IGY were on the agenda, the United States Government finally came to understand RAND's theme of the psychological impact of being beaten to launch a satellite by the Russians. *Sputnik* and the near hysteria which followed its launch in 1957 initiated a space race in which economics would no longer be an inhibiting factor.<sup>2</sup> While the reconnaissance objective was the driving force behind early US Satellite programmes, their potential for global communications was always recognized.<sup>3</sup> It is to this subject that we now turn our attention.

#### 1960's and Civilian Use: Intelsat & Comsat

By 1963 half a billion dollars had been spent on the research and development of communications satellites.<sup>4</sup> In September of that year a RAND report showed that a world-wide microwave communication system of video capacity could have been built for a comparable sum. The report's author suggested that in the pre-*Sputnik* era, a proposal to spend half a billion dollars to connect the major cities of the world with a broadband (video) communication system, would have been dismissed on economic grounds alone. Yet, in mid 1963, the US was proposing to spend twice that to capitalize the new Communications Satellite Corporation (Comsat), established in the previous year. While the report noted that sufficient expenditure would eventually lead to an operational system, it asked what might have been achieved for the same money with terrestrial alternatives. The terrestrial path, although making economic sense, was by-passed by

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<sup>1</sup>.Perry, Op.Cit. p 29

<sup>2</sup>.Stares, Op.Cit. p 39

<sup>3</sup>."The Case against Satellites", The Network Project, Notebook Number Seven, Columbia University, New York, Spring 1974. Refer to Herbert Schiller's comments p 7

<sup>4</sup>.Martin, L.G. "Around the World By Microwave for Half a Billion Dollars", RAND, P-2790, September 1963.

technocrats caught up in the process of trying to find civilian uses for an essentially military technology. It was an effort to justify the space programme which would cost the American tax-payer US\$150 billion between 1958 to 1985.<sup>1</sup> Albert Wheelon, the former Chairman of the Hughes Aircraft, freely admits there is no other commercial application of space technology.<sup>2</sup>

That communication satellites were primarily developed and used as military technology is clearly evident from an investigation of the purpose of objects launched into space since *Sputnik*. Of those artifacts ninety percent have had a military function.<sup>3</sup> Only five percent were launched for meteorological, maritime, and earth sensing purposes. The remaining five percent are telecommunications satellites of which the US Department of Defense is by far the largest individual user.<sup>4</sup> General James V. Hartinger, Commander of the US Air Force Space Command in Colorado Springs has stated, "Over 70 percent of our long haul communications are handled by satellites."<sup>5</sup> The RAND Corporation estimates that between 1985-1995 new military satellite communication (MILSATCOM) systems and upgrades will cost more than US\$10 billion.<sup>6</sup> Given these figures it is not difficult to see why General Bernard Schriever, a 'Star Wars' advocate in the Reagan era, commented in 1983, "Space for peaceful purposes - what a bunch of goddamned bullshit that was!"<sup>7</sup>

The dependency of the civilian satellite communications industry on the military is clearly evident in the role the latter plays in sustaining the launch industry. Civilian communications companies have simply never paid the actual cost of a launch. It is easier

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<sup>1</sup>.Mosco, Vincent. "Star Wars/Earth Wars", Radical Science 17, Free Association Books, London 1985. Refer also Lewis Mumford, The Pentagon of Power, Secker and Warburg, London, 1971. pp 304-305

<sup>2</sup>.Wheelon, Albert D. "The rocky road to communications satellites", Space Communication and Broadcasting, Vol 5 No 3, 1987.

<sup>3</sup>.Carne, E.B. Modern Telecommunications, Plenum Press, New York, 1984. p 155 On the military relationship to space refer Robert T. Herres, "The military in space: A historical relationship", Space Policy, May 1987 pp 92-95

<sup>4</sup>.Wicklein, Op.Cit. p 161

<sup>5</sup>.Martinez, Larry. Communications Satellites: Power Politics in Space, Artech House, Dedham 1985. p 15

<sup>6</sup>.Dinnen, P.M. and T.H.Quinn, Improving MILSATCOM Acquisition Outcomes: Lease Versus Buy, RAND Corporation, N-2209-AF, Santa Monica, 1985.

<sup>7</sup>.Mosco, Op.Cit. p 37

to see the actual costs of military rather than civilian launches because the costs are kept 'in-house'. For instance in 1981 it cost the US military US\$25 million to place a 5,500 pound payload into a 100-nautical mile polar orbit using a Delta 3920 rocket, and about US\$60 million to place 27,600 pounds in the same orbit with a Titan 34D/IUS.<sup>1</sup> These low earth orbits are far less expensive than placing satellites in geosynchronous orbit. In 1981 it cost US\$125 million to place a 4,000 pound payload into geosynchronous orbit using a Titan 34D/IUS.<sup>2</sup> While civilian satellites are much lighter than those of the military, satellite authorities have never paid sums such as this to have their technology launched into geosynchronous orbit.<sup>3</sup> The impact the military has is in giving the launch industry economies of scale. The above figures for Titan launches are based on a procurement of six vehicles per year. Procurement of only one launch vehicle raises the respective costs to US\$181 million and US\$251 million.<sup>4</sup> Without the military's sustaining role the launch of civilian communications satellites would be prohibitively expensive.

In the late 1950s and early 1960's the development of satellites was favoured by the US Department of Defense for international communications with its forces. However, the Defense Department's first foray into the development of communications satellites in synchronous orbit was a patent failure. In 1960 the military initiated the ADVENT program.<sup>5</sup> After two years of technical problems and the expenditure of US\$170 million the project was canceled.<sup>6</sup> In 1961 the Military turned to the Hughes Aircraft Company, who had developed a spinning satellite employing traveling wave tubes rather than the

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<sup>1</sup>.Giffen, Robert B. US Space System Survivability: Strategic Alternatives for the 1990's, National Security Affairs Monograph Series 82-3, National Defense University Press, Washington, 1982. p 61

<sup>2</sup>.Ibid.

<sup>3</sup>.Aussat's first two satellites launched on the shuttle had an initial on station weight of 1442 pounds while the third satellite launched on Ariane, weighed 1534 pounds. Refer Aussat "General Information", Sydney, Undated. A sophisticated communications satellite in 1981 cost up to US\$500 million to procure and launch into orbit. Giffen, Op.Cit.

<sup>4</sup>.Giffen, Op.Cit. p 61

<sup>5</sup>.Wheelon, Op.Cit. p 126

<sup>6</sup>.Ibid.



triodes used on ADVENT.<sup>1</sup> In late 1961 the military and NASA sponsored a test flight of the Hughes' satellite. The formation of Comsat in 1962 hastened the development of synchronous communications satellites. Now there was an additional source of funding for satellite R&D, as Comsat was authorized to sell US\$200 million in shares.<sup>2</sup>

Mosco has argued that the US established Comsat to advance the military and industrial applications of satellites and to foster the development of this technology, through the creation of an international organization.<sup>3</sup> Mosco points out that in the 1950's,

The growth of US military forces worldwide created enormous problems of co-ordination and integration that only a very sophisticated communications system would be able to manage. Established systems for military command, control, communications and intelligence (C<sup>3</sup>I) were not sufficient, particularly in the event of nuclear war. Space communications systems anchored in satellites would meet this pressing need. Consequently the Pentagon began a major program to promote the development of communication satellites.<sup>4</sup>

The creation of Comsat was one of the fiercest battles ever fought out in United States politics.<sup>5</sup> The main focus of debate was the contentious question of ownership. In 1961 no less than twelve Congressional committees studied this question.<sup>6</sup> Argument revolved around whether an international satellite system should be handed over to private enterprise when its development had clearly been funded by the American tax-payer. Former President Truman was critical of this approach, arguing,

The damned Republicans and some Democrats try to give away public property...there can be no justification for giving this vast resource that has been financed by the tax payers away to a small group of stockholders for their private gain. The taxpayers have already paid for their right to share in the returns.<sup>7</sup>

Against this, America's largest corporation wanted control.<sup>8</sup> American Telephone and Telegraph (AT&T), which had paid for the launch of *Telstar*, the first satellite that could

<sup>1</sup> Ibid. p 127

<sup>2</sup> Ibid. p 128

<sup>3</sup> Mosco, Op.Cit. p 31

<sup>4</sup> Ibid. p 35 C3 is shorthand for Communications, Command and Control.

<sup>5</sup> Musolf, Lloyd D. Communications Satellites in Political Orbit, Chandler Publishing Company: San Francisco, 1968; Delbert Smith, Op.Cit.; Galloway, Op.Cit.; Ploman, Op.Cit. Telstar 1 was launched on 10 July 1962.

<sup>6</sup> Ploman, Op.Cit. p 72

<sup>7</sup> Ibid. p 74

<sup>8</sup> Smith, Delbert. Op.Cit. p 94

receive, amplify and retransmit signals back to earth, did not want an alternative technology opened to competitors.<sup>1</sup> AT&T's early investment in satellite development from Project Echo onwards was a defensive manoeuvre designed to protect its cable interests.<sup>2</sup> AT&T control was strongly opposed by certain large aerospace manufacturers arguing that it would retard the industry's development.<sup>3</sup>

In a political compromise, the passing of the Communications Satellite Act in 1962, allowed AT&T to become Comsat's largest shareholder.<sup>4</sup> This was at a time when, through its ownership of transatlantic cables, AT&T was also a competitor.<sup>5</sup> Later when AT&T requested to build a new transoceanic cable from the United States to Spain the Federal Communications Commission (FCC) instituted a 'proportionate fill' policy to protect the infant satellite system.<sup>6</sup> This effectively meant traffic had to be divided between cables and satellites irrespective of economic considerations.

Although proportional fill was designed to protect Comsat, in effect, it encouraged both US International Service Carriers (USISCs) who were restricted to transoceanic cables, and satellite carriers to increase capacity and therefore the base rate on which their returns were calculated. Patricia Dineen explained,

Because of these regulatory-induced incentives for excess capacity, prices become inflated above their efficient levels. In particular, satellite prices become especially inflated relative to cable prices, for the following reasons. Under regulatory pricing policy, Comsat is allowed to set prices to recover costs - averaged over all routes and services, including spare capacity - which is provided for under the policy or redundancy. Since prices are based on costs-per-circuit-in-use, therefore, the greater the excess capacity, the fewer the units over which to spread costs, and thus, the higher the regulated prices.<sup>7</sup>

Satellites exist on international routes, such as between the US and Europe, because of

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<sup>1</sup>.Wicklein, *Op.Cit.* p 158-159

<sup>2</sup>.Smith, Delbert. *Op.Cit.* pp 70-71

<sup>3</sup>.*Ibid.* p 95

<sup>4</sup>.Comsat became a public corporation half owned by major communications companies and the rest by individual investors.

<sup>5</sup>.Ploman, *Op.Cit.* p 75; Refer also Judith Tegger Kildow, *Intelsat:Policy Makers Dilemma*, Lexington Books, Lexington MA, 1973.

<sup>6</sup>.Magnant, *Op.Cit.* p 90 This would be developed as the balanced loading policy.

<sup>7</sup>.Dineen, Patricia M. *Choosing New Telecommunications Technologies: Tradeoffs Between Conflicting Goals*, Rand Corporation, P-6612 May 1981.

FCC regulation.<sup>1</sup> A study by the RAND Corporation concluded that Comsat prices between 1970-1985 were on average 22 times greater than efficient cable prices and 28 times greater than efficient satellite prices.<sup>2</sup>

Despite relative economic inefficiencies, Comsat was able to create the International Telecommunications Satellite Consortium (Intelsat), which would eventually be made up of over 110 nations, utilizing satellites for global communications.<sup>3</sup> Intelsat's organizational structure was adopted in 1964 with initial capital investment of US\$200 million being divided among participating countries.<sup>4</sup> The next year Intelsat launched the world's first 'commercial' communications satellite 'Early Bird' (Intelsat I).

### 'Open Skies' to SBS

While AT&T's concerns about a competing technology played a part in the shaping of Comsat, it was mainly the potential threat to international cables which concerned the company. At this stage the idea of operating a domestic satellite in competition to AT&T's lucrative long lines seemed at least a decade away. The advent of 'Syncom 2', launched on 26th July 1963, provided the first relay of communications via a satellite in geosynchronous orbit and created the possibility of domestic satellites.<sup>5</sup> Looking to stimulate a civilian market for satellites the Hughes Aircraft Corporation convinced the American Broadcasting Company, that with a satellite, it could by-pass both AT&T and Comsat.<sup>6</sup> One commentator interpreted the American broadcaster's filing of a request to the FCC on 21st September 1965, to use a satellite for television distribution, as a

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<sup>1</sup>.Winston, Op.Cit. p 283 Shows how pressure is applied to carriers to use satellites.

<sup>2</sup>.Dineen, Op.Cit p 27

<sup>3</sup>.Intelsat, Annual Report 1985-1986, Washington 1986.

<sup>4</sup>.Ploman, Op.Cit. pp 77-78

<sup>5</sup>.Ibid. p 52 Thomas Karas states that the first successful deployment was SYNCOM 3, in August 1964, and that the two earlier attempts had failed. Thomas Karas, The New High Ground: Strategies and Weapons of Space Age War, New English Library, Dutton Green, 1984. p 68

<sup>6</sup>.Magnant, Op.Cit. p 91

strategy to prevent rate increases from AT&T.<sup>1</sup> However the fact that other large corporations had ambitions in this area meant that it would be a contentious issue and evolve into a test case. Comsat opposed the application and commenced a process of seven years of wrangling with the FCC. Eventually AT&T and Comsat would file their own proposals for domestic satellites aimed at protecting their market share.<sup>2</sup>

Robert Magnant has argued that the convergence of the computing and communications industry was a major factor in the FCC-Domsat policy process.<sup>3</sup> While the argument leans towards technological determinism it highlights the importance the issue assumed for the FCC. The Commission initiated a 'Computer Inquiry' in 1965, which ran for the next six years and received submissions from computer companies, like IBM, and aerospace manufacturers such as Martin Marietta, urging the creation of alternative networks.<sup>4</sup> The justification forwarded by IBM and Martin Marietta was that satellites were admirably suited for large amounts of data transmission. For the computer giant, a satellite represented a potential vehicle to compete with AT&T, while for the aerospace manufacturer, a new market to sell hardware.

In 1970 the FCC, on the prompting of the Nixon Administration, invited applications under the 'Open Skies' policy for proposals to launch domestic satellite systems. 'Open Skies' had been announced in late 1969 and in effect allowed anyone with sufficient capital to own and operate a domestic satellite. It has been suggested that this was the first step in the recent wave of telecommunications deregulation. Wheelon avers,

...under the Open Skies Policy...eight concerns promptly requested permission to establish systems...What was not recognized was that those applicants were being given the opportunity to fail as well as to succeed. Open Skies meant an end of regulated monopolies in which earnings were assured as a fixed percentage of the investment base by periodic adjustments of tariffs. In the Open Skies environment, the rates would be set by competition. In a fundamental way, this was the beginning of the deregulation trend

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<sup>1</sup>.Kinsley, Michael. Outer Space and Inner Sanctums: Business Satellites and Communications , John Wiley and Sons, New York, 1976. p 138. and Magnant Op.Cit. p 91

<sup>2</sup>.Magnant, Op.Cit. p 106 The Ford Foundation also submitted a proposal.

<sup>3</sup>.Ibid. pp 113-115

<sup>4</sup>.Ibid. pp 127-128

that is now sweeping our telecommunications industry - and the world.<sup>1</sup>

The first to take up the opportunity was the Western Union Corporation which launched WESTAR 1 in 1974. This was followed by RCA's launch of a satellite to interconnect cable television systems.<sup>2</sup>

Competition with AT&T was tempting for their largest private user IBM. AT&T divested itself of Comsat stock in 1972, paving the way for IBM to team up with the satellite company and Aetna Life Insurance to form Satellite Business Systems(SBS). FCC approval was obtained in 1975 and industry observers were predicting revenues would reach a billion dollars in the eighties.<sup>3</sup> IBM's position seemed ideal.<sup>4</sup> It would have an alternative network to challenge AT&T, yet the communications giant was still prohibited from manufacturing computers. To the US Computer Industry Association, familiar with IBM's business practices, this was a threatening development. They feared IBM would be able to 'lock in' users to their equipment, if they wanted access to the most comprehensive satellite network.<sup>5</sup> AT&T's major concern was that SBS would enable large corporations to by-pass its long distance services. To entice large business customers, SBS offered prices below AT&T's long distance rates. The sales gimmick IBM used to promote the service was video conferencing.<sup>6</sup>

During the 1970's AT&T was also interested in the potential of satellites. Apart from being a defensive strategy,('We will provide anything that anyone else does'<sup>7</sup>) the giant communications company's rate structure had always encouraged it to install expensive equipment, for which it could claim a greater return.<sup>8</sup> Together with GTE and Comsat, it

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<sup>1</sup>.Wheelon, Op.Cit. p 131

<sup>2</sup>.Wicklein, Op.Cit. p 162

<sup>3</sup>.Magnant, Op.Cit. p 195

<sup>4</sup>.For misplaced optimism refer Bro Uttal, "IBM Reaches For A Gold Future In The Heavens", Fortune, June 1977.

<sup>5</sup>.Magnant, Op.Cit. p 234 and Uttal Op.Cit. p 180 On IBM's business strategies refer Richard Thomas Delmater, Big Blue: IBM's Use and Abuse of Power, Dodd Mead and Company, New York 1986.

<sup>6</sup>.Wicklein, Op.Cit. p 175

<sup>7</sup>.An AT&T executive commented in response to satellite services. Ibid. p 177

<sup>8</sup>.Borras, Michael *et al*, The Impacts of Divestiture and Deregulation: Infrastructural Changes, Manufacturing Transition, and Competition in the U.S. Telecommunication Industries, BRIE Working Papers, University of California, Berkley, 1984. p 46 Refer also Winston Op.Cit. p 253 who documents

launched the Comstar series of communications satellites.<sup>1</sup>

AT&T recognized that demand for communications was highly concentrated, with 4% of users accounting for approximately half to total market for communications services.<sup>2</sup> Its own satellites were an attempt to protect this market. When it was forced to divest local Bell operating companies in a trade off that allowed it to manufacture computers, AT&T kept the most profitable services in long distance communications and the ability to service its lucrative corporate market.

As it eventuated, the initial optimism for domestic satellites in the 1970's turned sour with the new decade. By the early 1980's it was clear that SBS was a financial disaster. IBM, Aetna Life and Comsat spent US\$1.2 billion on the system and were rewarded with eleven years of losses.<sup>3</sup> It is the reasons for the non realization of the enthusiastic expectations for systems such as SBS to which we now turn our attention.<sup>4</sup>

### The State of the US and World Satellite Industry

The problems that face the satellite industry are most acute in the United States, the world's largest and most technologically sophisticated communications market. Despite the fact that it is housed in a nation which annually spends US\$30 billion on electronic communications,<sup>5</sup> the industry finds itself in dire financial straits. The poor performance of satellite communications stock is an obvious reflection on the present state of the industry. In the three years prior to January 1986 the Dow-Jones average gained 30% while the National Telecommunications and Technology Fund, which invests in satellite companies, slipped 20%.<sup>6</sup> Individual satellite stocks fell on average 8.4% between July

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the fact that the more expensive the Telstar system was the better for carriers.

<sup>1</sup>.Wicklein, Op.Cit. p 162

<sup>2</sup>.Borrus, Op.Cit. p 9

<sup>3</sup>.Hills, Op.Cit. pp 48-49

<sup>4</sup>.For unbridled enthusiasm for the FCC's 'Open Skies' policy and the potential of SBS Robert Magnant is hard to surpass. Magnant Op.Cit.

<sup>5</sup>.Locksley, Gareth. "The Political Economy of Satellite Business", Telecommunications Policy, Vol 7 No 3, September 1983. p 198

<sup>6</sup>.Kerver, Tom. "Where's the Bull", Satellite Communications, January 1986. p 35

15th 1985 and November 15th 1985, while the Dow-Jones rose 7.5%.<sup>1</sup> In the period mid-February to mid-March of 1986 the index of telecommunications speciality companies declined six points, at a time when the overall market continued its forward surge.

There are several reasons why investors were shying away from satellite stock at a time when the overall US communications market, predicted to be in the order of US\$190 billion by 1990<sup>2</sup>, is burgeoning. The main industry problems are: a 'transponder glut' in the domestic market; the despondency that is hanging over the two major western space programmes; soaring insurance premiums; the rapid development of competing fibre optic technology; and the possible disintegration of Intelsat. Two longer term problems are the growing amount of 'space junk' and the directions the military are taking in space.

### The Transponder Glut

The United States' satellite industry is currently facing up to the fact that their carrying capacity is far greater than domestic demand. Some systems are running at half the communications traffic they need to be profitable.<sup>3</sup> A 1984 study by the US Federal Communications Commission found that of fourteen satellite systems they examined only 54% of the potential capacity was being used.<sup>4</sup> A study by the NTIA released in November 1985, stated that only 53% of US domestic satellite capacity is presently being used and that projected fibre optic systems would increase long distance transmission to six times its present capacity.<sup>5</sup> The so called 'transponder glut' has been reflected in plummeting leasing prices, which were down in 1986 by as much as 30%.<sup>6</sup> In that year a

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<sup>1</sup>. Ibid.

<sup>2</sup>. Locksley, Op.Cit. p 198

<sup>3</sup>. Reinecke, Ian. "Aussat: Will it become more Space Junk", The Age, 6 August 1984. p 36

<sup>4</sup>. Ibid.

<sup>5</sup>. Satellite News, Vol 8, No 44, 11 November 1985. p 1

<sup>6</sup>. Smith, Ilene. "Too Much Too Soon", Satellite Communications, November 1984. p 36

user could get a month's transponder time for around US\$105,000 as compared to US\$150,000 in 1984.<sup>1</sup> In 1984 the Communications Center of Clarksburg expected this glut to increase given projections of four times as many transponders being available in 1987 as in 1981.<sup>2</sup> This did not eventuate because of the launch hiatus in the mid eighties. Yet by 1988 over-capacity was still very much in evidence. An FCC Transponder Occupancy Data Report indicated that, at the end of 1987, 32.3% of all C-band transponders were largely unused and that active C-band transponders only had a fill factor of 54.7%.<sup>3</sup> There was also large satellite over-capacity in the Canadian communications system. In the mid 1980's Telesat, the Canadian satellite company, had to place two satellites in storage orbit. As of 1987 Telesat had four in service satellites operating at approximately two-thirds utilization and a fifth in storage orbit.<sup>4</sup> Due to this lack of demand Telesat's 1985 *Annual Report*, indicated that they were scaling down the capacity of the next generation of Anik satellites, in line with expected demand. Other satellite services which suffer chronic surplus capacity include ARABSAT, in the Middle East, and Mexico's 'Morelos' system.<sup>5</sup>

Although the grounding of the US shuttle for nearly two years and Ariane programme during 1986 operated against the current 'transponder glut' it brought little comfort to the industry.

### Launch Failures

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<sup>1</sup> Ibid.

<sup>2</sup> Ibid. p 32

<sup>3</sup> Satellite News, 1 February 1988. p 3 For an additional survey refer also to E. Sion "U.S. Domestic Satellite Transponder Activity Survey", Space Communication and Broadcasting, Vol 5 1987. pp 139-146

<sup>4</sup> Bureau, Andre. "Satellite Communications: Bringing People and Business Together", Address to the Canadian Satellite Users Conference by the Chairman, Canadian Radio-Television and Telecommunications Commission, Ottawa, 27 May 1987. p 3

<sup>5</sup> Huesch, Luis. "Intelsat hits back at optics threat", Communications World, September 1986. p 4 and (unattributed) "Arabsat: Elusive Unity", Intermedia, Vol 14, No 2, March 1986. Refer also Javier Estinou Madrid, "The Morelos Satellite System and its impact on Mexican society", Media Culture and Society, Vol 10, 1988. p 433



The present state of America's space programme is typified by the fact that the nation which first put a man on the moon, now has corporations turning to China to launch satellites.<sup>1</sup> The USSR has also offered to launch commercial satellites for US corporations, although this was discouraged by the Reagan Administration because of concerns about technology transfer. CoCom, the agency set up to prevent export of advanced Western technology, is likely to veto any proposal to allow the USSR to launch satellites.<sup>2</sup> Both the US and West European space programmes, were for commercial, purposes grounded in 1986 following a series of launch failures. Early in 1986 the US shuttle Challenger disintegrated into a fireball, in April a US Titan rocket exploded and in May a Delta rocket failed. The West European programme was grounded after an Ariane rocket blew up in May of that year. While the Ariane programme was operational again by 1987 and the US shuttle flew again by 1988, the series of launch failures has underlined the high risk nature of the satellite industry. The Shuttle was carrying a NASA Tracking Data and Relay Satellite (TDRS) and a spacecraft that was designed to study Halley's comet.<sup>3</sup> The Titan rocket was reportedly carrying a US\$500 million spy satellite, and the Delta rocket a GOES weather satellite.<sup>4</sup> The latter's loss placed a tremendous strain on the US weather service which had to rely on one geostationary satellite for two years, a reconnaissance plane which continually circled the globe and foreign meteorological satellites.<sup>5</sup> The Ariane rocket was carrying an Intelsat 5 satellite worth US\$90 million.<sup>6</sup> This loss came eight months after a previous Ariane rocket failure in which two satellites,

<sup>1</sup> "Getting Up There Again", The Economist, Vol 299, No 7449, 7 June, 1986. p 79; "Reagan Approves Use of Chinese Boosters to Launch U.S. Satellites", Aviation Week & Space Technology, 19 September 1988. p 22 and "U.S. Approval of Chinese Launches Determined by Value of Satellites", Aviation Week & Space Technology, 3 October 1988. p 25

<sup>2</sup> "Soviets move to fill gap left in launch market", The Australian, 1 September 1986. p 19 and "West Faces Launch Crisis", Communications Systems Worldwide, July/August 1986.

<sup>3</sup> Satellite News, Vol 9 No 5, 3 February, 1986. p 3 The TDRS has been a project plagued with problems for NASA. TDRS-A initially failed to reach its correct orbit due to a malfunction in its booster. After lengthy fuel consuming manoeuvres to get into the correct orbit it experienced an electronics malfunction that resulted in the loss of a high speed data rate communications link. Dineen, Op.Cit. p 15 The project's multiple failures caused Western Union to bail out in 1983.

<sup>4</sup> "Getting Up there Again", Op.Cit. p 79 and (b) Satellite Communications, 12 May 1986. p 3

<sup>5</sup> Ibid. (b)

<sup>6</sup> Satellite News, Vol 9, No 23, 9 June 1986. p 1

GTE's Spacenet 3 and Eutelsat's ECS-3 collectively insured for US\$150 million, had been exploded.<sup>1</sup>

India and the USSR also reported launch failures in 1988. The Soviet's Proton rocket has failed on a number of occasions. Following failures in January and April of 1987, the Proton failed again in February 1988 resulting in the loss of three navigation satellites.<sup>2</sup> In March 1987 the Indian Augmented Space Satellite Vehicle(ASLV) failed, and in July 1988 after another Indian rocket ditched into the Bay of Bengal, with the Insat 1-C satellite insured for US\$72 million, their agency reported a launch failure rate of sixty six per cent.<sup>3</sup> As of April 1988 China had launched 21 satellites on 19 rockets with four, possibly five, failures.<sup>4</sup>

In regard to the Chinese launches very few of these satellites have been placed in geostationary orbit. Mostly they have been experimental or observational satellites in low earth orbit. Placement in geostationary orbit is a far more difficult process which is far from trouble free in the West. In September 1988 the GTE Spacenet Gstar-3 satellite drifted into a useless orbit following a malfunction and was declared a US\$77 million loss.<sup>5</sup> In the same month a US defence intelligence satellite was placed in the wrong orbit.<sup>6</sup> Even if they are placed in the correct orbit satellites may fail. The German Bundespost wrote off US\$150 million when a solar panel jammed on its TV-SAT 1 after its November 1987 launch and France's Telecom 1B failed after losing altitude control in February of 1988.<sup>7</sup>

Although the failures of the 1980's were often portrayed as being a new development, the

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<sup>1</sup>.Satellite News, Vol 8, No 37, 16 September, 1985. pp 1-2

<sup>2</sup>."Recent Proton Failure", Satellite News, 7 March 1988. p 3

<sup>3</sup>."Second Crash setback for Indian Satellites", The Australian, 18 July 1988. p 18 In 1982 Insat-A built by Ford Aerospace and launched by the US never became operational because of a fault in its altitude control propulsion system. Refer COSSA, Space Industry News, CSIRO, October 1988. p 5

<sup>4</sup>.Whitehouse, David. "China: What Commercial Future", Space, Vol 4, No 2, March/April 1988. p 24

<sup>5</sup>.Covault, Craig. "US Satellite Mission Fails After Ariane Launch Success", Aviation Week and Space Technology, 19 September 1988. p 18

<sup>6</sup>.Ibid.

<sup>7</sup>."TV-SAT dead in orbit", Space Markets, Spring 1988. p 47 and "\$150 Million TV-Sat Declared a Total Loss", Satellite Communications, April 1988. p 12

most cursory overview of the history of satellite technology shows there has always been a high failure rate. For instance in 1971 the US Air Force launched two communication satellites into 23,000 mile orbits. Initially one refused to accept radio commands and the Air Force couldn't locate the second. When both were eventually brought under command they worked for a month before starting to rotate uncontrollably.<sup>1</sup> RCA also had problems with its military weather satellites from the mid 1970's through to the early 1980's. In 1976 these military weather observation satellites started 'tumbling in space'.<sup>2</sup> This meant that the solar powered satellites could not aim their collector towards the sun and hence lost power. Even when RCA managed to restore power the satellite would not take weather pictures. Thomas Karas reports,

Commands to the satellite were tried out on computer, then on the satellite, then on the computer - back and forth until the satellite was brought under control. The Air Force, Aerospace, RCA and other labs brought in on the job took six months to get the weather satellite delivering the goods. And then it really only worked properly for another month. The second weather satellite in that series came up with similar problems. The third and fourth had other difficulties. The launch of the fifth one failed.<sup>3</sup>

Although publicly available performance reliability statistics for some US launch vehicles, show a reliability of around 90%, this is not the same as mission success. The following table was compiled by the US Department of Transportation's Office of Commercial Space Transportation, from a statistical data sample of 486 launches through to 1986 from publicly available records.<sup>4</sup>

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<sup>1</sup>.Karas, Op.Cit. p 21 Eventually one was again brought under control but at the cost of a broken antenna hinge and never again worked at its full potential.

<sup>2</sup>.Ibid. p 22

<sup>3</sup>.Ibid.

<sup>4</sup>.US Department of Transportation, Office of Commercial Space Transportation, Hazard Analysis of Commercial Space Transportation, Volume 1, May 1988. p 3-21

**ELV Launch Reliability(As of December 1987)**  
%Success                      %Failure

**Scout**

Total program statistics since 1960:  
(Including Development Flights)

\* 108 Launched

\* 14 Failed    87    13

**Delta**

Total Program Statistics:  
(Including Development Flights)

\* 181 Launched

\* 12 Failed    93.4    6.6

**Atlas Centaur**

Total Program Statistics  
(Including Development Flights)

\* 67 Launched

\* 10 Failed    85.1    14.9

**Atlas E,F - Modified Ballistic Missiles**

Total (USAF & NASA Program Statistics):

\* 80 Launched

\* 8 Failed    90.0    10.0

**Titan III (Total)**

\* 137 Launched

\* 5 Failed    96.4    3.6

**Ariane (Total)**

\* 19 Launched

\* 4 Failed    79.9    21.1

This table represents the actual launch success/failure rate, rather than mission success, which would entail placing payloads in correct orbit or whether, in the cases where satellites were carried, they functioned properly. If these figures are added to the publicly available statistical data on launches, it can be observed that it is a high risk industry. Yet while the military have always sustained losses it has only become an issue for the commercial communications industry in the early 1980's, when the majority of systems came on line. With the onset of commercial investment came the wish to insure satellites. However western losses, such as those documented above, have had a dramatic impact on space insurers.

**Insurance Costs**

In 1983 Hal Glazer, despite recording early 'commercial' launch failures, felt confident to

predict a certain rise in the number of insurance companies willing to risk covering satellites.<sup>1</sup> This was in spite of the fact that he mentioned failures, in which large payments were made by insurers between 1977-1979. If Glazer had extrapolated on his own evidence his prediction may not have been so far off the mark.

In November 1985 the RCA corporation decided to self-insure its Satcom KU-2 satellite. At risk during the shuttle 'Atlantis' launch was a US\$14 million dollar launch fee and a US\$100 million hardware investment.<sup>2</sup> RCA had turned down an offer from insurers to pay a premium which would have cost US\$28 million.<sup>3</sup> On Good Friday 1986, Brazil launched Brazilsat II without any insurance. The Brazilian Government was not prepared to pay the \$US20 million it would have cost to insure a US\$70 million satellite.<sup>4</sup> Repeated launch and satellite failures have added up to huge losses for those companies willing to insure satellites. Between 1975-1985 premiums collected amounted to US\$420 million while the sum of US\$850 million was paid out in settlements.<sup>5</sup> The seven failures between 1984-1985 meant that insurers paid out US\$600 million in claims while taking only US\$250 million in premiums.<sup>6</sup> Since that time the rate of launch and satellite failures has not diminished. During the same week that the Ariane 3 vehicle was destroyed with US\$150 million worth of satellites, Hughes Communication Services Inc. announced it had lost UHF communication with its Leasat 4 only ten days after launch. Total losses in that week alone for underwriters were US\$235 million.<sup>7</sup> The nature of the technology is such that high risks are inevitably involved. As an Arianespace spokesperson noted, "Unfortunately we have to work right the first time we push the button. And so few

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<sup>1</sup>.Glazer, Hal. Birds of Babel:Satellites for a Human World, Howard W Sams, Indianapolis, 1983. pp 163-164

<sup>2</sup>.Satellite News, Vol 8, No 47, 2 December, 1985. p 1

<sup>3</sup>.Satellite News, Vol 8, No 46, 25 November, 1985. p 1

<sup>4</sup>."Satellite Insurance Fees Soar out of Reach", The Australian, 6 August 1986. p 16

<sup>5</sup>.Briat, Martin. "Business in Space", Satellite Communications and Broadcasting, Vol 2, No 37, June 1986. p 175

<sup>6</sup>."Satellite Losses: Chain Reaction", Satellite Communications, November 1985. p 9

<sup>7</sup>.Satellite News, Vol 8, No 37, 16 September 1985. p 1

things do."<sup>1</sup>

The Challenger disaster further shook the insurer's confidence and, in the case of Brazilsat II, they asked the Brazilians to pay a 27% premium for three months cover instead of 16% for six months in 1985.<sup>2</sup> What made the shuttle failure more acute in the eyes of insurers was the fact that in November 1984, NASA had recovered two satellites which had been placed in useless orbits. The retrieval of the Westar VI and Palapa B-2 satellites, together with an April 1984 shuttle flight during which a Solar Max was repaired, had industry optimists projecting 'routine servicing'. Yet even without the grounding of the shuttle programme, we were far from the day when 'throw away' space activity was a thing of the past. The satellites could just have easily been placed in irretrievable orbits.<sup>3</sup> Hughes Communications which salvaged Leasat 3 stated the whole exercise was a 'gamble with long odds'.<sup>4</sup> In addition, shuttle rescues even if they are available in the future, given the backlog of military satellite missions, are expensive and because of a Reagan Administration directive to NASA not to launch commercial satellites seem unlikely to be used for commercial rescues either. The highly subsidized cost of the Palapa and Westar rescues by the shuttle, was US\$10.5 million. Refurbishing of these satellites which were described by Hughes as being in excellent condition cost another US\$5.5 million and relaunch would have cost another US\$27 million each in 1985.<sup>5</sup>

The enormous risks which have caused Wall Street to be wary of satellite stock have also caused some insurance companies to withdraw from the market altogether. Orion Insurance, the leading London company, withdrew from satellite insurance in June 1984. Both NASA and the European Space Agency have been underwriting some forms of insurance since December 1985 to bolster the industry, which now optimistically hopes

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<sup>1</sup>. "Satellite Losses:Chain Reaction", Op.Cit. p 11

<sup>2</sup>. "Satellite Insurance Fees Soar Out of Reach", Op.Cit.

<sup>3</sup>. Arnovitch, Lawrence. "Satellite Servicing", Satellite Communications, February 1985. p 37

<sup>4</sup>. Hughes Communications, "Insiders Notebook on the Salvage", Uplink, Vol 1, Winter 1987. p 18

<sup>5</sup>. Purton, Peter. "Satellite Rescue Missions", Satellite and Space Technology, November 1985. p 9 Since then launch costs have dramatically risen.

for only one failure in every five launches.<sup>1</sup> Benito Pagnanelli head of the Aviation and Space Risk Department at Assicurazioni Generali, Italy's leading insurance company argues, "Why should we pay for failure when there is a 50% chance of failure? We are in the insurance business not betting. When the rate is 30% it is no longer insurance but just a game."<sup>2</sup> What has also perturbed insurers is that some satellite companies have actually profited from their hardware losses, during a time when insurers have losses approaching US\$900 million and a disastrous loss ratio of 250%.<sup>3</sup> In the case of the Palapa B-2 and Westar VI their owners demonstrated more interest in re-covering the insured proceeds of the launch failures, than the satellites themselves.<sup>4</sup> In both cases the recovery of total loss claims would have provided Perumtel and Western Union with more than adequate funding to build and launch a replacement spacecraft.<sup>5</sup> At a time when Brazil and RCA balked at 27% and 28% premiums, analysts felt they might increase to anything up to 50%.<sup>6</sup> One observer commenting on the offer to RCA of 28% stated, "Its not a ceiling, by any means. I don't know where the ceiling is."<sup>7</sup> Brian Stockwell, President of space insurance specialists Corroon and Black Insurance, believes the industry to be in a state of crisis.<sup>8</sup> Stockwell told delegates to a *Financial Times* conference in 1985,

Two years ago it was certainly possible to get US\$250 million (cover) on a single satellite (Westar IV for example). Today, I think you would be lucky to get US\$100 million on a single launch be it one satellite or more.<sup>9</sup>

During the launch hiatus in 1986-7 the industry was able to convince some insurers that they had solved their technical problems, only to witness the failures mentioned above. In 1988 underwriters took in US\$90 million in premiums but faced US\$150 million in

1. "Satellite Losses: Chain Reaction", Op.Cit. p 11

2. Purton, Op.Cit. p 9

3. Ibid. p 8

4. Smith, Delbert D. and Stephan M. Lopatkiewicz. "Like A Diamond In The Sky", Intermedia, Vol 13 No 1, January 1985. p 43

5. Ibid.

6. Purton, Op.Cit. p 8

7. "RCA confirms Insurance Offer; Outlook not good for 1986 launches" Satellite News, Vol 8, No 46, November 1985. p 2

8. Purton, Op.Cit. p 8

9. Ibid.

claims resulting from the failure of GTE Spacenet's Gstar 3 and India's Insat 1-C. This figure does not include the huge payout made as a result of the West German TV-SAT failure.<sup>1</sup>

Satellite companies are now finding it difficult to start programmes because of the lack of cover. Without insurance these companies find it very difficult to raise finance. Stockwell noted in his address that he knew of two ventures the previous year which had failed to generate enough investment because they couldn't guarantee that insurance would be available when it came time to launch the satellites. Arianespace chairman Frederic D'Allest was reported in *Satellite News*, in November 1985, as claiming that three customers suspended launch contracts because of lack of satellite insurance.<sup>2</sup> The financing of satellite ventures has always been the province of large corporations and governments. A conference on business in space in December 1985, was told that no satellite project has so far been a 'self-financing project' "...due to the refusal by the banking sector to take the risks inherent in such projects".<sup>3</sup> Apart from risks, financiers also face high capital requirements, long pay back periods and an uncertain regulatory environment.<sup>4</sup> When these factors are combined with the insurance crisis, finance for commercial satellite ventures is likely to be scarce in the late 1980's. Perhaps though the most ominous threat to the satellite industry comes from the rapidly developing fibre optic technology.<sup>5</sup>

### Fibre Optic Threat

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<sup>1</sup> "Insurance Rates Likely to Rise As Result of Satellite Failures", Aviation Week & Space Technology, 19 September 1988. p 21

<sup>2</sup> "RCA confirms Insurance Offer; Outlook not good for 1986 launches", Op.Cit. p 1

<sup>3</sup> Briat, Op.Cit. p 176

<sup>4</sup> Ibid.

<sup>5</sup> Duke, David. "The fibre-optics revolution spreads", Telecommunications, North American Edition, Vol 16, No 13, December 1982. pp 17-20 For the background on the development of fibre optics refer Jeff Hecht, "Fibre optics calls up the past", New Scientist, 12 January 1984. pp 12-14 and R.V. Bruce, Bell: Alexander Graham Bell and the conquest of solitude, Little, Brown and Company, Boston, 1973.



In his book *The Third Wave*, futurist Alvin Toffler wrote glowingly about the coming fibre optic technology. Toffler was mainly concerned with the superiority of fibre optics to conventional cable technology and its potential to save energy. Toffler wrote,

The advance towards Third Wave industries, moreover, will be radically accelerated by the energy crisis, inasmuch as many of them carry us towards processes and products that are miserly in their energy requirements. Second Wave telephone systems, for example, required virtual copper mines beneath the city streets - endless miles of snaking cable, conduit, relays and switches. We are now about to convert to fibre optic systems that use hair-thin light carrying fibres to convey messages. The energy implications of this switchover are staggering: it takes about one thousandth the energy to manufacture optical fibre that it took to dig, smelt, and process an equivalent length of copper wire. The same ton of coal required to produce 90 miles of copper wire can turn out 80,000 miles of fibre.<sup>1</sup>

Fibre optic technology has numerous advantages over conventional copper cables. These include;

- (a) Fibre optic cables are 200 times lighter than equivalent lengths of copper cable. On ships and dirigibles the utilization of this technology has meant the elimination of the tremendous weight of copper cables. The difference in weight also dramatically reduces the installation costs as it can literally be ploughed in in rural areas.
- (b) Fibre optic cables eliminate cross talk, static, echo and minimizes environmental disturbances which affect copper cables, such as frozen lines.
- (c) Fibre optic cables are difficult to tap. The Foreign Affairs Department building in Canberra is using the technology for security reasons.
- (d) Fibre optic technology has low loss of transmission, so that you can have longer lengths of cable before repeaters are needed - over 100 kms instead of 8 kms with conventional cables and the repeaters have longer lifetimes because they use laser technology with meagre energy requirements.
- (e) Because fibre optic technology is not susceptible to electromagnetic interference it can be used wherever control signals are sent - i.e. cars, planes and ships. The recently electrified Sydney/Port Kembla rail line in New South Wales, employed fibre optic technology.

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<sup>1</sup>. Toffler, Alvin. The Third Wave, Pan Books, London, 1981. p 152

(d) Fibre optic technology can transmit large quantities of information (currently 565 million bits of information per second) at literally the speed of light.

The cost of fibre cables is being reduced both by advances in the laboratory and with increasing demand, the economies that come with large batch production. During the eighties fibre system's prices have been dropping by about 20-25% per year. In 1980 fibre cable cost \$5 a metre but by the end of the 1980's, Telecom (Australia) expects it to cost about 20 cents a metre.<sup>1</sup> At present the price difference between fibre optic and copper cables can be best illustrated by Telecom's analysis of the relative costs of laying both between Sydney and Melbourne. A conventional copper cable it is estimated would cost \$80 million while a fibre cable only \$40 million.<sup>2</sup>

These types of cost reduction together with the higher quality performance has enticed all the major carriers of communications among developed nations to signal their intention to use fibre optics in future networks. These include AT&T and MCI in the USA, NTT in Japan, the French PTT, the Bundespost in FR Germany and British Telecom.<sup>3</sup>

The resurgence of terrestrial cable technology has become the largest technological threat to the satellite industry. Fibre optic technology is now unquestionably cheaper for point to point communication on major routes. James Henderson, the retired Chairman of Rochester(NY) Telephone commented recently,

Satellites are well on their way to becoming outdated as carriers of two way traffic. While they remain useful for communicating with the Third World nations their two way functions will all but disappear in the face of fibre's growth and development.<sup>4</sup>

In Japan for instance satellites are economically uncompetitive with NTT's terrestrial transmission via fibre optics.<sup>5</sup>

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<sup>1</sup>.Burton, John. "The Application of Optical Fibre and Cable Systems to the Australian Network", Telecom Australia, 1984. p 2

<sup>2</sup>.Burton, John and Piltz, D.J. "Future development of the Melbourne/Sydney Telecommunications Route," Telecommunications Journal of Australia Vol 34, No 3, 1984. p 271

<sup>3</sup>.Morant, Adrian.J. "Fiber Optics Making Strides in Europe", Telephone and Engineer Management, Vol 90, No 11, 1 June 1986. pp 69,70 & 74; Michael Borrus "Japanese Telecommunications: Reforms & Trade Implications" California Management Review, Vol XXVIII, No 3, Spring 1986. pp 43-61

<sup>4</sup>.Kerver, Tom. "Cloudy Forecast", Satellite Communications, October 1985. p 14

<sup>5</sup>.Hills, Op.Cit. p 149

Whereas satellites are reaching the limits of their efficiency for carrying information, fibre optic cables being developed will have four times the carrying capacity of those currently now being laid. Added to this is the fact that cables have a much longer operational life time of about 25 years, compared to approximately 7 years for a satellite at present. Fibre cables also have performance advantages over satellites. For instance on a trans-Atlantic fibre optic cable there would not be any noticeable delays between transmission and reception, because not only are the messages traveling at the speed of light, they cross a 4,500 mile terrestrial path instead of a 45,000 mile satellite route. Time delays are at present an irritable and expensive (because of the need for echo-suppression technology) feature of international television interviews and telephone calls via satellite.

The push is now on for terrestrial carriers to install fibre optic technology over the financially rewarding high traffic routes. The exploitation of fibre optics by terrestrial carriers has the effect of defending their traditional services and of undercutting the price of services which have been pioneered by the satellite companies. In the United States AT&T has responded to the challenges laid down by companies such as SBS, to its traditional telephone service by announcing major fibre optic development of their terrestrial network. In November 1984, after divesting its regional companies, AT&T announced it would install a US\$2 billion/21,000 mile domestic fibre network.<sup>1</sup> To compete US Telecom is building a US\$2 billion/23,000 mile fibre network stretching from New York to San Francisco.<sup>2</sup>

Developments such as these have also brought corporate restructuring in the telecommunications industry. In 1986 it was announced that GTE's Sprint and United Telecommunications' US Telecom would merge, bringing together the third and fourth largest long distance telephone companies. The interesting feature of this merger was that each of the two companies hitherto had differing attitudes towards the major transmission

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<sup>1</sup>.Smith, Ilene. "Fiber Optics: Can Satellites Compete", Satellite Communications, February 1985. p 22

<sup>2</sup>.Abbott, Patrick. G. "Crossing the Country with Fibre Optics", Telephone Engineer and Management, February 1986. p 90

methods. US Telecom espoused fibre optics as the ideal transmission medium, while Sprint has long term leases for several satellite transponders. It was not an investment that was proving profitable for the company. GTE Sprint's 1985 *Annual Report* shows it had lost US\$245 million in that year alone, trying to compete with terrestrial carriers.<sup>1</sup> Early indications are that fibre optics will win out as the corporation's major medium. A joint statement revealed that the new company, to be known as US Sprint Communications Co. will accelerate the development of US Telecom's fibre optic network.<sup>2</sup> A spokesperson for US Telecom stated his belief that the new company's network would almost exclusively consist of fibre optics when the merger was completed.

During the mid-1980's, other corporations reassessed their commitment to satellites. Ford Aerospace announced in July 1986, that it was planning to "phasedown" its operations and in August stated its intention to sell its 70% interest in Starnet, a long distance business communications system. Ford gave as its reason for selling the tremendous competition it was experiencing from AT&T's continued dominance in the long distance market.<sup>3</sup> Industry observers interpreted Ford's phasedown of satellite services and sale of Starnet as pointing to the fact that Ford Motor Co, its parent company, wanted to quit the industry altogether. Robert Wold, President of Wold Communications, believes that in the face of "...the high rate of insurance for space ventures and the uncertainty surrounding future US launch capabilities, as well as the resulting difficulty in signing up long-time customers for satellite services, we'll see Ford drop away from the satellite business."<sup>4</sup> Other companies, according to Wold, that are reassessing planned satellite activities are Martin Marietta, Federal Express and Comsat General.

Dr John Evans, a Comsat vice president and director of Comsat Laboratories, the world's largest research facility dedicated to communications satellite technology, believes

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<sup>1</sup>.GTE, 1985 Annual Report, Stamford, 1985.

<sup>2</sup>."Round 2:Fiber versus Satellites", Satellite Communications, March 1986. p 14

<sup>3</sup>.AT&T's earnings increased 13.6% in 1985 in the second year after divestment to take its net income to US\$1,557 million, despite the fact that the U.S. Government was providing massive subsidies for its competitors in long distance markets. Refer AT&T, 1985 Annual Report, New York, 1985.

<sup>4</sup>.Satellite News, Vol 9, No 32, August 18, 1986. p 3

satellites have a limited future for communications in the face of fibre optics. Evans predicts a decline in the use of satellites as copper wires are gradually replaced by fibre optic cables because, in his words, "It's hard to see how satellites will compete (with fibre optics) for fixed users".<sup>1</sup>

In addition the satellite industry in the United States is not faring well with video traffic. The experience of the industry in America has been that video traffic is rapidly being shifted off satellites onto the terrestrial fibre network. US Sprint is currently in the process of converting its domestic video teleconferencing service from the GTE Spacenet satellite system to its own fibre network. Kenneth Van Meter, teleconferencing director and general manager of 'The Meeting Channel', recently stated,

The general trend of the industry is away from satellite and towards fiber optics for teleconferencing and definitely for voice traffic.<sup>2</sup>

Given the advantages of fibre optics, regulatory authorities are under pressure to review policies which were originally designed to give satellite technology a chance against undersea cables on international routes. In 1987, the FCC requested comments on balanced loading (proportional fill) which, as explained earlier, was a control mechanism designed to split communications traffic between satellites and cable facilities. One of the submissions received, came from the Communications Policy Committee of the Institute of Electronics and Electrical Engineers, which argued that communications satellites were "...less cost effective than fibre optics for trunk networks and that the technical characteristics of satellites also are inferior in terms of echo and delay."<sup>3</sup>

Richard Solomon, a research associate at the Massachusetts Institute of Technology contends,

...as we move toward an (integrated services digital network) or open network, digital environment, it will be increasingly difficult for governments to force users to send traffic

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<sup>1</sup>."Comsat Labs Chief Sees Future 'Decline' In The Use Of Satellites", Satellite News, Vol 9, No 31, 11 August 1986. p 3

<sup>2</sup>."Sprint Moves Bulk of Video Traffic off Satellites onto Fibre Optics", Satellite News, 21 September 1987.

<sup>3</sup>."The Twilight of Balanced loading", Satellite News, 30 November 1987. p 4

over uneconomical routes just to cross-subsidize satellite carriers.<sup>1</sup>

Added to this Intelsat's Joseph Pelton commented recently that future satellite systems, along with their launch and ground segment components, would need to deliver transponders in orbit at a cost of US\$50,000 each to make "fiber optics cry uncle".<sup>2</sup> Pelton added that the current cost of transponders was between US\$1-5 million.

The fact that AT&T and US Telecom's competitors rely on less-desirable satellite based systems gives every incentive to follow the fibre optic path. Development of extensive fibre networks can only increase the domestic 'transponder glut'. Satellites are even more vulnerable on international communication routes, especially the lucrative point to point ones. AT&T revealed plans in November 1984 to lay a Pacific cable running 7,175 miles between California and Japan via Hawaii and Guam to be ready in 1988 or 1989.<sup>3</sup> That announcement came on top of AT&T's already approved 3,600 mile TAT-8 fibre cable for the trans-Atlantic, linking the US and Europe in 1988.

The use of fibre optics for international communications has put added pressure on Intelsat, the international organization of space communication users. Use of fibre optic cables threatens Intelsat, because, as Tom McNight notes, "It can serve the market for bulk telephone traffic. For Intelsat which gets about 85% of its revenues from voice traffic it's very competitive."<sup>4</sup> The end of balanced loading compounds this problem because there is now no regulatory compulsion for transoceanic users to go satellite. The threat from fibre optics is already causing satellite companies to diversify. Intelsat for instance realizes fibre can not compete for such things as maritime traffic.

### Intelsat's Future

Intelsat not only faces competition from international fibre networks, challenges are also

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<sup>1</sup>."Debate Between Satellite and Fibre Fans Continues Unabated", Satellite News, 30 November 1987. p 4

<sup>2</sup>."Intelsat Special Projects Chief Charts Future Battles with Fibre", Satellite News, 26 October 1987. p 9

<sup>3</sup>.Montgomery, Hale. "Fiber: The New Mover & Shaker", Satellite Communications, January 1985.

<sup>4</sup>.Ibid.

being mounted by private satellite companies for its most lucrative routes.<sup>1</sup> Intelsat's most profitable route is the US-European link. This route represents 65% of all traffic carried by Intelsat and an even larger share of its considerable revenues.<sup>2</sup> Although it is a non-profit organization, Intelsat does have surpluses which are annually returned to member governments. In 1984 Intelsat distributed US\$208 million to members and because most of this surplus came from the trans-Atlantic route it represents a tempting target for private satellite companies.<sup>3</sup> In a deregulated communications market private competitors would be able to undercut Intelsat's trans-Atlantic price structure because of its policy of cross-subsidization. This would damage Intelsat's ability to provide equitable global communications through its policy of parity pricing. At the moment users of the New York-London route are charged the same amount as the Cairo-Nairobi line customers.

Five companies Orion, International Satellite Inc, Cygnus, RCA Americom and Pan Am Sat vied for authorization to compete with Intelsat on the trans-Atlantic route.<sup>4</sup> The move to deregulate Intelsat's monopoly was supported by the Reagan Administration. In 1984, President Reagan signed a memorandum declaring that "...separate international communications satellite systems are required in the national interest."<sup>5</sup> In Intelsat's assessment the decision to let private companies operate on the trans-Atlantic route would allow them to "...enter into direct and destructive competition with Intelsat's service offerings..." and would have "...considerable impact on Intelsat user charges for international telephone and telegraph services."<sup>6</sup> Intelsat is also worried that this would set a precedent for opening up other profitable routes and cause a break up of the

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<sup>1</sup>.Demac, Donna. "Communications satellites and the Third World" in The Myth of the Information Revolution, Michael Traber (Ed), Sage Publications, London, 1986; Brian M. Murphy, The International Politics of New Information Technology, Croom Helm, London 1986. pp 206-210

<sup>2</sup>.Reinecke, Op.Cit. and Andrew Waller, "Intelsat: private sector challenge", Intermedia, Vol 13, No 1, January 1985. pp 3-4

<sup>3</sup>.Kerver, Tom. "North Atlantic Fury", Satellite Communications, August 1985. p 21 and Wheelon, Op.Cit. p 130

<sup>4</sup>.Kerver, "North Atlantic Fury", Op.Cit. p 20

<sup>5</sup>.Ibid.

<sup>6</sup>.Ibid.

organization. The McCaw Space Technology company, a common carrier for mobile radio services in the US, wants to launch two satellites to serve the Pacific Rim and Indian Ocean region by 1991.<sup>1</sup> In Ian Reinecke's assessment the "...disintegration of Intelsat would remove one of the most powerful driving forces behind satellite communications for international traffic."<sup>2</sup> Reinecke suggests this would slow the development of satellite systems being introduced into developing nations. This view is supported by Albert Wheelon, a former Chairman of the Hughes Aircraft Company, who suggests that although Intelsat has traditionally been one of the principal supporters of civilian satellite communications technology, it is now giving way to a technological push from the military.<sup>3</sup> Wheelon recognized that Intelsat may not be able to afford to provide R&D funding, most of which has gone to US companies, along the lines of the US\$2.5 billion they spent on satellite switched time division multiple access technology.<sup>4</sup>

What will eventuate is not clear because the onset of the international fibre network will eat into the profitability of satellite communications and make it less attractive to compete with Intelsat in a glutted North Atlantic. While Intelsat's former Director General, Richard Colino stated his belief that over capacity in the Atlantic was likely to increase, because "Taking into account the total number of trans-Atlantic circuits of all technologies being authorized by the US alone there will be an estimated imbalance between supply and demand on the order of eight to one."<sup>5</sup>

The other factor is the US Government's final position. Although the Reagan Administration favoured deregulating the communications market, not all quarters of government may see the disintegration of Intelsat as being in the long term interest of the

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1. "Intelsat faces threat over Pacific Rim", Communications Systems Worldwide, July/August 1986. p 7

2. Reinecke, Op.Cit.

3. Wheelon, Op.Cit. p 129

4. Ibid.

5. Colino, Richard. "PTTs, INTELSAT, monopoly and competition", Space Communication and Broadcasting, Vol 4 No 1 March 1986. pp 6-7 In the past excess capacity has been chronic, refer Winston Op.Cit. p 286 and Vincent Mosco "USA to Feds: Unleash Our AT&T" A review of Jeremy Tunstall's Communication Deregulation: The Unleashing of America's Communications Industry, Oxford, Basil Blackwell, 1986, (Unpublished, Queens University, 1986. p 6)



United States. Intelsat was shaped very much by the United State's desire to play a prominent role in the control of international communications.<sup>1</sup> Schiller claimed that during the formation of Intelsat,

Never far from Comsat-Washington thinking...is an awareness of earlier British control of worldwide communications through ownership of transoceanic cables. This inspires a compulsive drive to transfer permanently to American hands the former British communications superiority.<sup>2</sup>

Eastern Block nations have never participated in Intelsat because they view it as being dominated by the United States. That such motives are still uppermost in the eyes of some is evident in statements made by Colino before his departure from Intelsat. Arguing against the authorization of separate satellite systems, Colino suggested that they might "...set in process the destruction of Intelsat and a global communications network that will ultimately result in a colossal and tragic loss of economic and political power for the United States by the year 2,000."<sup>3</sup> Against this is the fact that US control of Intelsat has been seen by past Administrations as far from absolute. During the 'Hostage Crisis' in 1979, President Carter tried to get Intelsat to isolate Iran from the rest of the world by closing its international communications routes. Intelsat's international charter prohibited such action.<sup>4</sup>

The pro Intelsat lobby has not been as effective as it might have been, because Comsat, the organization's US and largest shareholder, is currently beset with its own financial difficulties. Comsat's financial problems stem from its commitment to direct broadcasting via satellite(DBS) in the United States domestic market. The slow development of direct broadcasting, voice and data networks, and the transponder glut have been the major contributing factors. At first Comsat was deserted by its major partners in direct broadcasting. The Murdoch organization withdrew from DBS in 1983, saying prices would need to come down for reinvolvement and CBS, one of the three major television

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1.Schiller, Herbert. Mass Communications and the American Empire, Beacon Books, Boston, 1971.

2.Ibid. p 136

3.Kerver, "North Atlantic Fury", Op.Cit. p 20

4.Murphy, Op.Cit. p 208

networks in the US, withdrew because of the risks involved.<sup>1</sup> In 1986 Comsat also abandoned direct broadcasting in the wake of a net loss of US\$41.5 million in the previous year, its first ever negative result.<sup>2</sup>

In the face of the threat of fibre optics and over capacity Comsat was attempting to diversify its services. In withdrawing from DBS Comsat wrote off \$US120 million. This was in addition to the Company's losses through its involvement with SBS. As noted earlier, it "...had no more luck with Satellite Business Systems - a consortium, including IBM and the Aetna Life and Casualty group, which chalked up big losses trying to provide telecommunications services for big business."<sup>3</sup> Comsat's *1985 Annual Report*, shows that it lost US\$71 million in 1983/84 in SBS alone.<sup>4</sup> Comsat also lost a combined US\$22 million on its television receive only equipment business. With a partner it lost a further \$5.5 million in a hotel chain satellite service. To add to the company's woes it was contracted to buy two additional satellites for which it had no use, as, even if they could be launched, (which is difficult because they were designed to be launched on the Shuttle), Comsat foresaw no demand. In fact these two satellites have now been scrapped costing Comsat US\$90 million.<sup>5</sup> This loss was not as severe as that of Federal Express which scuttled its 'Zap Mail' satellite system writing off a staggering US\$343 million.<sup>6</sup> The satellite industry also faces two longer term problems resulting from trends evident in the US and USSR military space programmes.<sup>7</sup>

### New Military Directions and the Civilian Industry

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<sup>1</sup>.Reinecke, Op.Cit. and Winston, Op.Cit. p 285

<sup>2</sup>."Comsat:a Comeback", Satellite Communications, May 1986.

<sup>3</sup>."Comsat, Contel merger faces launch problems", The Australian, 14 October, 1986. p 40 Refer also Glazer Op.Cit. p 161 Glazer notes the costs of developing DBS are staggering. Glazer provides estimates that Satellite Television Corp spent US\$684 million, with US\$225 million coming from Comsat, before its DBS failure.

<sup>4</sup>.Comsat, 1985 Annual Report, Washington 1985.

<sup>5</sup>."Comsat faces a \$83 million loss", The Australian, 20 July 1987. p 14

<sup>6</sup>.Kerver, Tom and Tamara Bennett. "Strategies for '87", Satellite Communications, January 1987. p 15

<sup>7</sup>.The USSR like the French has never attempted to distinguish between military and civilian components of their space programme. The United States has maintained a distinction between the two since the time of NASA's formation.

As has been shown above the civilian space industry has always ridden on the coat tails of the military. As 90 per cent of all satellites launched have been for military purposes, self evidently satellite manufacturers and the launch industry are reliant on defence budgets. If this part of the industry had to rely on civilian communications it could not survive. For instance, the problems described above combined to produce a situation where only two civilian communications satellites were ordered in the first six months of 1987.<sup>1</sup> The new orders both went to Hughes Aerospace. Although the satellite communications market represents hundreds of millions of dollars to a company like Hughes,

It's almost impossible to track direct profits of a business sector because it constitutes a relatively small part of the earnings of the companies involved.<sup>2</sup>

To gain an appreciation of the magnitude of Hughes' business it can be noted that in 1985 the company's backlog of defence and space contracts was US\$10.7 billion and in that year alone new orders were received for \$7.3 billion.<sup>3</sup> It is also interesting to note that Hughes' aerospace sales, under United States Government contracts, accounted for 54.1% and 53% of total sales in 1985 and 1984 respectively.<sup>4</sup> Other aerospace companies have drawn similar sustenance. Between 1969 and 1980 the United States Air Force contracted TRW to produce no less than 16 satellites for the DSCS-II programme.<sup>5</sup> A pertinent point is that only ten of the satellites were launched into orbit and even less worked as intended.<sup>6</sup> Unlike the commercial communications industry, the military can afford to sustain such losses.

Although satellite manufacturers, like Hughes, are shielded from the vicissitudes of the commercial communication industry's problems by military expenditure, it means that it is

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<sup>1</sup>. "Severe Drop in Satellite Orders Follows 1986 Launch Failures", Aviation Week & Space Technology, 8 June 1987. p 19

<sup>2</sup>. Ibid.

<sup>3</sup>. GM Hughes Electronics Corporation, 1985 Annual Report. p 9

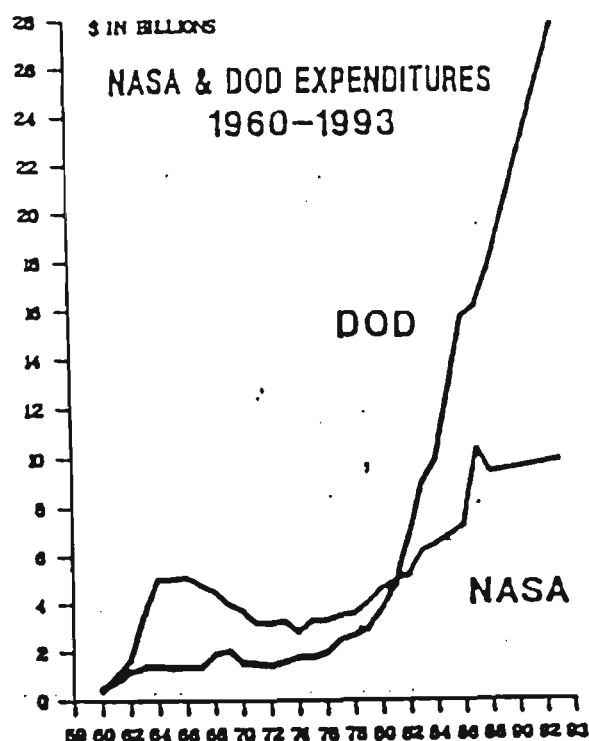
<sup>4</sup>. Ibid. p 26

<sup>5</sup>. Smith, G.K. *et al.* Commercial and Military Communication Satellite Acquisition Practices, Rand Corporation, R-3121-AF, May 1985. p 109

<sup>6</sup>. Karas, Op.Cit. p 72

this sector which controls the industry direction. Increased US military expenditure has also caused problems for European aerospace corporations, who manufacture satellites.<sup>1</sup> Although they are similar to US companies in that manufacturing satellites is only a small part of their overall operations, companies such as Aerospatiale, have found it more difficult to compete with American equivalents because of their ability to cross subsidize production from the economies of scale that come with defence contracts.<sup>2</sup>

The graph below, prepared by the US Office of Management and Budget, illustrates the shift in the Reagan Administration's funding priorities away from the civilian sector.<sup>3</sup>



Defence space expenditures surpassed NASA in 1981 and are projected to be in the order of US\$28 billion in 1993.<sup>4</sup> In addition the US General Accounting office has pointed out that a 'reasonable' accounting system would show that 25% of NASA's budget directly supports the military.<sup>5</sup>

<sup>1</sup>.Aerospatiale, 1985 Annual Report, Paris, 1985.

<sup>2</sup>.Ibid. p 36

<sup>3</sup>. "Space Is Fastest Growing Element of AF Budget", Satellite News, 9 March 1987. p 3

<sup>4</sup>.Ibid.

<sup>5</sup>.Karas, Op.Cit. p 205

The Reagan Administration's greater emphasis on military expenditure in space has had, however, a number of unfortunate side effects for the civilian communications industry. NASA's Advanced Communications Technology Satellite programme (ACTS) was threatened due to budget cuts in 1987.<sup>1</sup> Future fibre optic systems will have tremendous switching capacity.<sup>2</sup> NASA's ACTS research was to be the industry's response to the threat of fibre optics. There is also the question of just how much of the military developed technology is transferred to civilian endeavours? According to the US Congressional Office of Technology Assessment the amount is very low despite the enormous expenditure.<sup>3</sup>

The Reagan Administration also announced that the space shuttle would no longer launch commercial satellites because of the backlog of military requirements. This was a blow to satellite manufacturers who had been encouraged by the 'bargain launch fees' policy, of three successive prior administrations, to use the generically-named 'Space Transportation System'.<sup>4</sup> Satellite builders had invested well in excess of \$100 million adapting satellite technology to shuttle deployment characteristics and cargo bay dimensions.<sup>5</sup> Yet not only has this investment been made redundant, Reagan's privatization of the launch industry has effectively diminished the extent of subsidies, and correspondingly the price of launches has escalated.

The problem with Defence funding is that it takes the industry down paths it might not otherwise venture. The 'baroque' nature of advanced satellite technology, both of itself and its means of launch, has been amply demonstrated by the failures referred to above. Mary Kaldor, in the *Baroque Arsenal*, argues that modern military technology is characterized by a growing technical complexity and cost but a declining effectiveness.

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<sup>1</sup>. Satellite News, "House Budget Committee Counters Senate By Recommending a \$1.1 billion NASA Cut", 13 April 1987. p 7 and Satellite News, 12 January 1987. p 4

<sup>2</sup>. Guterl, Fred and Glen Zorpette. "Fibre Optics: poised to displace satellites", IEEE Spectrum August 1985. p 32

<sup>3</sup>. Karas, Op.Cit. p 205

<sup>4</sup>. Hughes Communications, "The Post-Challenger Dilemma: Can U.S. Launchers Compete", Uplink, Vol 1, Winter 1987. p 3

<sup>5</sup>. Ibid. p 4

Kaldor believes that,

Complex military equipment tends to be unreliable. The more parts there are, the greater the chances that one will fail and the greater the likelihood that the system as a whole will break down.<sup>1</sup>

Although Kaldor does not examine space technology, it is perhaps the case which best illustrates the worth of her theory. Satellites are among the most complex pieces of electronics equipment built yet must perform flawlessly.<sup>2</sup> It is also true of course that satellite and related space technologies can not be separated from the 'baroque' military paradigm identified by Kaldor. The 'Challenger' disaster had been predicted in a 1983 Air Force study, which found that the average failure rate of the shuttle's solid rocket boosters was one chance in seventy-one. Given that the shuttle employed two such rocket boosters, the study noted that there was approximately one chance in each thirty five mission launches of failure.<sup>3</sup>

The shuttle is arguably the most complex piece of equipment ever constructed. Despite being sold to Congress on the basis that it would reduce launch costs Professor Alex Rowland has argued that the Shuttle has proved to be prohibitively expensive and unreliable. Rowland notes,

...the Shuttle could not do what it was supposed to do. It could not land at any 10,000ft runway. It could not turn around in two weeks. It could not lift 65,000 pounds into low-Earth orbit at one tenth of the cost of existing launch vehicles...When the Shuttle was first proposed in 1969, it cost about US\$1600 (in 1986 dollars) to put a pound of payload in orbit. In 1986, when the Challenger exploded, it still cost about US\$1600. After 17 years and as many billions of dollars, NASA had not brought launch costs down one iota.<sup>4</sup>

The value of analysis such as this is that it challenges 'Whiggish' notions of progress and that increasing technological sophistication is not necessarily translated into economic savings.<sup>5</sup> The problems with the shuttle were a major factor in raising NASA's TDRS

<sup>1</sup> Kaldor, Mary. The Baroque Arsenal, Abacus, London, 1982. p 132

<sup>2</sup> Lerner, Eric J. "Designing communications satellites: Intelsat VI and Aussat" Aerospace America, Vol 23, No 5, May 1985. p 92 and Dineen and Quinn, Op.Cit. p 25 Dineen argues technical risks in satellites are unavoidable.

<sup>3</sup> Satellite News, Vol 9, No 7, February 1986. p 3

<sup>4</sup> Rowland, Alex. "Priorities in Space for the USA", Space Policy, May 1987. p 107

<sup>5</sup> The term 'Whig' is used in the same sense of the concept as described by John Standenmaier who defines it as 'those interpretations of technological change that foster the ideology of autonomous technological progress' and the assumption that 'progress is inevitable'. Standenmaier, Op.Cit. p 245

project cost from US\$786 million (in 1976 dollars) to more than US\$1,800,000 (in 1982 dollars).<sup>1</sup> The dramatic increase in launch fees on the part of NASA and Ariane is a direct manifestation of this process.<sup>2</sup> The shuttle was designed to suit the US Air Force. To get the Shuttle approved NASA configured the satellite to carry the US Military's largest reconnaissance satellite.<sup>3</sup> As the shuttle lurched from crisis to crisis, each time the Military stepped in to save the programme and increase its own influence. In the late seventies after repeated cost escalations NASA had to accept the appointment of US Air Force General James Abrahamson, to take over the project.<sup>4</sup> During the militarization of NASA, Rowland reports,

Funding for planetary science fell 78% during Shuttle development. NASA launched its last geodesy satellite in 1976, its last experimental weather satellite in 1978, and its last Earth resources satellite in 1982. President Carter had to revive a moribund programme in communications satellite research in 1978; as yet nothing has flown.<sup>5</sup>

In addition the Landsat remote sensing programme is in serious financial trouble after a failed privatization, and has been seeking defence funding which as yet has not been forthcoming.<sup>6</sup>

Thus although military support from the time of the V-2 programme, has been essential to that part of the industry with a more overt civilian orientation, the Pentagon makes decisions about launch technology which are not primarily concerned with the interests of other users. The case of the Titan IV launch vehicle is instructive of the problems the civilian portion of the industry has with baroque development. Hughes Communications has noted that the Titan IV,

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<sup>1</sup>.Dineen and Quinn, Op.Cit. p 14

<sup>2</sup>.McDowell, Edward. "Space program failure frustrating Ariane", Australian Financial Review, 11 May 1987. p 43 After the Shuttle failure Ariane increased its launch price by 40%.

<sup>3</sup>.Rowland, Op.Cit p 106 and Karas Op.Cit. p 34

<sup>4</sup>.Rowland, Op.Cit p 109

<sup>5</sup>.Ibid. p 110

<sup>6</sup>."Commerce Urged to Divert Weather Satellite Funding to Save Landsat", Aviation Week & Space Technology, 23rd March 1987. Foley, Theresa M. "Reagan Asked to Intercede to Save Landsat Program", Aviation Week & Space Technology, 6th April 1987. p 29 and Aviation Week & Space Technology, 23rd March 1987. p 62 See also Mitchel M.Waldrop, "Imaging the Earth(II): The Politics of Landsat", Science, Vol.216, 2 April, 1982 and Transborder Data Flows: Transnational Corporations & Remote Sensing Data, United Nations Centre on Transnational Corporations, United Nations, New York, 1984.

...is a launcher whose 10-foot diameter liquid stages were designed not for optimum deployment of satellites, but as intercontinental ballistic missiles designed for missile silos. First, an Aegena upper stage was added to enable it to carry satellites. Then, solid rockets were strapped on to enable it to launch larger satellites. Finally to match the shuttle's capacity more closely, a Centaur stage replaced the Aegena and a bulbous shroud was tacked on top to accommodate shuttle-optimized payloads.<sup>1</sup>

By 1988 the cost of launch on a Titan booster was announced by Martin Marietta to be around \$100 million compared with \$60 million for satellite launches quoted by Arianespace.<sup>2</sup> The Ariane rocket had not been shaped by the military's need to launch larger payloads, yet for a company such as Martin Marietta, to develop a competitive launch vehicle, designed for communications satellites from scratch would cost in excess of a billion dollars, with little guarantee of any return.<sup>3</sup>

It is not only the means of launch which exemplifies Kaldor's model of baroque technology. Insurers have noted that it is often the application of new technology which makes satellites less reliable. Brian Stockwell believes,

The Westar 6 and Palapa B2 failures were caused by the application of a technology which saved about 40lbs in orbit. It really wasn't worth saving 40lbs to go to a technology that was, with hindsight, not completely proven.<sup>4</sup>

A further long term problem for the industry is that civilian communications satellites may well become the first casualty of the 'Star Wars' programme.<sup>5</sup> 'Star Wars' or Strategic Defense Initiative (SDI) testing of anti-satellite weapons (ASATs), is increasing the amount of 'space junk' in the crowded geo-stationary orbit. One explanation of the last Ariane failure was that it collided with a stray space fragment.<sup>6</sup> The actual testing of 'Star Wars' weaponry may also destroy civilian satellites. Dr Robert M. Bowman reports, ASAT testing in 1962, unintentionally destroyed several satellites including at least one Navy navigational satellite, an AT&T communications satellite and one British satellite.<sup>7</sup>

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<sup>1</sup>. Hughes Communications, "The Post Challenger Dilemma", Op.Cit.

<sup>2</sup>. "Price wars break out in space", New Scientist, 3 March 1988. p 27

<sup>3</sup>. Hughes Communications, "The Post Challenger Dilemma", Op.Cit.

<sup>4</sup>. Purton, Op.Cit. p 8

<sup>5</sup>. McNicol, Ian. SDI: The Social Shaping of a Nuclear Umbrella, MA Minor Thesis, Department of Science and Technology Studies, University of Wollongong, July 1988.

<sup>6</sup>. "Ariane Booster Fragments in Space", Satellite Communications, February 1987. p 11

<sup>7</sup>. Bowman, Robert M. Star Wars: Defense or Death Star?, Institute for Space & Security Studies. 1985.



Satellites are extremely vulnerable to collision with the debris of the US and USSR space programmes. In 1985 more than 5,600 man-made objects (not including defunct satellites) were being tracked around the globe.<sup>1</sup> There is,

In addition to these relatively large objects...reckoned to be tens of thousands of pieces of untracked debris the size of marbles, and literally billions of paint flakes orbiting the earth.<sup>2</sup>

By September 1987, 7,000 objects 10cm in diameter and larger were being tracked by US Space Command.<sup>3</sup> These objects have velocities of 8-10 Km/sec giving them an explosive like energy.<sup>4</sup> However the amount of debris in geostationary orbit is difficult to estimate because objects further from earth are harder to monitor with radar or optical telescopes.<sup>5</sup> The amount of 'space junk' is rapidly increasing and the US Office of Space Transportation suggests,

Crisis proportions could be reached after the year 2000 unless debris management policies and procedures are adopted soon. Already, in 1979, the Japanese satellite ECS-1 was lost by a collision in space with the third stage of its own launch vehicle, causing a multimillion dollar loss.<sup>6</sup>

There is evidence for other space junk having already damaged satellites:

(a) In April 1984, the shuttle crew brought back to earth some malfunctioning electronic boxes on the Solar Max satellite. NASA found the outer surfaces peppered with around 160 small holes created by flying paint chips.

(b) In July 1981, the Soviet navigation satellite Kosmos 1275 broke up over Alaska in a pattern suggesting it had been hit by debris.

(c) The Soviet surveillance satellite Kosmos 954, with a nuclear reactor aboard suddenly depressurized and fell to earth over northern Canada in January 1978 also in a way that suggested a collision had occurred.

(d) The European Earth observation satellite, GEOS-2, suffered injury to its solar panels

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p 12

<sup>1</sup>. "Space Junk Grows with Weapons Tests", Science, October 25, 1985. p 424-425.

<sup>2</sup>. Ibid.

<sup>3</sup>. "NASA Strategy Aimed at Cutting Risk if Orbital Collisions", Aviation Week and Space Technology, 5 Sept 1988. p 217

<sup>4</sup>. Ibid.

<sup>5</sup>. US Department of Transportation, Office of Commercial Space Transportation, Hazard Analysis of Commercial Space Transportation, Vol II, May 1988. pp 6-20 - 6-21

<sup>6</sup>. Ibid. p 6-3

in 1978, apparently when hit by debris.

(e)PAGEOS, a US balloon satellite, probably was struck by untracked debris and damaged in high orbit in July 1975.<sup>1</sup>

At this stage the level of risk to communications satellites in geosynchronous orbit is not yet critical but becoming serious, which is fortunate if a speck of dust can totally wipe out a satellite. It can be expected to grow as the increased weapons testing for SDI swells to the level of space junk.<sup>2</sup> In fact the development of anti-satellite (ASAT) weapons in the 'Star Wars' programme threatens to expose current satellites to unprecedented risks and promises to create a debris belt.<sup>3</sup> There is little the civilian satellite industry can do regarding this problem because it would be prohibitively expensive for communication carriers to (a) in the jargon of the industry 'harden' satellites with protective shields and added orbital manoeuvring capability to avoid collisions, (b) provide extra fuel to shift satellites out of geostationary orbit, or (c) undertake space salvaging operations from crowded orbits.<sup>4</sup>

### Chapter Conclusion

Satellites were developed in response to military requirements. The development of a civilian industry took place because large aerospace corporations wanted to extend their potential markets and governments envisaged the development of a strategically important industry. As has been shown there were always choices in the development of satellite technology but the military and industrial imperatives held sway. Yet while governments could sustain losses necessary to maintain the industry, those companies which tried to employ satellites to by-pass terrestrial communications companies have not been

<sup>1</sup>."Space Junk Grows with Weapons Tests", Op.Cit. p 425

<sup>2</sup>.Ibid.

<sup>3</sup>.Tirman, John. "Star Wars Technology Threatens Satellites", Bulletin of Atomic Scientists, May 1986. pp 28-32

<sup>4</sup>.US Dept of Transportation,"Hazard Analysis of Commercial Space Transportation", Vol II Op.Cit. p 6-8

successful.

While the illusion of progress sustained the industry's early development, and the military need for reconnaissance and communications will ensure a future for satellites, the same certainty can not be applied to the civilian equivalents. Domestic satellite agencies are simply not profitable. Canada's Telesat has, until recently, been cross subsidized by terrestrial communications carriers. Telesat's position is best expressed by their head Eldon Thompson. He was reported as making the following statement at a recent conference: "The tone today is far less exciting than it had been," Thompson suggested. He attributed this principally to the fact that the industry is now surrounded by "an aura of realism" which caused it to orient itself toward the commercial market place rather than the enhancement of a particular technology." In Canada the Government was instrumental in helping us get started but today they seem to be finding ways of doing things terrestrially at lower costs. As a result, much of the previous enthusiasm of government has disappeared."<sup>1</sup>

The words of William Meckling of the RAND Corporation in 1962 at the opening of the era of efforts to use space technology for commercial purposes still ring true today,

If glamour displaces science in guiding national policy...the results may be very disappointing. A communications satellite system that charges prices not very much different from present prices and that must be constantly subsidized and protected from competition, is not much of an accomplishment, and may make us the subject of ridicule rather than admiration.<sup>2</sup>

It is against the global background described in this chapter that Australia made its initial moves to acquire a domestic satellite system in the late 1970's. The following chapter documents how developments in Australia were influenced by the course the industry took particularly in North America.

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<sup>1</sup>.Kerver, Tom. "Risks can produce Rewards", Satellite Communications, December 1985. p 21

<sup>2</sup>.Meckling, William H. "The Economic Importance of Space Technology" Paper Presented at the Second National Conference on the Peaceful Uses of Space in Seattle Washington, May 9 1962. RAND Corporation P-2585, June 1962. p 8

## Chapter 2

### The Social Shaping of the Sociotechnical System 1977-1984.

Kerry Packer's role in precipitating the decision making process which led to Australia acquiring a domestic satellite system, has been the focus of much attention amongst commentators on the genesis of Aussat.<sup>1</sup> In part, this has been because Packer's intervention provides the type of discontinuity historians are apt to use in their reconstruction of any series of events.<sup>2</sup> Yet it would also be true to say that this reflection has taken place for reasons other than it neatly fits patterns of historical reconstruction. Publishing and Broadcasting Ltd's (PBL) involvement was undoubtedly a crucial factor in persuading the Fraser Government to look beyond Telecom's advice that such a system could not be economically justified, based on the studies they carried out over a period of fifteen years.<sup>3</sup>

The fact that PBL could generate government support for a project its national carrier claimed made no financial sense, at a time when the monetarist philosophy of Milton Friedman reigned supreme on the treasury benches<sup>4</sup>, has drawn comment on the wider question of the role of the Australian State.<sup>5</sup> The question which has not received detailed attention, is how the shape and development of the technology can only be understood in

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<sup>1</sup>.Reinecke and Schultz. Op.Cit. pp 99-103. Trevor Barr, The Electronic Estate, Penguin, Melbourne, 1985. pp 141-164.

<sup>2</sup>.Foucault, Michel. "Truth and Power", in Power/Knowledge: Selected interviews and other writings 1972-1977, Colin Gordon (Ed) , The Harvester Press, Brighton, 1986. p 112

<sup>3</sup>.It is often overlooked that in 1969 Australia was the second country in the world to use satellite in a domestic network, when trunk circuits between Sydney and Perth were provided over an Intelsat satellite. Refer APTU/ATEA, "Joint Submission to the Australian Government Task Force, National Communications Satellite System", February 1978. p 8

<sup>4</sup>.Whitwell, Greg. The Treasury Line, Allen & Unwin, North Sydney, 1986. pp 224-225

<sup>5</sup>.Chanter,Op.Cit and Slack, Op.Cit.

terms of its reflection of the interests of various actors. This chapter seeks to examine how the process of interplay between the State and the private sector, over the years 1977-1984, shaped the design of the sociotechnical system. In the course of this discussion the way in which the bureaucracy was able to successfully create a planning structure and a space in which to entrench its own position on these matters, will be examined. It will be suggested that although Packer may have eventually won the war, he lost most of the battles.

### PBL and a Domestic Satellite

Packer first became interested in the possibility of using satellite technology for domestic communications in 1976, at the behest of his technical staff. He would later recall, "They said 'We need a communications satellite,' and I looked blankly in their eyes and said 'What do you mean by communications satellite?' and they started to talk about what happened in a country such as Canada."<sup>1</sup> Packer received this advice from a think tank he had recently established under the guidance of Les Free. Their charter was to appraise new communication technologies and suggest how PBL could utilize them in Australia.<sup>2</sup> The reason that Packer took more than usual interest in his 'boffin's' initial briefing on satellites occurred as a result of his television stations securing the rights to broadcast Test Cricket. While Packer's Sydney and Melbourne Channel Nines, together with affiliate metropolitan stations, could broadcast to the majority of Australians, the publicly owned Australian Broadcasting Commission refused to telecast the matches to country areas through its rural network. This prompted Packer to phone Free and enquire

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<sup>1</sup>.Day, Christopher. "Kerry Packer: The Man and his Message, The Video Age, February 1983. p 6 Nigel Dick was in no doubt about who had initially suggested the idea within PBL. As he stated, "...when Australia does have one or more domestic satellite communication systems, and we surely will, it should be properly said that he (Packer) is the man who really launched the idea in Australia. Now perhaps it would be a little more accurate to say that his electronics expert, Les Free, who is also on the platform and is here with Mr Packer, was perhaps the father of it all via Kerry...it was he who loaded the gun for Mr Packer to fire." Nigel Dick, Speech to the Australian Labor Party National Seminar on Rural Australia, 12 May 1979. Transcript T. Finley

<sup>2</sup>.Dargaville, Barry "Smoke Clears on Packer's Star Wars", B&T Advertising, Marketing and Media Weekly, 26 April 1979.

"Satellites bring signals across the world, wouldn't it be possible for satellites to deliver signals all over Australia?", to which the latter replied "Yes".<sup>1</sup> As such Free was told to consider the possible introduction of a domestic satellite a project and launch a feasibility study.

As it eventuated Free was attending a conference on cable television the following week in the United States, where both Hughes and RCA had satellite exhibitions. After the conference, Free spent a couple of days with RCA familiarizing himself with their satellite technology.<sup>2</sup> In the course of their discussions, RCA nominated an ex-employee named Donald Bond, as someone well qualified to undertake a feasibility study on the possible use of satellites in Australia, as he had recently completed a similar project in Alaska.

When Free returned to Australia and told Packer of RCA's advice he was directed to contract Bond to undertake this task. PBL, aware that Telecom was preparing its own assessment of satellite technology which was likely to be less than positive, realized it needed an alternative expert to lend authority to its call for a satellite.<sup>3</sup> Bond seemed eminently qualified to prove Telecom was incorrect and within two weeks of Packer's original call to Free the American had agreed to undertake the study. Packer then contacted the Prime Minister Malcolm Fraser<sup>4</sup>, as he made clear in an interview in 1983,

And I went and saw the Prime Minister and I explained to him my understanding of what was happening in those areas, and to his undying credit he grasped on to it immediately and said 'Of course, it's what we want. It's exactly the sort of thing we need to stop the drift of people into urban areas. We can keep them informed. We can allow them to participate in whatever's happening around the nation,' and he said 'Can you do more for me on this? and I said 'It will take six or nine months. We will pay for it, then we will put to you a paper of how we see this developing'.<sup>5</sup>

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<sup>1</sup>Personal Interview with Les Free, Sydney, 1986.

<sup>2</sup>Hughes had been acting as a consultant for Telecom's satellite study group which is perhaps why Free chose to be briefed by RCA.

<sup>3</sup>Telecom Australia, "National Satellite Communications System Studies", Melbourne, November 1977. and Free, Personal Interview with Author, Op.Cit.

<sup>4</sup>Fisher, Dominique. "The Australian Satellite Planning Process: A Study of Bureaucratic Policy Making", Thesis submitted in part compliance with the requirements for completion of Bachelor of Arts Honours Degree, University of Sydney, 24 October, 1986. Fisher reports Fraser received a letter from Packer on 8 August 1977, urging the Prime Minister to take immediate action to plan and implement a domestic satellite. p 9

<sup>5</sup>Day, Op.Cit. It is interesting to note that in 1977 only two percent of the Australian population were not served by television. G.F. Jenkinson "Population Distribution in Areas of Australia Not Served by TV - Interim Conclusions", Telecom Satellite Task Group Report STG 77/02, March 1977. p 1

True to Fraser's words, the Government dispatched Fred Green, the Secretary of the Postal and Telecommunications Department, together with Bill Beard and Jim Wilkinson to collect the completed report. Packer made the report available to Green on the understanding that it was being given to a department of the state rather than the Government of the day and that it should be made available to both sides of the house. Packer added in a preface,

...I believe that television services should be provided to areas not at present served and that all four Australian networks should reach all the nation's citizens. I am of the opinion that our existing communications network is not satisfactory nor capable of providing such a service to the Australian people. The present Broadcasting and Television Act does not permit networking from major capital city stations, which is a restriction that must be looked at in the light of present day communication possibilities and in view of the stated objectives in the Green Report to develop "an Australian national identity".<sup>1</sup>

To fully understand the reasons why PBL supported the introduction of a domestic satellite, certain factors relating to this statement must be considered. Firstly in 1977, Telecom had a monopoly on domestic communications and as such, the carriage of direct signals between television stations occurred through its land lines. This was not a situation which pleased PBL, in that its executives perceived that providing bearers for television was not one of Telecom's priorities.<sup>2</sup> Over the years they had become increasingly disgruntled by the fact that Telecom was able to dictate to the company what their communications needs were. The satellite promised an alternative to Telecom for direct signal distribution.<sup>3</sup>

Secondly, PBL believed that Telecom and the Government thought of the organization as primarily a telephone company, and as such were not providing the new communications

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<sup>1</sup>Packer, Kerry. "Australian Telecommunication Needs and Domestic Satellites", Preface to the The Opportunity for Television Program Distribution in Australia using Earth Satellites, (Bond Report), Television Corporation Limited, Sydney 1977. The 'Green Report' was Australian Broadcasting: A Report on the Structure of Australian Broadcasting System and Associated Matters, (F.J.Green, Secretary) AGPS, Canberra, 1976.

<sup>2</sup>PBL's discontent with Telecom was outlined in "Cost Comparison for Programme Assembly of News/Current Affair Programmes", T.C. Wellard & V.E.Vinen, PBL Research & Development Department, R&D Report 11, Sydney, 27 January 1978. In this report Wellard and Vinen stated, "When programme producers have sufficient funds to be able to use the bearer system to add live and spontaneous material to the programme they are very often defeated because the terrestrial microwave bearer system is just not available. For example, between December 1977 and February 1978 TCN 9 Sydney was unable to book a circuit between Adelaide and Perth for 21 days out of a total requirement of 52 days." p 2.

<sup>3</sup>Packer made this point directly to the White Task Force. Refer National Satellite Task Force Conference, Transcript of Tape 2 - P&B 7 March 1978. p 4

services burgeoning overseas to major customers. Alternatively, Packer's 'boffins' were hard at work appraising how PBL could provide such services. The third point, made more directly by Packer, was his belief that he should be able to broadcast his programmes to the whole of Australia and that the utilization of satellite technology would call into question the two station rule.<sup>1</sup> PBL's agenda included expansion into country areas where there was at present only one station.<sup>2</sup> These areas were seen as lucrative markets by PBL. Packer told the White Inquiry, that advertising revenue to country stations had increased 81% over the previous two years and that he thought this would further increase.<sup>3</sup> Based on those projections he mapped out a scenario whereby a second licence for stations could be granted in those areas, that could then act as "...straight re-transmitters of metropolitan signals with no attempt to be involved in the local area."<sup>4</sup> In his address to the Task Force, Packer stated he wanted networking and would 'dearly love' to own those extra stations.<sup>5</sup>

Packer believed that independent country stations were the bane of PBL. Stations not under his control could elect not to take his networks's programmes. Some country stations had elected not to take Channel Nine's World Series Cricket coverage, in spite of the fact that it regularly out-rated the combined audience figures of the other two commercial networks and the ABC, in favour of cheaper programmes.<sup>6</sup> The other problem for PBL was that, unlike the situation in the United States, they could not sell advertising space for a national market, in one transaction.<sup>7</sup>

Undoubtedly while a networking ambition was PBL's *raison d'être* for supporting the satellite proposal, the opportunity to compete with Telecom best describes why it was eventually joined by such allies as IBM and Business Telecommunications Services Pty

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<sup>1</sup>.The two station rule was designed to limit the concentration of television ownership. As Packer owned stations in Sydney and Melbourne, he was prohibited from new purchases.

<sup>2</sup>.Packer's actions were later emulated by Televisa, the dominant broadcaster in Mexico, when it convinced its Government of the need for a satellite system. Like PBL, Televisa was primarily interested in commercial expansion. Madrid, *Op.Cit.* p 420

<sup>3</sup>.National Satellite Task Force Conference, Transcript of Tape 1 - P&B, *Op.Cit.* p 7

<sup>4</sup>.*Ibid.* p 10

<sup>5</sup>.*Ibid.* p 12

<sup>6</sup>.*Ibid.* p 19

<sup>7</sup>.Packer's proposed trade off for existing rural stations would have been a monopoly over local advertising, in addition to a percentage of the Network's national sales. *Ibid.* p 5



Ltd (BTS). From the time of the White Inquiry, IBM was a proponent of an Australian satellite system. Just as its objective with SBS in the United States was to by-pass terrestrial carriers, a satellite offered the chance to break Telecom's monopoly. IBM flew a vice president, Bob Evans, to Australia to present a glowing account of SBS developments to the White Inquiry. Evans told the Task Force that satellite companies were making large returns in a fast growing business, and delivered the by now well rehearsed IBM spiel on video conferencing.<sup>1</sup> For these reasons Evans told the Task Force that IBM was 'bullish' about the future of satellites.

IBM also relayed its preference for private ownership. This was an important objective for corporate proponents of the satellite system in Australia. They thought of the satellite not only in respect to making money from telecommunications but also for providing an alternative network over which the Australian Telecommunications Employees Association could not exercise control. In his address to the Task Force, Packer stated,

I think the real thing is that we don't want to be in the situation where one group, whichever group it may be, is in the position to pull all the communications out by having a stoppage or a stop work meeting or whatever you like, right around Australia, just by walking in and disconnecting three ground stations.<sup>2</sup>

When the White Inquiry delivered its report IBM continued to campaign against Telecom being given control of the proposed system. In March 1979, the company's Managing Director wrote to P&T requesting that,

A separate commission or consortium should be established with powers granted to it under the Wireless Telegraphy Act to operate the satellite. We hold the view that no one of the existing commissions should be permitted to gain this right.<sup>3</sup>

In the same letter, IBM suggested that the space segment operator be required to sell capacity to whoever has need for it and that earth station operators have access to terrestrial circuits as part of private networks.<sup>4</sup> Clearly IBM wanted to compete with Telecom along the same lines as SBS was taking on AT&T. The satellite could provide the means but it had to be accompanied by widespread deregulation. Towards this end

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<sup>1</sup>.National Satellite Task Force Conference, IBM Presentation, Tape 6, 21 March 1978.

<sup>2</sup>.National Satellite Task Force Conference, Tape 2, P&B *Op.Cit.* p 25

<sup>3</sup>.Moyes, A.G. "Letter to the Secretary, Post and Telecommunications Department", IBM Australia, 29 March 1979

<sup>4</sup>.*Ibid.*

IBM, together with other large corporate customers of Telecom, formed BTS in 1980.<sup>1</sup> Former IBM(Australia) board member, Peter Holmes a'Court, was appointed to head the 'research company'.<sup>2</sup> Telecom's confidential assessment of why IBM had formed BTS was revealed in an internal document,

Aside from the secondary reason of sharing risk, the most likely answer is that IBM - the powerful and overtly prosperous American multi-national needed a front to camouflage its own ambitions. The members of BTS are all good solid Australian companies (with the exception of CRA which does nurture an Australian identity and has increased its equity over time). Many observers feel that IBM made a tactical error in having one of its Directors become the General Manager of BTS, but IBM probably felt the potential returns were worth the risk.<sup>3</sup>

Over the next two years leading up to the Davidson Inquiry<sup>4</sup>, BTS lobbied for telecommunication deregulation in Australia. Despite unanimity of opinion that deregulation was desirable amongst its members, Ian Reinecke has documented the divisions within BTS over what form satellite competition with Telecom should take.<sup>5</sup> Ted Sandeman, an executive employed by BTS in 1981, resigned within twelve months, after a disagreement with Holmes a'Court, over BTS objectives for the satellite system. In Sandeman's view the system should have been orientated towards competing with Telecom on lucrative inter-City routes rather than providing a national service along the lines of SBS. Sandeman believed that the Australian market could not support an SBS style operation. Holmes a'Court, however, was using the national carrier argument to press for an inquiry into possible deregulation of Telecom's monopoly.

Politically it was a difficult proposition for BTS to publicly argue that the satellite should be used to 'cream skim' Telecom's most profitable services. For its part Telecom could point to an impressive growth in productivity compared to other sectors of the economy.<sup>6</sup> The point both BTS executives overlooked was that by this stage SBS had lost US\$100

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<sup>1</sup>.One of the companies was the Australian retailer Myers. Other companies included BHP, ACI, AWA, TNT, James Hardie, Ampol, ACP and CSR. Curtis, Personal Interview with Author, Sydney, 8 August 1988.

<sup>2</sup>.Reinecke & Schultz, *Op.Cit.* pp 179-198

<sup>3</sup>.Chanter, *Op.Cit.* pp 5-6

<sup>4</sup>.The Davidson Committee was required to determine the extent of private sector participation in the provision of Telecommunications services. Refer Telecommunications Services in Australia, Report of the Committee of Inquiry (The Davidson Report), AGPS, Canberra, 1982.

<sup>5</sup>.Reinecke & Schultz, *Op.Cit.* pp 183-184

<sup>6</sup>.*Ibid.* pp 9-10

million a year in its first two years of operation.<sup>1</sup> While Sandeman was suggesting Australia couldn't support an SBS operation, it was far from apparent that it was viable in the United States. By 1983 IBM was less 'bullish' towards satellite communications and withdrew from BTS before the organization folded after the Davidson Inquiry. While BTS and SBS eventually didn't form the basis for Aussat's organization they were influential in giving the Australian system some technological characteristics.

### The Design Background: Spectrum & Transponder Politics

Amongst proponents of a domestic satellite one of the earliest areas of contention, was in which part of the radio spectrum the satellite would operate. The *Bond Report* suggested that a domestic satellite system would probably use the 4/6 GHz band as the World Administration Radio Conference (WARC-77) had recently endorsed regulations which did not permit Australia to use the 12/14 GHz band.<sup>2</sup> Bond stated,

It is evident that the 12-GHz region is not at present available for fixed-satellite down-link service in Australia although it is in North America. Furthermore, very recent information from the Postal and Telecommunications Department indicates that no attempts would be made under existing ITU procedures to modify the table of allocations for this purpose in Australia. Accordingly, this leaves the 4/6 GHz band as the sole choice within the present practical constraints.<sup>3</sup>

Bond added,

But this is not a bad situation at all. Favourable propagation conditions, availability of space qualified components of long life, commercial availability of complete spacecraft and earth stations, and operational experience are all favourable factors. The major disadvantage is that of sharing with the terrestrial services, especially microwave radio relay bearer circuits.<sup>4</sup>

PBL followed up the *Bond Report* by commissioning J.H.T. Fisher to prepare technical information in support of the use of the 4/6 GHz band.<sup>5</sup> A position paper prepared by Les Free, for the White Task Force in January 1978, expressly stated,

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<sup>1</sup>.Glazer, *Op.Cit.* p 162

<sup>2</sup>.Bond, *Op.Cit.* p 34

<sup>3</sup>.*Ibid.*

<sup>4</sup>.*Ibid.*

<sup>5</sup>.Fisher, J.H.T. "Schedule of Radio Frequency Bands allocated to those types of Satellite Service which might be used in the distribution of Television and Sound Broadcasting Programmes and Programme Material in Australia." Prepared by J.H.T. Fisher at the request of Television Corporation Limited. 1977. Fisher was a member of the Australian delegation to WARC-77.

Television Corporation Ltd. [subsequently PBL] fully supports the recommendation of the Bond Report that Australia should have the first generation fixed satellite system working on the 4/6 GHz frequencies as soon as practicable...The practical implementation of a satellite system in Australia working on 12/14 GHz is probably a decade away.<sup>1</sup>

In a subsequent paper to provide supplementary information to the Task Force, Free reiterated PBL's opinion that the first generation satellite should operate on C-Band (3.7 - 4.2 GHz) but added that the inquiry should also consider the use of S-band (2.5 - 2.69 GHz).<sup>2</sup> Free argued against the 11.7 - 12.2 GHz band on the grounds that satellite technology at these frequencies was still experimental. He suggested that problems with rain attenuation and the reliability of transmitting tubes need more evaluation. This led him to argue that there was little prospect of a 'practical and economic' system being available for Australian use if the 11.7 - 12.2 GHz band was used. Thus, in 1978, Free favoured a system using both C-Band and S-Band. The use of S-Band for Television broadcast had been looked at by Telecom in 1974. They concluded,

...within the portion of the band 2.535-2.655 GHz...two or three FM television channels could be provided, and satellite power could be sufficient for reception by stations equipped with 2 to 3 metre diameter antennas. In Australia there are few terrestrial assignments in this band, so it could also be used for TV distribution to regional broadcast transmitters.<sup>3</sup>

It is possible to speculate that Free recognized that because Telecom did not greatly use S-Band, it would have little claim to control the satellite system based on the need to co-ordinate use with the terrestrial network. Yet PBL realized that a satellite equipped solely with S-Band transmitters was unlikely to be economically viable. While S-Band offered the potential to adequately meet Packer's networking ambitions through an alternative distribution system, it largely precluded broadcasting to individual receivers because of the higher cost of larger dishes. PBL favoured a low powered satellite suitable for distribution of their programming material and available for community reception (i.e. shared larger dishes) rather than direct broadcasting. The hybrid S-Band/C-Band

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<sup>1</sup>Free, Les. "Television Broadcasting and Programme Distribution. Some Technical Considerations for the Next 15 Years", PBL Research and Development Department, 20 January 1978.

<sup>2</sup>Free, Les. "Supplementary Information to A Position Paper : Television Broadcasting and Programme Distribution. Some Technical Considerations for the Next 15 Years." PBL Research and Development Department, 3 March, 1978.

<sup>3</sup>Balderson, M. "Operating Frequencies for Communications Satellites", Telecom Australia, Task Group Paper, Paper No STG 74/22, July 1974.

proposal had the potential to allow networking and not give Telecom a technological justification for satellite control. In PBL's judgement it was also the most economically sound option and would lessen the future cost to them of buying part or all of the system, if the Government eventually sold off the satellite.<sup>1</sup> In addition Free estimated the cost of C-Band transponders would be half that of Ku-Band equivalents.

As it eventuated PBL's proposed use of the C-Band/S-Band frequencies was not taken up by either the Task Force or the Working Group. The Task Force recommendation favoured the use of bands in the 11 GHz to 14 GHz portion of the spectrum.<sup>2</sup> The Working Group concurred, stating "...for similar reasons to those the task force addressed..." they believed "...that the 11 GHz and 14 GHz bands are suitable for use in a national satellite."<sup>3</sup> PBL felt Telecom had urged Ku-band for the system because of what it perceived as the national carrier's traditional engineering conservatism with regard to frequency allocation. In this respect it is typical of the advice Telecom proffered over the course of the decision making process, which was usually what it regarded would best facilitate development of Australia's overall communications infrastructure rather than enhancing its own sociotechnical case for assuming control.

The Task Force's recommendation was in line with the preferred position IBM placed before the inquiry. As noted earlier, IBM owned a third share of SBS in 1978, which proposed to operate on K-Band. SBS had chosen this frequency to ensure independence from terrestrial rivals such as AT&T. At this frequency SBS could not only use higher powered transponders to beam signals to smaller receivers but also ensure that customers could locate their dishes on their premises without fear of co-ordination difficulties with terrestrial systems. Task Force Secretary Richard Johnson would later state in a briefing to Commonwealth Departments, that prospective customers with business data requirements wanted to control their own private networks. Johnson averred,

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<sup>1</sup>. That possible PBL involvement in the ownership and management of the system was at the back of Packer's mind, is indicated in Free's submission which canvassed a 'hypothetical situation' in which PBL was involved in the management of the satellite space segment. Free, "Supplementary Information to A Position Paper", Op.Cit. p 7 PBL recognized it was never likely to be given sole ownership of the system. Free, Personal Interview with Author Op.Cit.

<sup>2</sup>. Task Force Report Op.Cit. p 83

<sup>3</sup>. Working Group Report Op.Cit. p 76

One of the important points I want to make is that the types of people interested in this sort of capability are very concerned to have control of their own communications to the extent they can and therefore they badly want to be able to locate that sort of earth station right in the heart of the capital cities...they particularly don't want to have to get to that earth station by Telecom. They're very conscious of a couple of industrial disputes in Telecom in recent years and that's led them to press hard for a system design that lets an earth station be located right in the heart of the metropolitan area.<sup>1</sup>

By the time the Working Group had assembled, Tony Staley Minister for P&T, had visited Canada and witnessed demonstrations of television broadcasting through the HERMES satellite on the 11/14 GHz frequency. Staley was impressed by both the Canadian and SBS demonstrations he saw in 1979 and reported back to Australia, via a London press conference, that the problems of satellite technology taking television to the outback at an affordable price to individual users had been solved. The spectrum choice had a number of important ramifications, not least of which was as there were then no commercial systems in operation on that frequency band Australia could not buy a 11/14 GHz system 'off the shelf'.

Staley's visit to Canada was also important in terms of the future battles over the size of transponders. Transponders are the mechanisms on satellites which accept a signal from earth, alter the frequency, amplify it and beam it back to terrestrial receivers. The Task Force had stated that 100 watt transponders would be necessary for direct broadcasting.<sup>2</sup> While the choice of the spectrum had important political ramifications, it was the transponder issue which at that stage had the potential to kill off the project. High powered satellites were expensive and had a larger technical risk, while low powered satellites were not believed to be able to deliver an adequate signal level to small, and therefore less expensive, earth stations.

Both Staley and E.E.(Hugh) Payne, the Department's Deputy Secretary, describe themselves as being neither pro nor anti satellites before the Canadian trip.<sup>3</sup> Not believing that the White Report provided a mandate for pressing ahead with an acquisition of a

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<sup>1</sup>Johnson, Richard, "Briefing by the Satellite Project Office to Commonwealth Departments on the National Communications Satellite System: System Definition and Capability", Barton ACT, 25 August 1980. Transcript p 38

<sup>2</sup>Task Force Report, Op.Cit. p 41

<sup>3</sup>Payne describes himself as having been a 'bit on the Curtis line' before the trip. Payne, Personal interview with Author, Bugendore, 30 August 1988.

domestic satellite, Staley decided to go abroad to witness operating systems. Staley recalled, "There didn't seem much point in doing the thing if the costs of providing infrastructure to rural and remote areas was prohibitive".<sup>1</sup> Before he left Australia, Jack Curtis, the Managing Director of Telecom, gave the Minister a briefing in which he told Staley some of the things he should investigate. Staley recalls Curtis, supported by his chief engineer, told him that it was against the 'laws of physics' to get a usable signal from a low to medium powered satellite to a small earth station.<sup>2</sup> With this in mind Staley, along with Payne, visited Japan, the US, Canada and Europe "...to establish whether reliable satellites were available which would provide for smallish earth stations to get an infrastructure into remote parts".<sup>3</sup> In Japan both quickly realized that high powered transponder technology still had a large technical risk and their satellites were not lasting long.

In Canada however, Staley believed he found them doing what Telecom advised was against the 'laws of physics'. Apprised of the problem Staley had been turning over in his mind for weeks, the Canadians repeated an experiment they had conducted in the previous weeks, gradually turning down a high powered transponder until it was broadcasting at 20 watts to a one metre dish. The picture Staley and Payne viewed was still visible albeit with some loss of quality.<sup>4</sup> The former Minister now describes this as the turning point in his own mind. Payne also avers "The Canadians were really the ones that convinced us".<sup>5</sup>

Armed with the knowledge that it was possible to broadcast television signals from lower powered transponders to one metre dishes an enthusiastic Staley called the London press conference. In the Australian Associated Press (AAP) despatch which was telexed through to Australia, Staley reportedly stated,

...the Canadians have found that you can beam good, clear television pictures from a relatively low-powered satellite into an earth station only 1.2 metres in diameter. They're

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<sup>1</sup>.Staley, Tony. Personal Interview with Author, Sydney, 9 August 1988.

<sup>2</sup>.Ibid.

<sup>3</sup>.Ibid.

<sup>4</sup>.Reinecke & Schultz, Op.Cit. p 113

<sup>5</sup>.Payne, Personal Interview with Author Op.Cit.

now working on an even smaller earth station of about 90 centimetres -- a huggable (*sic*) size. Hitherto our technical advice has been that you must have a very high powered satellite to get a good picture. This is no longer the case. The Canadians have made a breakthrough in world thinking, and I believe have probably achieved world leadership in this field.<sup>1</sup>

Much to Staley and Payne's surprise Ian Reinecke, a journalist with the *Financial Review*, attended and reported the conference back to Australia. Hugh Payne, who now describes Reinecke as the 'class model absolute skeptic' recalls,

Tony spoke about a technological breakthrough, and that was what I think got up Reinecke's nose because no one could say there was any technological breakthrough, but it was just Tony's exuberance. Now somewhere or other Tony must have thought there was a magic box or something I think, and he was a Minister on the run and an enthusiast by nature, maybe he didn't get the full simplicity of what they were doing. I got the skeptics when I came back don't worry.<sup>2</sup>

Ian Reinecke was certainly not alone in querying the Canadian claims. In briefing Staley in the United Kingdom, British Aerospace also expressed doubts about the Canadian experiment.<sup>3</sup> In a report on Staley's visit to the UK British Aerospace told their Australian office,

During our briefing of Mr Staley we spoke of Canadian developments. Unfortunately our disbelief of Canadian claims was misinterpreted as lack of knowledge...After seeing Mr Staley we had discussions with several U.S. manufacturers at Intelcom 79 in Dallas and none were convinced it can be done at a price acceptable to consumers.<sup>4</sup>

On their return to Australia, Staley and Payne faced what the latter would eventually describe as the project's three leading skeptics. Payne recalled,

There were three skeptics I had to deal with directly, Curtis, Bill Beard and in a certain way Reinecke because he was shooting from the papers.<sup>5</sup>

Staley, in his first meeting back in Australia with Curtis, told the Telecom Managing Director 'That which you said couldn't be done is being done', to which the latter replied, "Minister I think you must have met a very good salesman".<sup>6</sup> Staley remembers he just smiled and wasn't going to get anxious about it but that Hugh Payne got 'really outraged

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<sup>1</sup>.AAP, Telex from London, ANS008-ANS010, 14 February 1979.

<sup>2</sup>.Payne, Personal Interview with Author, Op.Cit.

<sup>3</sup>.Reinecke & Schultz, Op.Cit. p 113

<sup>4</sup>.Joyner,W.S. "Report on visit of Hon.A. Staley to U.K. February 1979", British Aerospace Australia Limited, Canberra, 21 May 1979. Payne confirmed to the author that he and Staley had garnered the impression that the British company was 'ten years' behind, in spite of the reassurances of the fighter pilot (in the 'Biggles' mould) who hosted a luncheon for them at British Aerospace.

<sup>5</sup>.Payne, Personal Interview with Author, Op.Cit.

<sup>6</sup>.Staley and Curtis Interviews, Op.Cit.



and angry with Jack'.<sup>1</sup> Curtis repeated the thought to Payne in somewhat less diplomatic fashion at a Telecom Board meeting. Curtis and Payne, who was by now acting head of P&T, had a heated exchange. Later Curtis would state that he only lost his temper four times as Managing Director of Telecom and that three of those occasions were with Hugh Payne. Payne on the other hand recalls that he was livid at the suggestion of being 'conned'. John Coleman, the representative of the Department of Finance on the White Inquiry, but by now working for P&T, suggested he had never seen Payne in a more angry mood.<sup>2</sup>

Payne's response was to send Bill Beard, 'the greatest skeptic' and a Department engineer to Canada. Payne remembers saying,

One way to satisfy you Beard is to send you over to talk to the Canadians. You're our engineer and your remit is to tell me whether the Canadians are technologically right. And Guster who was chairman of the Working Group got all up in arms because he was a trained engineer also and said he should have gone. So I said you can both go.<sup>3</sup>

Staley concurred with Payne's action, and later stated,

What we did was, granted that Hugh and I were amateurs, and had received advice from, it must be said, government officials and not just from salesmen who were pushing any sort of commercial interest, - I suppose it could be argued that those who headed up senior government satellite areas in Canada were salesmen for their government, but I think it is a bit crude to regard them simply as salesmen in the normal commercial sense, certainly not as used car salesmen - and the point is Hugh and I, unless they had played tricks with us, we actually observed them running up and down levels of power and simulating all sorts of exercises. But clearly because we were generalists and amateurs, we or I decided to send an engineer over and I remember the word which was used by the Departmental engineer who reported back to me, 'Eureka' he said 'you're right Minister' and so that whole process was important in deciding whether the time had come for us to go satellite.<sup>4</sup>

Staley continued,

I certainly therefore I suppose rejected Telecom's advice which I found to be wrong. I don't know why it was wrong. It's not something I ever knew. Whether it was an engineering conservatism, a powerplay or an interrelatedness of those two factors, I don't

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<sup>1</sup>.Staley, Personal Interview with Author, Op.Cit.

<sup>2</sup>.Coleman, Personal Interview with Author, Op.Cit.

<sup>3</sup>.Payne, Personal Interview with Author, Op.Cit.

<sup>4</sup>.Staley, Personal Interview with Author, Op.Cit. Beard at least appears not to have entirely lost his skepticism after his Canadian trip. In a covering letter attached to a report from the Department's Broadcasting Engineering Division (BED) then located in Melbourne, Beard noted BED believed "...it feasible to use 20 watt transponders for the proposed service, albeit that compromises will [be] require[d] to be made in the quality of service consistent with the aim of minimising the cost of space equipment and of earth stations proposed to be installed at remote homesteads". Bill Beard, "Direct Broadcasting Service By Satellite to Remote Areas - Use of Low Power Transponders", Undated letter to Minister, BED, Marland House, Melbourne.

know. I've always liked and respected Jack and I wouldn't believe he would deliberately mislead me and that it would have been his honest view about it rather than a cynical exercise in power politics on behalf of Telecom. I don't think it would be like that with a guy like Jack but clearly the advice I got was demonstrably wrong.<sup>1</sup>

Staley's rejection of the Telecom advice, as Anne Moyal has pointed out, was quite exceptional in terms of Australian political history. It is perhaps the first time a Commonwealth Minister acted against the advice of a bureaucratic head on a decision over a major technological project.<sup>2</sup>

The explanation for the conflicting advice from Telecom lay in the fact that Curtis had started from a different premise than Staley. When Curtis considered what the Canadians were doing it was not just in terms of broadcasting television. Curtis looked at the wider implications of proceeding with the satellite for services, such as remote telephony. For Curtis the Canadian situation in this context was different. They had isolated communities in clusters - 'trunk services to Eskimo villages' - rather than the thin spread of potential users as in the Australian outback. Thus while it was technically possible to provide a satellite service it would be enormously expensive to provide interactive dishes and place a tremendous strain on the national network. What Curtis tried to explain to Staley was that the majority of calls made by remote subscribers were made to the secondary area. In the case of the people east of Alice Springs eighty percent of their calls went to that centre. To use a satellite would entail taking these calls to Sydney and then allowing eighty percent of them to wend their way back to Alice Springs producing a high cost in the national network. Telecom's advice was not 'wrong' as Staley would later contend but instead reflected its Managing Director's honest assessment of the satellite's utility. Curtis was a great believer in the Westminster system of government and what that entailed in terms of the proper role of public officials. The advice he tendered to ministers was, in his estimation, in the tradition of a civil service neutrality. Curtis would often say to Staley,

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<sup>1</sup>.Staley, Personal Interview with Author, *Op.Cit.*

<sup>2</sup>.Moyal, Anne. *Clear Across Australia: A history of telecommunications*, Nelson, Melbourne, 1986. p 348

Always remember Minister I'll give you my best advice, it will never be deliberately couched by me in any way, it will always be - although you might not agree with it - what I think is my best advice.<sup>1</sup>

Their relationship was not easy for either. Staley liked and respected Curtis but resented the 'lectures' he was given.<sup>2</sup> For his part Curtis found Staley amiable but a difficult Minister who 'needed a bit of lecturing'.<sup>3</sup> Moyal has noted that Telecom pundits at this time were characterizing the Minister as a 'technological romantic' and a convert to 'small boy technological wonderment'.<sup>4</sup>

Yet even though Curtis maintained that the introduction of a domestic satellite was not warranted, he continually intimated to Staley that if the Government decided in favour of acquiring such a system, Telecom would fully support this endeavour.<sup>5</sup> This integrity was admired yet in some ways placed his organization at a disadvantage in the Machiavellian world of bureaucratic politics. This was Reinecke's assessment at the time when he noted "Telecom was behaving exactly like a good old-fashion public servant and ignoring the political process."<sup>6</sup>

Curtis suffered from an engineering *hubris*. He was confident that technical and economic arguments would win out over politically based arguments. Curtis had not read the very powerful vested interests lining up behind the decision to proceed, especially Packer and Murdoch and thought Staley was out on a limb. Yet even if Curtis had recognized the Government's determination to appease the moguls, it is doubtful that Telecom would have changed its position. According to Curtis he was reflecting the weight of opinion in Telecom which was against the satellite being a sensible decision in terms of bush telephony, the School of the Air or the Flying Doctor Service. This is supported by the fact that Telecom did not significantly alter its position after Curtis left in

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<sup>1</sup>.Ibid.

<sup>2</sup>.Refer also Ann Moyal's astute assessment of the Curtis-Staley relationship in Moyal Op.Cit. p 343 On one occasion Telecom set up a demonstration with satellite telephony to 'upstage' television demonstrations in the remote areas. Curtis invited Staley to be the first person to trial the experiment and Curtis remembers Staley said to him, "You're not going to not make it work are you Jack", to which the Managing Director of Telecom responded "You really don't understand me Minister". Curtis, Personal interview with Author, Op.Cit.

<sup>3</sup>.Curtis, Personal Interview with Author, Op.Cit.

<sup>4</sup>.Moyal, Op.Cit. p 345

<sup>5</sup>.That this commitment was honoured is evident in the fact that Curtis allowed Telecom's laboratory to conduct satellite experimental work free of charge.

<sup>6</sup>.Reinecke cited in Moyal, Op.Cit. p 343

1981.<sup>1</sup> What is often overlooked by concentrating on the Managing Director's role is that Telecom itself had arrived at the conclusion that the satellite did not make sense in terms of its overall development priorities. As an organization starved of capital it would have had to shift an estimated \$400 million from other areas adjudged of greater importance to a satellite it believed had dubious utility. This was the reason Curtis turned down an early offer by Staley for Telecom to put up a satellite. As Curtis believed the satellite was 'not a goer' he felt a decision such as this should properly be taken by government. Staley later recounted the private approach he made to interest Curtis,

I never made this public but quite early in the piece I said Jack I think we could save a whole lot of difficulty and get a satellite up quickly if you agree to do so...I felt it would forestall a number of difficult questions in which government in future was going to have to resolve if Telecom put one up, it would harness the full resources and all that expertise of Telecom to it and get us into the satellite age pretty quickly...and I was serious about asking Jack whether he would consider doing it. But he said "No. If the government wants one the government will have to pay for it and do it." And I therefore lost interest in pursuing that question. For one thing if the head of Telecom wasn't interested in taking it, it seemed to me there would never be a full commitment to it and I certainly lost interest in the idea of Telecom. And I talked to OTC. I always saw OTC as a distinct possibility for controlling our domestic satellite system.<sup>2</sup>

Believing that the satellite would be a financial drain for questionable utility Curtis acted sensibly yet perhaps not in a manner which would have been politically expedient for Telecom or the Government. For Staley, getting Telecom to proceed with the project would have undermined accusations that this was simply an exercise in breaking Telecom's monopoly. For Telecom, while they remained in control of the system, it would have served to ensure their monopoly. Yet while Curtis believed that the decision to proceed was directly aimed at Telecom's monopoly, this did not form the basis of his opposition, which was 'What you got for what you paid' did not justify proceeding.<sup>3</sup> Given the history of government financial support Curtis doubted that it would provide funding for a remote telephony service via satellite and therefore Telecom would have to absorb the cost with a consequent drain on other services.

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<sup>1</sup>.Curtis had the support of senior colleagues, including Jim Smith, the former head of finance and accounting in the PMG but by then Telecom Deputy Chief General Manager.

<sup>2</sup>.Staley, Personal Interview with Author, Op.Cit.

<sup>3</sup>.Curtis, Personal Interview with Author, Op.Cit.

Staley's private attempt to use Telecom as the initial organization to plan and implement the satellite system failed because Telecom refused to be 'enrolled'. In addition proponents felt that Telecom, not content with opting out of promoting the satellite system, was actually retarding planning and implementation. Comments made by the Department of Transport(DoT), a satellite enthusiast in its submission to the Working Group are instructive as to how the national carrier was regarded,

The submission appears to have been prepared with a bias against a DOMSAT in the Task Force time scale and consequently the statements made need to be examined critically...It is interesting to note that despite extensive and in depth studies at least since 1972, Telecom in their formal submissions to the Task force and the Working Group have not been able to propose one positive application for a DOMSAT...this raises a query as to whether the other proposed positive applications are 'pies in the sky' or whether for reasons of their own Telecom are downplaying the present approach to introducing a DOMSAT.<sup>1</sup>

Thus proponents of the acquisition of a satellite system decided that if Telecom could not be relied upon to play their allotted role a planning structure would be built around them. This is exemplified in the structuring of the organization which would plan and implement the satellite system.

### The Satellite Project Office and Telecom

When Tony Staley tabled the Working Group Report in October 1979, he announced the Government's in principle decision to establish a domestic satellite system.<sup>2</sup> Staley added that a Satellite Project Office (SPO) would be established within the Postal and Telecommunications Department, in order to plan the system's implementation.

A satellite project office is to be established with all speed within my Department to set in train the wide range of planning activities necessary. Specialist officers will be seconded from other Government departments and authorities to serve in this office and they will be supported as required by expert private consultancy services...the satellite project office will keep under constant review all relevant aspects such as user requirements, financial implications, social impact, private industry involvement and technological developments.<sup>3</sup>

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<sup>1</sup>."NCS Working Group - DoT Comments on Telecom Aust Submission March 1979 "(Submission No 126 to the WG), Paper to NCS Working Group Members, 16 May 1979.

<sup>2</sup>.Staley, A.A. Minister for Post & Telecommunications. "National Communications Satellite Task Force: Report and Ministerial Statement", From the 'Parliamentary Debates', 18 October 1979.

<sup>3</sup>.Ibid. p 4

As Staley had announced only an 'in principle' decision to proceed, critics such as the Labor Party's spokes-person, Susan Ryan surmised that the SPO was "...another piece of bureaucracy to look further at the question".<sup>1</sup> A careful reading of Staley's speech reveals this to be a fair assumption. It was the interpretation placed on the decision by the Department of Finance, who never tired of pointing out to DOC & OTC over the following two years that the Government was yet to make a final decision to introduce a domestic satellite system.<sup>2</sup> It was not, however, a view shared by Bob Lansdown, the new Secretary of P&T or OTC's Graham Gosewinckel.

The structure of the SPO was the creation of Lansdown, Payne and Gosewinckel. In a letter to Talbot Duckmanton the General Manager of the ABC, Lansdown wrote,

As you know, Mr Gosewinckel has been working with me to draw out the nature of the work program for the technical development of the satellite communications system and as part of that process to identify resources and tasks.<sup>3</sup>

Gosewinckel had written to Lansdown on the 29th November 1979 outlining their preferred organizational structure for the SPO. In that letter he stated that the prime objective of the SPO was the earliest possible launch of the first satellite.

As he saw it, to meet this objective,

(1)The planning and development of the space and earth segments must be performed by a single group working as a team and having both technical and economic skills. This requirement arises from the strong inter-relationship between the two segments and the iterative nature of studies necessary to optimise the system as a whole.

(2)In view of the above and the timeframe objective it is essential that the key activities in the development of the RFP [Request for Proposal] be performed by people with first hand satellite experience and knowledge.

(3)The unreserved cooperation from key parties. In this regard, the corporate attitudes of OTC, Telecom, P&T, ABC and those departments associated with procurement are seen as vital, particularly if timescales are to be met.<sup>4</sup>

Gosewinckel's planning approach manifests several central concerns of Aussat's proponents. Like the TSR2 project described by Law and Callon the development of a single group or 'translation centre' is often considered necessary to act as a central point

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<sup>1</sup>.Ryan, Susan. "National Communications Satellite System", Hansard, Senate 23 October 1979. p 1614

<sup>2</sup>.Guilfoyle, Margaret.(Minister for Finance) "Letter to Ian Sinclair, Minister for Communications", 11 June 1981.

<sup>3</sup>.Lansdown, Robert. "Letter to Talbot Duckmanton", 30 November 1979.

<sup>4</sup>.Gosewinckel, Graham "National Satellite System", P&T Minute Paper, 29 November 1979.

of control.<sup>1</sup> The objective is to carry out planning in a way which maximizes control and, to the extent it is possible, exclude the ability of other actors to prioritize their interests. In this case the second point made by Gosewinckel specifically relates to the first concern. To work effectively Gosewinckel had recognized that the central group would have to be primarily staffed by OTC personnel. If it was a shared arrangement with, for instance, OTC and Telecom being involved, actors would tend to place the interests of their own organizations above the 'earliest launch' goal. The difficulty was that Telecom could claim 'technical expertise' in this area equal if not greater than OTC, though perhaps not the latter's vaunted 'first hand experience'. In this situation Gosewinckel recognized that project loyalty would be easier to generate if the staff was predominantly from OTC. Actions could be carried out in an environment shielded from external criticism.

Yet other actors had to be accommodated in the organizational structure if the project was to receive support from the outside world. The third point relates to how Gosewinckel envisaged enrolling other actors into the planning structure. In other words specifying the need to mobilize support by ensuring that neighbouring actors occupied their designated positions or at least securing their neutrality while the satellite system's sociotechnical engineers gave the project a shape they thought would allow it to survive. With this in mind Gosewinckel suggested dividing work between the existing organizations within the P&T portfolio. Gosewinckel suggested the following task groups:

- A. Central Control and Co-ordination Unit (located in P&T, Canberra).
- B. System Planning and Development (allocated to OTC, Sydney).
- C. Integration with National Network (allocated to Telecom, Melbourne)
- D. Direct Broadcasting and Frequency Management (allocated to P&T, Melbourne).<sup>2</sup>

This division of tasks was to profoundly affect the course of implementation and shaping of the sociotechnical system. Gosewinckel's proposal, worked out in consultation with Lansdown, gave control of the most important parts of the decision making process to OTC and P&T. Assuming that a division of tasks was necessary, it could be suggested with some justification that P&T should have had the role of controlling and co-

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<sup>1</sup>.Law and Callon, "The Life and Death of an Aircraft: A Network Analysis of Technical Change", *Op.Cit.* p 16

<sup>2</sup>.Gosewinckel "National Satellite System", *Op.Cit.*

ordinating the overall project. What was more contentious, was why OTC should have been given responsibility for the all important System Planning and Development task over Telecom. Under the Gosewinckel proposal Telecom was relegated to working on the integration of the satellite rather than having any significant input in the design of the spacecraft. The national carrier had been 'enrolled' but it was not part of the central controlling group.

The fact that Telecom was not given a role in the satellite design process was largely its own making. The position which went to Gosewinckel, as head of the SPO, had first been offered to Telecom by Lansdown. The offer to Telecom needs to be carefully examined, as it was judged by the Secretary's senior colleagues as being a mistake. Lansdown's offer to Jack Curtis was his own initiative, taken without consultation with colleagues. It reflects two important points. Lansdown was an able bureaucrat yet new to the portfolio. His management style was one of trying to avoid conflict by drawing actors into consensus. The invitation to Curtis to find someone to fill what would become Gosewinckel's position can be seen as an attempt to draw Telecom into the fold.

To others it was not the best possible approach. Hugh Payne, the Deputy Secretary, was more experienced in the portfolio and had taken on the job of running the Department during the previous Secretary's long illness. Payne's management style was different to Lansdown's. His priority was to get the job done and not worry if you stepped on some toes along the way. On this occasion Payne felt sorry for Lansdown because he felt the Secretary was exhibiting his inexperience in making the offer to Telecom. Payne had a close relationship with Staley and was cognizant not only of the Minister's enthusiasm for the project but also of his inclination to give it to OTC. This being the case, Payne believed Lansdown should have been looking to fill the position with someone from OTC. As such he was pleased to learn that Jack Curtis could not find anyone willing to take on the job.

The difficulty Curtis had in nominating a Telecom officer for the position and senior P&T bureaucrats wish to fill it with someone from OTC, are not unrelated. When Curtis received the offer he asked Rollo Brett, who had been Telecom's Task Force



representative, if he would go to Canberra and talk to the Department. Brett returned to say he found it unattractive because he thought his decisions as technical head would be overridden by the people in the Department.<sup>1</sup> Curtis then tried Bob Mackinnon who also turned it down. With Curtis unable to interest anyone within Telecom, Payne contacted Cyril Vahtrick, then acting General Manager at OTC, who in turn suggested Graham Gosewinckel. Payne was then able to convince Lansdown that OTC should provide the head of the SPO rather than Telecom.<sup>2</sup>

Telecom was not to play the pivotal role in the design process that they might have done, had Curtis been able to interest one of his senior engineers. It was something the national carrier would rue as it later tried to influence the design from outside the System Planning and Development Group (SPADG). As head Gosewinckel was able to propose a structure that marginalised Telecom's role.

Gosewinckel had as Telecom objectives:

1. To develop an input to the overall statement of satellite user requirements, based on:-
  - a detailed survey of the number of potential telephone subscribers in remote areas;
  - a review of the rural updating programme in the light of the decision to proceed with a satellite system.
  - review of the trunk route capital programme in the light of the decision to proceed with a satellite system.
2. To develop, as an input to the system RFPs, technical performance standards for remote area telephony earth stations....
3. To develop interface arrangements required to enable the satellite system to be integrated with the existing terrestrial system in respect of the public telephone, telex and telegram services, including:- switching and signalling; and echo control.
4. To provide research capability where required.<sup>3</sup>

In contrast to Telecom's diminutive responsibilities OTC was to be responsible, by mid 1980, for producing an "...RFP for the satellite system as a whole (space segment and earth segment) sufficient to enable prospective tenderers to respond...".<sup>4</sup> Gosewinckel argued that OTC had the expertise and resources necessary to undertake these functions

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<sup>1</sup>.For Brett's views on the satellite project refer P.R.Brett, Director of Planning, Telecom Australia "Satellites in Australia's Telecommunications Network", University of NSW Seminar, 23-25 November 1978. Brett argued the Telecom line at this conference pointing out, "Contrary to Press reports Telecom has never been opposed to a domestic satellite system. Our position has been that whether a satellite is needed or not depends on what we want to do with it and how much we as a nation are prepared to spend to get the services and other benefits that it could provide. On our studies the demands that we were able to identify a year or so ago could be met more economically by expansion of a terrestrial network." p 2

<sup>2</sup>.Payne, Personal Interview with Author, Op.Cit.

<sup>3</sup>.Gosewinckel, "National Satellite System", Op.Cit. Attachment C.

<sup>4</sup>.Ibid. Attachment B

as a package. Implicit in these organizational arrangements was the idea that OTC would be given control of the satellite system. In his covering letter Gosewinckel stated,

Naturally, the major decisions regarding the system should be made by the organisation which will finally have responsibility for the ownership, operation and financial performance of the system, and one would hope for the earliest possible decision in this regard. With this in mind, this paper addresses the period up to June 1980, and outlines arrangements which would lead to the availability of a system RFP by that date. Accordingly, the decision to issue the RFP could be taken by the final organisation if it were established in that timeframe.<sup>1</sup>

Clearly as all the major decisions were to be taken within SPADG, the proposed structure and allotment of tasks implied OTC would have a strong case for assuming ownership.

The enrollment process, envisaged by Gosewinckel, was resisted by Telecom. Law has noted,

Those who are to be enrolled in the sociotechnical system do not accept the initial definition of their roles. They return with proposals for alternative scenarios, ones that better match their concerns.<sup>2</sup>

Lansdown sent a copy of Gosewinckel's proposed organizational arrangements to Jack Curtis on 30th November 1979. Curtis replied to the Secretary on the 7th December 1979, in less than supportive terms, stating,

I cannot fully endorse Mr Gosewinckel's objective of the earliest possible satellite launch as I think a more important objective is to fully identify the services to be provided in the first generation system recognising that these decisions will have effects extending well into the future, well beyond first generation life because of commitment of longer life ground segment costs. A corollary to this is that the major technology issues must be tackled quickly and a clear planning path for the future developed before commitment to a system design as I would see the risk of prejudicing the final success of the system if this is not done. In this respect the remote subscriber telephony and TV service is a significant factor in total system costs and I would be particularly concerned for this reason that the system design is well based. My people would, of course, be fully available to participate in this work.<sup>3</sup>

In this statement Curtis raised a number of important points. Firstly his rejection of the earliest possible launch objective in favour of considerations of 'major technology issues' was clearly more in line with Staley's statement on the function of the SPO. Secondly it shows Curtis recognized that to influence the shaping of the spacecraft Telecom would

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<sup>1</sup> *Ibid.* p 1

<sup>2</sup> Law, "Anatomy of a Sociotechnical Struggle; the design of the TSR-2", *Op.Cit.* p 18

<sup>3</sup> Curtis, J.H. Managing Director of Telecom, "Letter to Lansdown", 7 December 1979. Staley maintains Curtis advised him that Telecom was the only organization in Australia which had the capability to plan and implement a domestic satellite system.

have to participate directly in the design process.<sup>1</sup> Yet because it had lost the chance to fill Gosewinckel's position Telecom could not hope to significantly contribute to the shaping of the technology.

Curtis then proceeded to critique the marginal tasks Gosewinckel had proposed for Telecom,

In attachment C of Mr Gosewinckel's paper, he suggests that Telecom should undertake a review of its trunk capital program in the light of the satellite decision. Telecom, as you know, has undertaken comprehensive studies over a long period in this area and has been unable to identify any route or major segment of a route which would be economic on the cost figures available to us. The decision to proceed was in the knowledge of this position and the cost summaries and proposed transponder lease charges since developed do not alter this picture. This would not preclude our use of the satellite for thin route telephony purposes, or for TV relay and short-term unforeseen trunk telephony requirements if these should arise. There are uncertainties in the TV relay market which, no doubt, you will appreciate. Similarly, I would not see it as useful to again review the rural automation programme as none of the key costs or timings has changed.<sup>2</sup>

On the same day Curtis sent Lansdown his unenthusiastic response to Gosewinckel's proposed organizational structure, the latter sent Duckmanton a more detailed paper on the proposed Canberra based activities of the SPO. The proposed 'Central Control and Co-ordination Unit' activities were divided into two separate functional areas,

1. Satellite System Management Unit, [SSMU] the functions of which would be transferred in due course to the satellite authority.

2. Satellite Policy Division, [SPD] the functions of which would remain within the Department.<sup>3</sup>

The SSMU's proposed responsibilities were primarily to design the satellite RFP and to manage the overall system project until it was handed over to a permanent authority.<sup>4</sup>

The Satellite Policy Division was responsible for liaison with other Government Departments and/or Statutory Authorities and for developing a recommendation regarding the identity and nature of the permanent satellite authority. The SPD was to also consider

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<sup>1</sup> Curtis now believes that Telecom's role reflected the underlying motive behind the project to break Telecom's monopoly. Curtis, Personal Interview with Author Op.Cit.

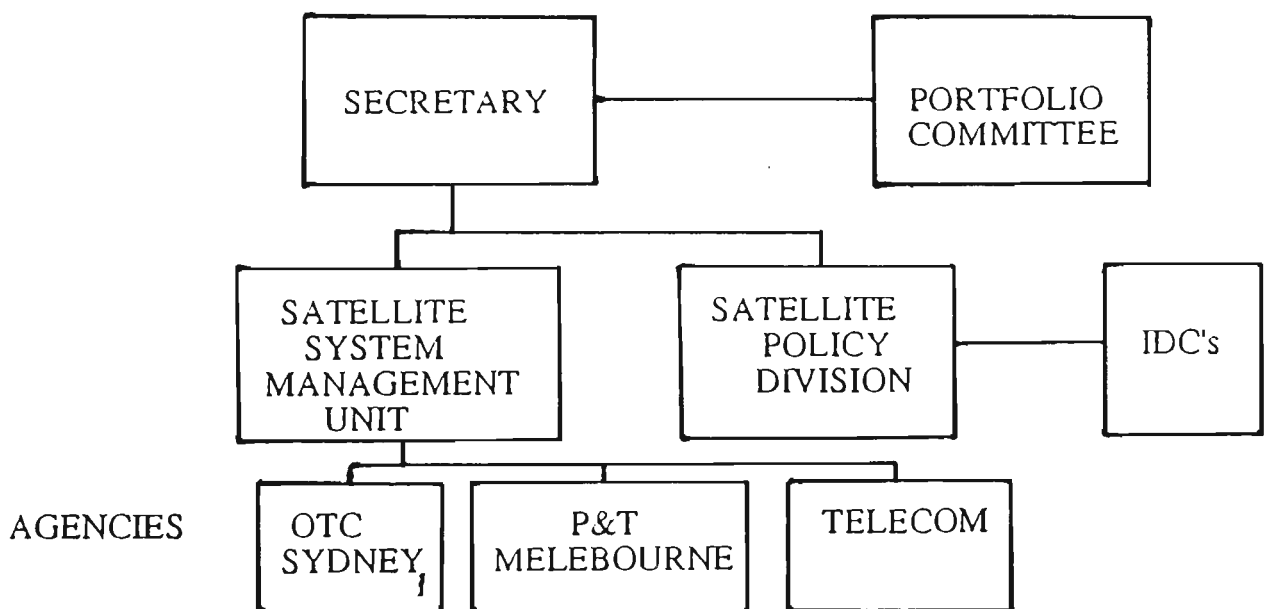
<sup>2</sup> Curtis, "Letter to Lansdown", 7 December 1979, Op.Cit.

<sup>3</sup> Gosewinckel, W.G. "National Satellite System: Structure and Functions of the Satellite Project Office", 7 December 1979.

<sup>4</sup> Gosewinckel also found himself in the enviable position of writing the job description, for a position he would be seconded to in December 1980, Director of the SSMU. Next to the description of the Director "A senior executive with a demonstrated capability in the management, engineering and planning of major telecommunications projects and in particular, with an extensive background in the development of commercial satellite systems.", Duckmanton penned in large letters Gosewinckel's initials. Ibid. Attachment 1, p 2

the broader areas of policy relating to the satellite, including changes to existing legislation, broadcasting policy (in consultation with the P&T Broadcasting Policy Division), licensing of earth stations, regulations pertaining to the use of the satellite system and the financial aspects of the system. Gosewinckel also envisaged that the SPD would jointly consult with potential users along with the System Planning and Development Group (OTC).<sup>1</sup>

In the Gosewinckel proposal the structure of the SPO was presented in diagrammatical form.



The document setting out proposed SPO arrangements, Gosewinckel which forwarded to Duckmanton, was briefing material for a meeting of the National Satellite Portfolio Committee, held in Canberra on 11th December 1979. The Portfolio Committee's membership included Lansdown (Secretary, P&T), Talbot Duckmanton (Managing Director, ABC), Jack Curtis (Managing Director, Telecom) and Bill Schmidt (Managing Director, OTC). At that meeting the proposed structure Gosewinckel and Lansdown had designed was adopted. On 21st December 1979, Lansdown was able to report to Staley,

...our arrangements for the Satellite Project are looking pretty healthy. We are progressing satisfactorily with establishing a Satellite Policy Group under Alan Guster in

<sup>1</sup>. Ibid. Attachment 2 pp 1-2

Canberra. On the technical side I seem to have been successful in obtaining Graham Gosewinckel's services and in setting up agency arrangements with OTC and Telecom.<sup>1</sup>

In this Minute Lansdown suggested holding a workshop in early 1980 on particular satellite issues "...but aimed more at progressive awareness and acceptance of satellite implications."<sup>2</sup> At that workshop in April 1980 Gosewinckel laid out the final SPO structure, (p 99 & p 100) and the organizational arrangements for the National Satellite System Planning and Development Group (SPADG - p 101).<sup>3</sup> With the addition of the two Advisory Committees and the Broadcasting Engineering Division (BED) the arrangements mirrored Gosewinckel and Lansdown's earlier proposals. The Technical Advisory Committee was convened and Chaired by the Director of the SSMU, Graham Gosewinckel and the Policy Advisory Committee by Alan Guster, the First Assistant Secretary of the SPD. The BED was responsible for developing the overall technical performance standards for the Homestead and Community Broadcasting Satellite Service (HACBSS).<sup>4</sup>

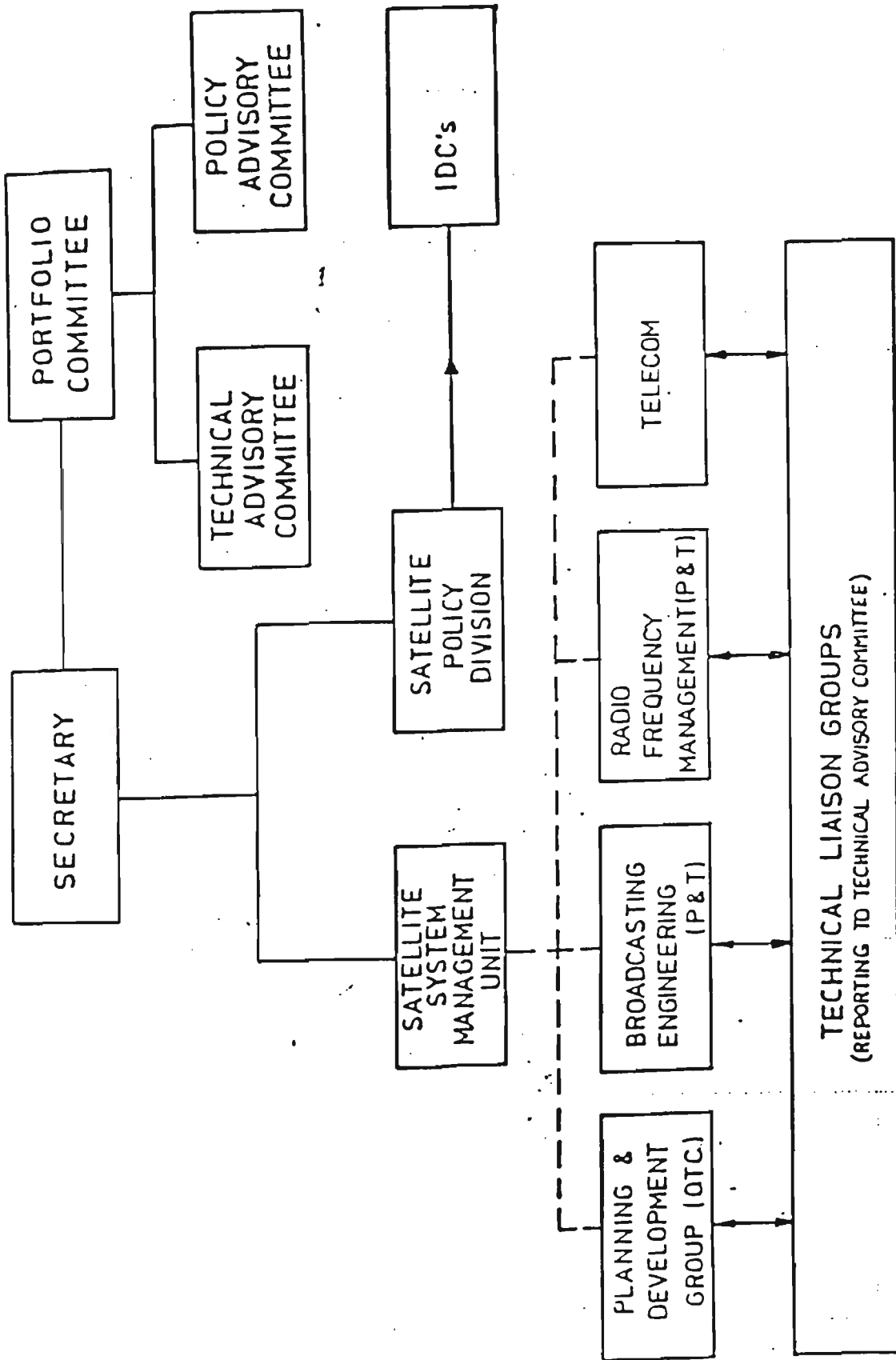
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<sup>1</sup>.Lansdown, R.B. "My Christmas Message about the Satellite", Minute Paper to Minister, 21 December 1979.

<sup>2</sup>.Ibid.

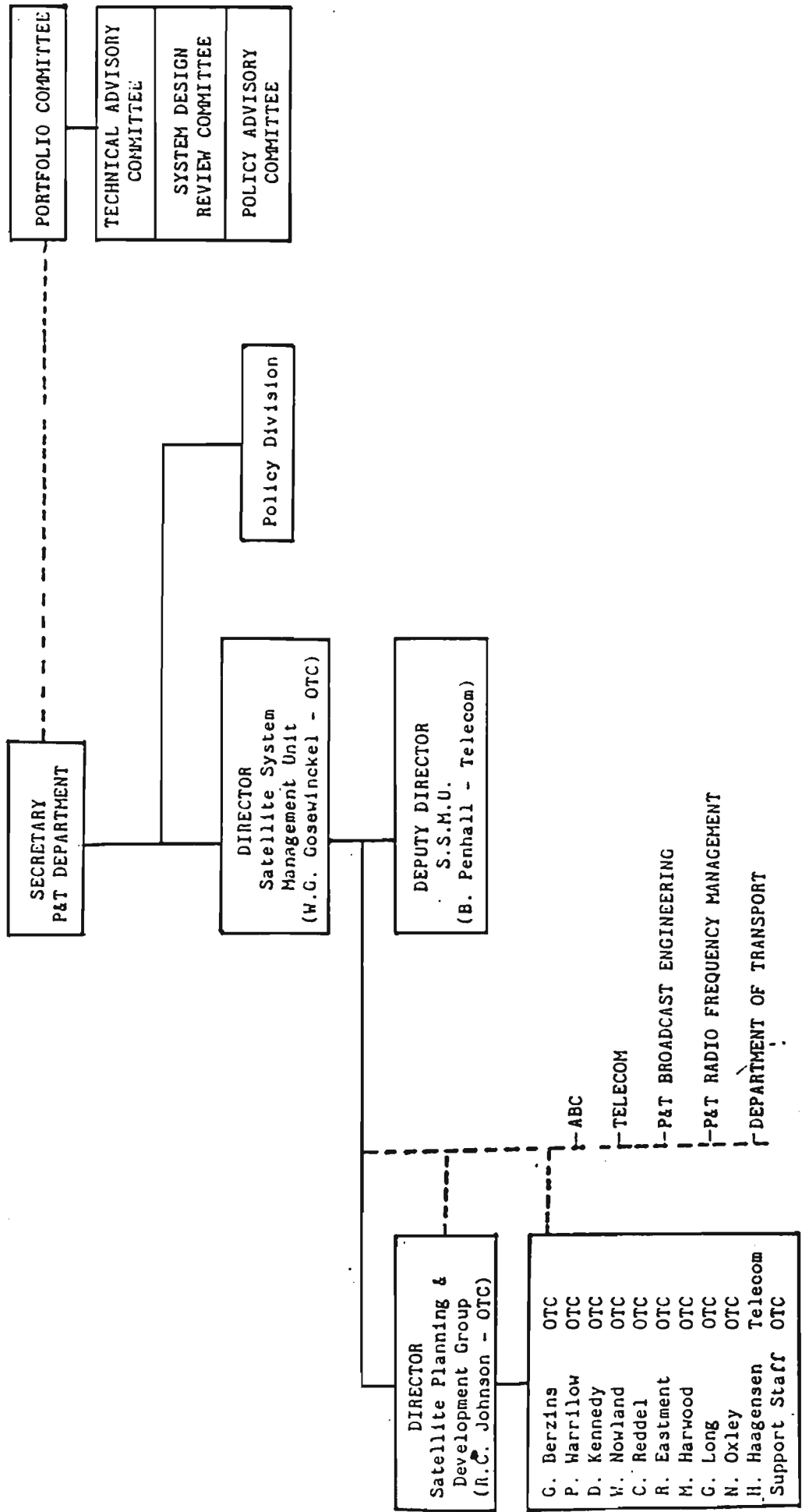
<sup>3</sup>.Gosewinckel, Graham "Australian Communications Satellite System: Background and Project Office Organization", Briefing for Industry, Science House, Sydney, 16-18 April 1980.

<sup>4</sup>.Gosewinckel, Graham. "Letter to John Hartley, ABC", SSMU 12 March 1980. Attachment 2. p 5

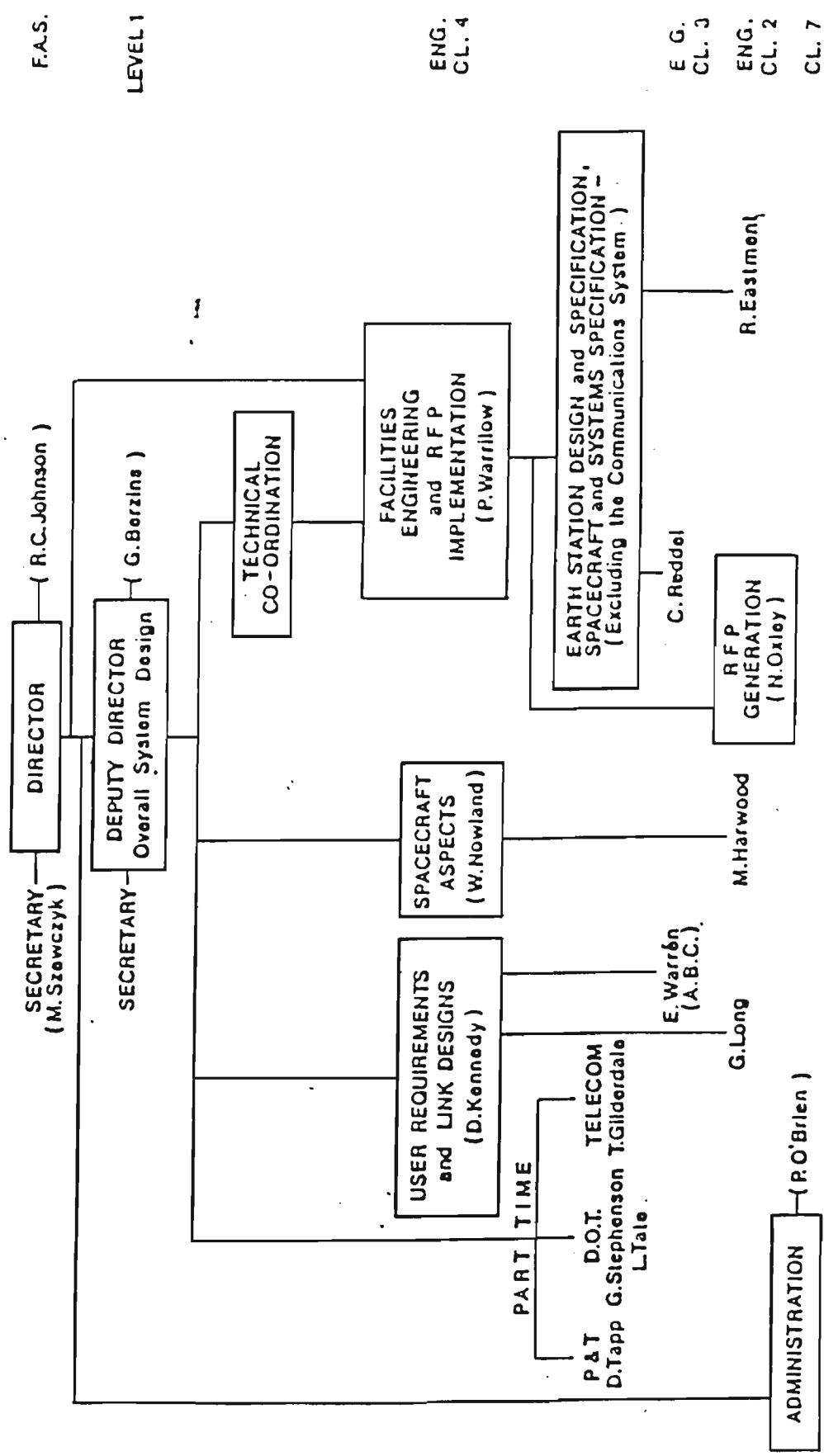


## NATIONAL SATELLITE PROJECT ORGANISATIONAL ARRANGEMENTS

NATIONAL SATELLITE PROJECT  
ORGANISATIONAL ARRANGEMENTS



**NATIONAL SATELLITE SYSTEM  
PLANNING and DEVELOPMENT GROUP  
ORGANISATION CHART**



F.A.S.

LEVEL 1

ENG.  
CL. 4

E G.  
CL. 3

ENG.  
CL. 2

CL. 7



Hugh Payne now believes it was a mistake to separate the technical and policy planning, because in his words the latter 'did not have any ergs' and spent most of its time trying to 'second guess' what Gosewinckel's group was doing.<sup>1</sup> The relationship between the SPO and the consultants (COMSAT and European Space Agency) hired to review the satellite system design, illustrates the difficulty Guster's group had keeping up with the Satellite System Management Unit under Gosewinckel. In early 1980 Gosewinckel suggested sending two OTC officers, one of which was Dr Wayne Nowland, for 'face to face' discussions with COMSAT. After agreeing that consultation should take place, Guster penned the following comments,

...the proposal is to send two non-SPO or non department officers on a contract placed entirely for the SPO - words fail me! OTC surely can't continue to have it both ways - if Dr Nowland is the essential spacecraft expert one would have expected him to be on the SPO staff...GG [Graham Gosewinckel] stresses the 'detailed technical nature' on this occasion - true as far as it goes, but the contract was built out to cover a lot of other aspects - surely the SPO overall (and the Department) must at least have one opportunity to talk face to face with the consultants (10 faceless men to us!).<sup>2</sup>(Underlined in original)

Guster continued,

...apparently ESA were out here. They should have been brought to Canberra and briefed us. We still have seen only one small paper of direct consultancy advice from COMSAT (after specific chasing) and nothing from ESA.<sup>3</sup>

While the Department's policy group had trouble keeping pace with the design it was even more difficult for Telecom.

The Managing Director of Telecom's objections to the original role allotted to his organization did not substantially alter its eventual task allocations. Although cosmetic changes were made to Telecom's task description the all important SPADG was primarily staffed by OTC officers. The creation of the Advisory Committees was initiated by the Portfolio Committee so that Gosewinckel and Guster would not only report to it through the Secretary. For Jack Curtis the organizational arrangements could only be interpreted as being a prelude to OTC assuming management and control of the satellite system. He

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<sup>1</sup>Payne, Personal Interview with Author, Op.Cit.

<sup>2</sup>Guster, Alan. First Assistant Secretary SPO, "Proposed visit to Comsat", Minute to Secretary, 5 August 1980. p 1 The other OTC officer was Mr G. Long.

<sup>3</sup>Ibid.

indicated to OTC on 28th February 1980, that because he saw this as a likely development they should bring forward a detailed paper on how they would fund the necessary capital development.<sup>1</sup>

Telecom's role was marginalised mainly because they had resisted the establishment of a domestic satellite system. Curtis wrote to Lansdown on the 12th September 1979 to advise the Government they were probably looking at a cost of about \$300M.<sup>2</sup> Curtis added prophetically,

Most of the users will be Government Services and little outside cash flow will be available to support the cost of this capital investment. I would expect the overall shortfall to be \$30-40M a year.<sup>3</sup>

Curtis did not believe that an expenditure of this magnitude could be justified to provide "...telephone service at perhaps 2000 locations, improve TV relay capabilities generally and provide TV services to areas not currently served."<sup>4</sup> Curtis believed Telecom could not place the provision of a domestic satellite before other priorities. He argued,

Funding is of particular importance. With the accelerated country programme Telecom resources will be strained in the next few years to provide Capital over and above the infrastructure borrowings and to service these borrowings while keeping basic charges down and hopefully making some reductions in long distance communication prices. It would not be feasible to undertake significant expenditure, within normal resource, on a satellite or even just in remote subscribers terminals until the second half of the 1980's.<sup>5</sup>

Instead of Australia acquiring a domestic satellite system Curtis reaffirmed Telecom's attraction to the concept of using Intelsat Transponders to provide a limited range of satellite services including remote area telephony from the mid 1980's.<sup>6</sup> Telecom's attitude was hardly one which would have inclined Gosewinckel, Payne or Lansdown to give it a central role in designing the satellite system given their objective of the earliest possible launch.

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<sup>1</sup>.Payne, E.E. "Meeting of OTC: 28 February 1980", P&T Minute to John Coleman, 29 February 1980.  
p 1

<sup>2</sup>.Curtis, J.H. "Letter to R.B.Lansdown", Telecom Australia, 12 September 1979.

<sup>3</sup>.Ibid.

<sup>4</sup>.Ibid.

<sup>5</sup>.Ibid. p 2

<sup>6</sup>.Curtis would later be amused by the fact that OTC suggested the same proposition in the planning process for the second generation. Curtis Personal Interview with Author, Op.Cit.

As the SPO arrangements became operational Telecom's role within SPADG became clear to its officers who tried to participate in the planning process. When Curtis became aware of the exclusion of his staff, he diplomatically protested to Lansdown, as indicated in the following excerpt of a Minute from the Secretary to Gosewinckel,

I mentioned to you that Mr Curtis rang me last Friday afternoon. Among other matters he referred to an event which he had reported to him and which he felt must have been in some way misrepresented. It concerns a comment said to have been made by Dick Johnson at a meeting which Telecom Officers were present that there were certain estimates of data usage presumerably in relation to the satellite which were so confidential that Telecom officers could not be told. We agreed that this sounded decidedly odd and I undertook to check the occurrence with you. It is not an immediately urgent matter and perhaps one we could discuss when next we speak on the telephone.<sup>1</sup>

This was not the first time Curtis had expressed dissatisfaction with the lack of consultation undertaken by the SPO with Telecom. At a Portfolio Committee meeting on 17th March 1980 Alan Guster presented a report prepared on user requirements and their implications for the RFP. Curtis registered a complaint that the report concerned Telecom's responsibility for telephone services, yet none of the its representatives had been involved in discussions.<sup>2</sup> At this meeting Duckmanton also raised concerns about the method of consultation taking place with the ABC. In response Lansdown gave an undertaking that in future both Telecom and the ABC would be consulted prior to any discussions that may have policy implications for their respective organizations.<sup>3</sup> Curtis realized the threat to Telecom if the planning process was conducted in an environment in which his organization's participation was frozen out. As such the minutes of the Portfolio Committee Meeting on the 17th March 1980, show Curtis argued,

...that there were uncertainties in regard to technology services and commercial/ financial matters. There was in his view, an unreasonable risk in proceeding in accordance with the timetable. He recommended a delay of 6 months while these issues were considered.<sup>4</sup>

Lansdown disagreed with Curtis and suggested that the time table should remain unaltered. He then went on to ask Gosewinckel to comment on the decision making

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<sup>1</sup>.Lansdown, R.B. "Minute to W.G.Gosewinckel", 1 April 1980.

<sup>2</sup>.Satellite Project Office "Summary of the Portfolio Planning Committee Meeting, ",P&T Canberra, 17 March 1980. p 2

<sup>3</sup>.*Ibid.* p 3 The ABC continued to be plaintive about its 'isolation from evaluation in some areas' of the planning process. Refer "Problems and Issues of Current Satellite Project Situation", Information for Executive, DOC, 26 May 1981. p 2

<sup>4</sup>.SPO, "Summary of the Portfolio Planning Committee Meeting", 17 March 1980, *Op.Cit.* p 4

process in relation to the RFP, particularly what process of evaluation would be undertaken and how it would be managed. In Gosewinckel's reply he indicated,

He foresaw no need for the Portfolio Committee to be involved in this detailed process, but the Committee would be kept informed.<sup>1</sup>

As such there was a limit to how much even Curtis could influence the course of the project, much less his staff. Curtis's membership on the Portfolio Committee gave him a position from which he could monitor decisions, but it is important to note that the committee did not have a decision making responsibility. Its ostensible role was to provide a forum for information to flow, from which Lansdown would then make decisions.<sup>2</sup>

Curtis decided to participate in the Committee's activities to 'do the best he could for the minister'.<sup>3</sup> Although meetings were cordial, inevitable differences arose given the relative levels of enthusiasm for the project. Tensions specifically emerged around the Telecom's perception that proponents of the satellite were raising unrealizable expectations. The question of whether Departmental officers could speak for Telecom in relation to the latter's potential use of the satellite for telephony led to acrimonious exchanges. Curtis found himself continually contesting the wording of the Portfolio Committee's minutes lest a later investigation conclude that the Minister had been misinformed.<sup>4</sup>

The exclusion of Telecom was embedded in the structure of the SPO. In May 1980 the Portfolio Committee received a report on the planning of the satellite from the ABC which discussed the use of the 12/14 GHz portion of the frequency spectrum. As the use of this band was not yet in commercial operation anywhere in the world, the report questioned the decision, because it involved a significant increase in the cost of the satellite. The ABC felt,

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<sup>1</sup>. Ibid. p 5

<sup>2</sup>. This was made clear by SPO officers, at the "Satellite Engineering Conference held on 25 February 1980", Minutes, Murray Stevenson, FACTS, 11 March 1980. p 3

<sup>3</sup>. Curtis, Personal Interview with Author, Op.Cit.

<sup>4</sup>. Ibid. The meetings were also not without humour. On one occasion in a discussion over the name of the satellite it was suggested that 'MURPAC' would be appropriate because there were two gentlemen (Murdoch and Packer) who stood the make 'a packet' from the satellite.

...that greater attention should be paid to the cost trade-offs between operational and capital costs, particularly where they may affect the RFT and the conceptual design of the system. Lack of time and information are contributory problems but the SSMU engineering group are pressing ahead strongly in dealing with the technical problems. They have made commendable progress but since they are the better staffed and more forceful sector of the Project Office they tend to be finding, or accepting engineering solutions where operational, cost, or marketing factors should also have been taken into account.<sup>1</sup>

In this excerpt we have a clear statement of which group within the SPO commanded the most influence, or in the ABC's words was the most 'forceful sector'. The SSMU's engineering group SPADG, of which Richard Johnson was the Director, was insulated within OTC with Telecom having only one part time representative.

By denying Telecom officers access to figures on the projected data usage by the satellite system, Johnson clearly contravened the spirit of Lansdown's undertaking. It did however serve to reinforce an emerging view within the national carrier that if the satellite system was set up in competition with Telecom, the major threat would be in the carriage of data. Between September 1979 and November 1980 Jack Curtis reversed his position on data usage as the implications of the planning process became clear. In September 1979, Curtis stated,

It is not expected that in the life of the first satellite there would be any significant use of it for data transmission - the Canadian satellite is not used for this purpose.<sup>2</sup>

By the new year, the national communications carrier realized that the transmission of data by an organization in competition with it on its most lucrative routes would have a significant impact on revenue. It was reported to the Policy Advisory Committee on 26th March 1980,

Telecom's main concern seems to be the impact of competition in the data area. It accepts that only a small number of data circuits is likely to be provided but asserts that, using advanced, but proven, techniques, considerable data business can be pushed down these channels. It expects to lose business on its highly profitable Sydney-Melbourne route. While being aware that it is likely to be protected from unfair competition, (Telecom's technical people suggested that this will be very difficult to police in practice), it expects the 'going' rate for this route and possibly for a number of other profitable routes will drop. As a result, it expects to lose revenue from having to match the going rate. Since in

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<sup>1</sup>.ABC Department of Corporate Affairs, "Domestic Satellite: Portfolio Committee Meeting", Minutes of Meeting on 28 April 1980, 21 May 1980. Law and Callon similarly note in relation to the TSR-2 project that "...technical committees often made decisions with relatively little thought of cost, while those that were concerned with costs had little information about, or the ability to determine, the technical necessity of the tasks that they were examining." Law and Callon, "The Life and Death of an Aircraft: A Network analysis of Technical Change", Op.Cit. p 23

<sup>2</sup>.Curtis, J.H. "Letter to Lansdown", Op.Cit. 12 September 1979.

practice there tends to be fixed relativities in its Australia wide data tariff structure, it expects to be forced to drop other rates as well. Further there are relativities with other services e.g. leased private lines, which might come under pressure. Telecom's very preliminary views are that its over-all revenue loss as a result could well be in the tens of millions.<sup>1</sup>

By November 1980 Curtis fully understood the nature of the threat the satellite posed to Telecom's most lucrative routes. Although Telecom's analysis showed that its terrestrial system was more cost effective in real terms, it was still vulnerable to competition because the rates charged were set at a level to compensate for other services which were not profitable.<sup>2</sup> On 13th November 1980 Curtis set out the role these routes played in cross subsidizing services which ran at a loss, at a meeting with Ian Sinclair, the new Minister for Communications. He followed up that meeting by providing the Minister with a paper illustrating the extent of the cross subsidy in 1979,<sup>3</sup>

- trunk services	profit \$516M
- country and local call services plus rental	loss \$210M
- metropolitan local call services plus rental	loss \$8M
- public telephones	loss \$36M
- telegrams	loss \$27M

For Curtis then,

The issue is not only who owns the space segment, but rather whether entrepreneurs will be permitted to develop networks on the high profit routes in direct competition with the national carrier. If such competition is permitted, and there is little doubt that this is the objective, then the conditions for such competition would need to be clearly drawn. Unlimited competition would inevitably lead to a radical change in the pricing, and availability of services. With the satellite portrayed as providing the solution to rural communication problems, this would be an unexpected outcome. Clearly major social, economic and political issues are involved.<sup>4</sup>

By appealing to the incoming Minister, Curtis was underlining the fact that the planning process had proceeded largely without significant participation by the national carrier.

The above excerpt reveals the frustration Curtis had felt during 1980 as he attempted to inject what he saw as an objective assessment of the utility of satellite technology to

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<sup>1</sup>.P&T Finance and Regulatory Branch, "Financial Impact of Proposed National Satellite System Upon Telecom", Policy Advisory Committee Meeting, Item 2, 26 March 1980.

<sup>2</sup>.At a meeting with SPO in May 1980, Telecom put the figure for their expected loss of revenue at \$45.9 million, made up of TV Relay \$11 million, Data Transfer on Private Lines 26.2 million and STD transfer to private Lines - intercapital \$5.3 million and intrastate \$3.4 million.

<sup>3</sup>.Curtis, J.H. "Competition and Cross-Subsidy - An Essential Conflict", Letter to Minister , 28 November 1980.

<sup>4</sup>.Ibid. p 4

outback residents into the decision making process. Surveys of outback residents continually revealed that they wanted a reliable telephone service as their first priority.<sup>1</sup> These surveys made it difficult for decision makers to speak in the name of remote Australians. The survey results were an embarrassment because they suggested that the premise on which satellite proponents claimed legitimacy, might actually be an impoverished betrayal of the needs and wants of outback areas.<sup>2</sup> Telecom asserted in 1980 that if left to itself it would connect most remote subscribers with their new Digital Radio Concentrator Service(DCRS), which their analysis had shown to be significantly cheaper and technically, to be of superior quality.<sup>3</sup>

In March 1980, Telecom informed the Policy Advisory Committee that it would be pressing rapidly ahead with the installation of what they regarded as a proven technology with considerable cost advantages. As such Telecom advised the PAC that it could not identify any situations where it would wish to use satellite circuits in preference to its terrestrial network, except in cases of unforeseen demand, such as emergency uses. Thus even though Curtis believed the utility of satellite technology to remote residents had been discredited the decision making process continued on its predisposed objective of the earliest possible launch.

Where Telecom did have input into the planning process, which occurred mostly through Curtis to Lansdown, it was usually in reaction to initiatives taken from within the SSMU and SPADG. This was clear from as early as March 1980, when Gosewinckel presented a skeleton RFP to a Portfolio Meeting. Having failed to delay the project for six months, Curtis had his staff prepare a critique of the document. The covering letter reflects the tenor of Telecom's assessment,

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<sup>1</sup>.Telecom Australia, "Remote Area Telecommunications Study: National Report", Policy Research Branch, Planning Directorate, August 1980. p 12

<sup>2</sup>.Reinecke, Ian "Staley conflicts with satellite survey: Telecom claims ignored" and "Satellite survey undermines Govt", Australian Financial Review, 16 & 17 August 1980. Curtis recalls that he sent one consultant from The Implementation and Management Group (IMG) into the Northern Territory to find out the precise market for satellite telephony and television services via satellite. He adds that the consultant went away a satellite enthusiast and came back opposed to the use of satellites speaking of 'this high cost technology'. Curtis then had to tone down the report lest it lose its political utility by appearing to pander to his own well known predispositions on satellites.

<sup>3</sup>.P&T, Finance and Regulatory Branch, "Financial Impact of Proposed National Satellite System Upon Telecom", Op.Cit.

Being quite frank I must say that we believe there are a number of rather unsatisfactory aspects. There is at points a lack of objectivity, and the main issues are not drawn together in a way which facilitates quick appraisal by the Minister. Turning to the executive summary. This is couched in more optimistic terms than are segments of the report, and the report itself falls short, we believe, in a number of areas.<sup>1</sup>

Curtis criticized the RFP in three main areas which he stated deserved far more attention. In Telecom's view the RFP's treatment of technology, services and financial consideration was inadequate and misleading. On the question of technology Curtis indicated that the report suggested an absence of risks in the technology, which he felt to be quite misleading. In respect to services, Curtis questioned two of the most prominent justifications for the project,

On the services side, the Flying Doctor Service will get quite small assistance from the satellite. I believe the School of the Air service needs urgent and detailed consideration as there seems to be a high probability that the costs and technical considerations will be a severe limitation on the development of a practicable widespread School of the Air service. This would be a major disappointment to the rural community.<sup>2</sup>

These were precisely the groups the SPO claimed to speak for and in whose best interests actions were undertaken. Curtis was similarly critical of the attention given to the question of finance. His statement carried with it his view on both the Task Force and Working Group's consideration of this matter,

As in earlier reports questions of finance are not drawn together so that a comprehensive view of total commitments can be readily obtained...As a broad statement, the earnings of the satellite comprise a re-circulation of existing expenditures together with substantial increased expenditure from the Government area and some potential for limited revenue through the sale of services to commercial users.<sup>3</sup>

The finance question inevitably figured prominently at the next meeting of the Portfolio Committee held on 23rd May 1980. At this meeting Curtis again expressed concern over what he perceived to be "...unduly optimistic scenarios on total system profitability."<sup>4</sup> Curtis was assisted at this meeting by Keith West, who reported that Telecom had undertaken a system cash flow study indicating a total requirement of \$800 million over eight years. Schmidt and Duckmanton were also concerned by the cost estimates of the

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<sup>1</sup>.Curtis, J.H. "Satellite Communications System - Report to Government", Covering letter to R.B.Lansdown, 14 May 1980.

<sup>2</sup>.*Ibid.* p 2

<sup>3</sup>.*Ibid.*

<sup>4</sup>.SPO. "Summary of the Portfolio Planning Committee Meeting held at the P&T Department, Canberra, 23 May 1980", 23 June 1980. p 2



project. Lansdown, displeased with the course of the discussion, commented that there would be no significant effect on the budget apart from public sector costs, arguing that most of the service costs would be borne by users. Heartened by the support of Schmidt and Duckmanton, Curtis followed up the meeting by writing to Lansdown on 28th May 1980,

Although a number of changes have been incorporated in this draft, from my point of view it still falls well short of the degree of objectivity required in a report of this nature. The document is designed to be a basis from [which] important decision by the Government both in relation to investment, and to services which the satellite will provide. If we are to serve the Minister well, then the document should clearly bring out a number of major issues. It seems to me that the other members of the Portfolio Committee supported this view when the matter was canvassed on the 23rd.<sup>1</sup>

The specific point Curtis made was that as the additional services provided by the satellite would not be on-sold to customers, or at least not at an economic price, it seemed inappropriate to regard the project as a business undertaking. This was of course a direct response to Lansdown's comment that most service costs would be borne by users.

Duckmanton also wrote to Lansdown on the 28th May 1980 to comment on the Situation Report discussed at the last Portfolio Committee meeting. In that letter he stated,

We are concerned about the somewhat optimistic nature of the financial scenarios for the potential numbers of users for the domestic satellite; the initial take-up rate of transponders; the estimates of leasing rates for transponders; and the consequential revenue.<sup>2</sup>

What particularly concerned Duckmanton was the suggested transponder rates of \$1.5 million per annum, which he considered to be too high. In his view a rate of \$1 million or less would be more appropriate given that the ABC felt the satellite should not be operated on a profit making basis. Duckmanton added,

It should be made clear that the existing terrestrial distribution system is less expensive than the estimated transponder leasing costs for the satellite and the ABC can only switch from a terrestrial service to the use of the satellite where appropriate, if the additional capital and operational costs to be incurred after taking account of the various off-set savings involved, are provided to the ABC as an addition to its existing Appropriation.<sup>3</sup>

As a result of Curtis, Schmidt and Duckmanton's concern over the optimistic financial scenario portrayed in the May Situation Report, the Portfolio Committee requested the

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<sup>1</sup> Curtis, J.H. "Planning for a National Communications Satellite System, Situation Report", Letter to R.B.Lansdown, 29 May 1980.

<sup>2</sup> Duckmanton, T.S. "Letter to R.B.Lansdown", 28 May 1980. p 1

<sup>3</sup> *Ibid.* p 2

SPO to replace the word 'profitable' where appropriate. This still did not satisfy John Hartley of the ABC, who also wrote to Alan Guster on the 28th May 1980,

...it seems that the general sense of some of the financial comment in the draft Report appears to be anticipating or assuming Government policy which we understand has not yet been decided. The tenor of comment in the Executive Summary, go beyond the understanding that the satellite should be cost effective and assume a motive of revenue earning or profitability as being the financial objective. If this is accurate the references should be softened down.<sup>1</sup>

The ABC's concern was that if the projected transponder rates were accurate, it realized it would in effect be paying for the system. Telecom believed that even with a \$1.5 million rate per transponder, the satellite would generate little revenue and be an unattractive proposition.<sup>2</sup> To underline the fact that transponder costs would need to be higher than those envisaged if the system was to pay for itself Curtis wrote to Lansdown again on 5th June 1980, stating,

As I understand it, INTELSAT has in recent months reduced the price of a standard transponder hired for domestic purposes from \$1M (US) to \$800,000. As I mentioned in my previous letter the transponders in the Australian Satellite System will be somewhat higher powered and higher charges may therefore be appropriate...A central point is, however, that the general trend in satellite prices is downwards. If this is not the case there is not much future for satellites in domestic communications as the price of terrestrial systems is certainly downwards. As I read the Situation Report, it is proposed that a charge of \$1.5M per annum per transponder at 1980 prices be charges, the cash price rising to sustain the real value at \$1.5M. Moreover, the basis for the \$1.5M charge was that it was believed that the demand would still be available at that price. I was suggesting a much more fundamental look needs to be taken at the situation. As we discussed before the prime aim seems to be to show that the space segment is profitable regardless of the expenditure of Commonwealth money on the provision of services. If we take the HACBSS service, for instance, if a footprint is provide for the Northern Territory we are likely to have quite a limited number of receive only terminals in operation, at least in the first few years. The cost per service for the transponder could overall be more significant than the \$1,000 at which it is hoped to provide the receive only terminal.<sup>3</sup>

While system builders can, to some extent, control obdurate elements through the creation of specific planning structures, there remains the possibility that these same recalcitrant actors will draw on outside support to attempt to alter a sociotechnical project's course. Curtis, in the above statement, drew on the knowledge that Intelsat had

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<sup>1</sup>.Hartley, John. "ABC Comments on the Draft Report", Voadex to Alan Guster, Satellite Project Office, 28 May 1980.

<sup>2</sup>.Curtis,"Satellite Communications System - Report to Government", Op.Cit. p 2.

<sup>3</sup>.Curtis, Jack. "Situation Report on the National Satellite System" Letter to R.B.Lansdown, 5 June 1980.

lowered the price of transponders. Yet at the same time PBL was able to draw in a much more powerful threat to the course mapped out by Aussat's proponents.

### The Western Union Offer

On 15th May 1980 the Western Union Corporation wrote to Tony Staley offering to sell to the Australian Government a 'ready made' satellite system. This offer came with the support of PBL. Staley recalls Packer said to him, "Look I've got these satellites. We can get them off the shelf. They are there ready. We can get it going straight away."<sup>1</sup> As Western Union had existing satellite and launch bookings on order it suggested that if the Government agreed they could provide an operational system by mid 1982. At the request of Bob Lansdown, Philip Schneider, Vice President of Western Union's Satellite Systems and Services formally set out their proposal on 24th June 1980. In a letter to Lansdown, Schneider stated,

A 36 channel C-Band system can be made available for service in the second half of 1982 which provides at less cost and with greater reliability than a K-Band system, all of the services required by Australia. The present course of action being planned by the Government will not provide a satellite system until 1985 and both the satellite and the ground stations will be at twice the cost.<sup>2</sup>

Schneider argued that a 24 channel C-Band satellite could be in service two years after the date of Government approval, and added,

The launch service is assumed to be provided by an Ariane launch vehicle and also included are launch support services, launch insurance, one TT&C station not including land and building, the first year of maintenance and operation and training of operators and maintainers during the first year. The total price is \$130 million US.<sup>3</sup>

Western Union's case in support of their proposal mirrored the arguments forwarded by PBL in 1978, and which they still favoured.<sup>4</sup> The American company argued that C-Band had greater reliability and offered substantial savings to both the systems purchaser and users. Schneider pointed out,

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<sup>1</sup>.Staley, Personal Interview with Author, Op.Cit.

<sup>2</sup>.Schneider, Philip. "Letter to R.B.Lansdown", 24 June 1980.

<sup>3</sup>.Ibid.

<sup>4</sup>.SPADG, "Australian Communications Satellite", SPADG Transcript of a Meeting with the FACTS Engineering Group, 20 May 1980.

With regard to the ground costs WU believes that C-Band costs are lower than K-Band ground costs and that receive only stations for the Homestead and Community Broadcast service will cost less than \$1,000 U.S. For the remote telephone service the K-Band costs are likely to be \$50,000 U.S. for each while C-Band costs will be \$15,000 U.S.<sup>1</sup>

Western Union calculated that if 21 of the system's 36 channels were operated for 9 years at a rate of US\$1.5 million that the system could be operated without a loss whereas a system costing as little as US\$10 million more could not operate profitably. As Australia's plans in 1980 required a new satellite design, which Western Union estimated would cost at least \$200 million (though they thought the project cost would blow out to \$400 million), and not be available until 1985 their executives felt they had a strong case to take to Canberra in 1980. They were quickly disillusioned by the Government's lack of interest in their proposal, to the point where one of the Western Union executives facetiously suggested putting the system up for nothing.<sup>2</sup> Undoubtedly, as Ian Reinecke suggested at the time, the unsolicited proposal came as a severe embarrassment to the Government by calling into question the course it had adopted.

By this stage the Satellite Planning and Development Group had moved exclusively towards designing a system and had produced a Request for Tender (RFT) based on a K-Band 14-11 GHz design. SPADG outlined the reasons for this course in a meeting with the FACTS Engineering Group on 20th May 1980. In response to a statement by P. Marlan of PBL supporting the utilization of 4/6 GHz band, G.Berzins, Deputy Director of SPADG, outlined the reasons OTC's engineers favoured the 11/14 band. At the meeting Marlan averred,

Having had the benefit in recent times of a short but intensive visit to North America with my colleague from TCN [Les Free] looking particularly with fairly narrow blinkers on at satellite operations one can't help but be impressed with the utilization of a 4/6 GHz band for both television relay purposes and data communications purposes. Although the 12 GHz band is being used by SBS, I realise that, for data also one of the prime points in favour of using the 11/14 band was freedom of co-ordination problems. It seems to me that Australia is an electronic paradise compared with North America and certainly compared with continental Europe as far as co-ordination problems are concerned...I guess we have to co-ordinate with existing users of the terrestrial system. However in the U.S.A. the utilization by the terrestrial carriers of the 4/6 GHz band is most intensive and very much more widely exploited than ever is likely to be in Australia. Bearing that in mind, figures show that 80% of the 3,000 earth stations that are now in the U.S.A. operating in the 6 GHz band have been able to be sited at the user's premises where they desired to put them...and in view of the intensive use of 4/6 GHz band for terrestrial

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<sup>1</sup>.Schneider, *Op.Cit.*

<sup>2</sup>.Reinecke, Ian. "Cheap Satellite Offer Embarrasses Govt", *Australian Financial Review*, 14 July 1980.

services and being able to achieve 80% location where you want, it would seem to me that Australian co-ordination in terms of locating earth stations where the user wants them would be a very small problem. Sure there'll be some cases where you could, but I'd think that we'd do better than 95% in our parking lot or where ever we wanted to. Another point concerns the availability of hardware very well developed in this band. There was one other point that concerns the fact that television in the U.S.A. does not use the satellite for real time distribution to the extent that I imagined it did. There's only one of four networks and that is the PBS system, which is more or less like the ABC, which uses the satellite system totally...I would like if you can a brief but definitive answer as to what the decision was that said no to using the 4/6 GHz band in Australia.<sup>1</sup>

In answering the question Berzins stated,

It was out of a belief that we should, in designing the satellite system, at least start off with a system that wasn't hampered by co-ordination requirements and not to build that in as a problem right from then.<sup>2</sup>

If the Satellite Planning Office's (SPO) present course was to be validated WU's proposal had to be rebutted. As such the WU letter was passed to SPADG. The resulting appraisal is illuminating as to who called the shots within this section of the SPO structure, as two quite different responses were formulated by divisions within the ABC and OTC. The ABC which was intended to be the largest user of any domestic satellite system saw numerous advantages in the WU C-Band 6-4 GHz system. In the ABC's view,

1.All equipment and techniques used in the whole system are currently operative in several domestic systems in USA, Canada, and Indonesia. Whereas the K Band proposal has still a component of new development.

2.The C Band Western Union system could most likely be operational much earlier than a new 12 GHz system.

3.We would have potential advantages using only one national footprint. The potential for networking would be great e.g. for any National Event, a total network could be achieved on an immediate switch originating from anywhere.

4.A C Band system would be less costly because of both, well developed technology, and also that the lower frequencies have less stringent technical demands.<sup>3</sup>

The only disadvantage the ABC foresaw were possible coordination problems with Telecom's terrestrial use of this part of the spectrum though they qualified this by stating,

It is very difficult to determine whether the Telecom frequency co-ordination issue is valid or just due to ultra-conservatism in Australia. It is quite clear that in North America, where terrestrial systems on 6-4 GHz are even more dense than in Australia co-ordination with satellites in the same band has been achieved.<sup>4</sup>

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<sup>1</sup>.SPADG, "Australian Communications Satellite" *Op.Cit.* p 24

<sup>2</sup>.*Ibid.* p 25

<sup>3</sup>.ABC Corporate Affairs Department, "A Western Union Satellite Proposal", 24 June 1980. p 2

<sup>4</sup>.*Ibid.*

After weighing up the benefits and disadvantages the ABC concluded, "The Western Union proposal appears practical, economic and has advantages for broadcasters in terms of flexibility."<sup>1</sup> It was not a position shared by SPADG, which prepared a lengthy critique of the Western Union Proposal, none of which was favourable.<sup>2</sup> The paper took the form of quotations from the WU proposal interspersed with SPADG comments. The main point raised against taking up the offer revolved around the fact that the WU system would utilize C-Band which, as it had done with FACTS, SPADG argued would not give 'full flexibility in the location of earth stations'.<sup>3</sup> SPADG stated that this had been an important consideration for data and broadcasting applications and cited the fact that SBS and Telesat Anik-C systems operated at 14/12 GHz to avoid the need for terrestrial co-ordination. In SPADG's view the lack of co-ordination requirements would be a major marketing point for the satellite.

When the SPADG paper was considered by the Portfolio Committee, Lansdown argued that the proposal was inconsistent with the project time frame and appeared to be an attempt to get rid of surplus hardware.<sup>4</sup> Curtis and Staley did not favour the Western Union offer because it did not fit into the conventional tendering and schedule requirements. For Curtis it was a question of trying to do something on the cheap which would be more costly in the long run. Staley's other reason for rejecting the offer was that he believed it would not be politically advantageous to be seen to be bowing to pressure from PBL. Staley recalls,

If I had said 'OK' Kerry we will buy them from you...just think of how that would have [looked]...however meritorious those satellites were technically, operationally if you like, just think what havoc that would have created in terms of proper policy making in the sense that we were making policies properly...When we were endeavouring to balance all the interests and policies you can see that to have accepted the offer of some off the shelf satellites would have thrown a real spanner in the works.<sup>5</sup>

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<sup>1</sup>.*Ibid.* p 3

<sup>2</sup>.SPADG, "Comments on Western Union Proposal", June 1980.

<sup>3</sup>.*Ibid.* p 1

<sup>4</sup>.Policy & Co-ordination Branch, Satellite Project Office, "Minutes of Portfolio Planning Committee Meeting held at the P&T Dept, Canberra, 27 June 1980." 25 July 1980. p 5

<sup>5</sup>.Staley, Personal Interview with Author, *Op.Cit.* Staley was constantly being lobbied by regional television interests suspicious of what Packer's motives. Nigel Dick, Managing Director of the Victorian Broadcasting Network Ltd., stated in 1979, "We don't object to the satellite system...we object to his satellite system." Brian Courtis, "Packer's Eye in the Sky", *The Age*, 18 May 1979. p 9

As such the Western Union offer was not taken up by the Government. The whole episode is revealing in its illumination of the different actors primary objectives for the system. The SPO wanted Ku band because its agenda for the satellite included competition with Telecom. Although Kerry Packer wanted to break Telecom's monopoly his primary concern was that the satellite meet his requirements for television distribution and broadcasting. In addition as he had expressed an interest in buying the satellite he was concerned that the price should not have been escalated by the Government's social objectives. That the satellite would have met television requirements is evident from the ABC's position on the Western Union offer.

Yet for the Government to have sided with Packer would have limited the potential of the system to compete with Telecom. Throughout this process Telecom was still behaving, again in Reinecke's words 'as a good old fashion public servant.' Even though a C-Band satellite would have given them a powerful argument to control the satellite they argued against the WU offer because it did not follow the proper procedures for government purchases. Once more the direction Kerry Packer favoured for the acquisition process was not adopted.

### The SPO and PBL

The SPO was barely a month old when it made its first visit to PBL's Park Street Headquarters on 20th November 1979. On that date Alan Guster and Helen Svensson met with Les Free, in the first of a series of meetings aimed at obtaining PBL's projected transponder requirements and the company's views on the broad conceptual design. At this meeting Free indicated that the Nine Network would probably require the full time lease of two transponders, but made it clear that this was conditional upon,

- (1) a footprint covering Australia
- (2) the cost of transponder leasing
- (3) the cost of earth stations
- (4) limited direct broadcasting capability

(5) opportunities for increased opportunities for (programme) syndication in Australian Commercial television.<sup>1</sup>

The meeting then turned to discuss the two prime reasons PBL were backing a domestic satellite system. Quizzed by the bureaucrats as to the difference between 'syndication' and 'networking', Free indicated that it depended on the interpretation different interests placed on the term. PBL was interested in 'syndication' rather than 'networking', that is to say selling its programmes across Australia rather than necessarily owning the stations that retransmitted them. Free intimated it was important that regional commercial stations retained their viability. The second area of interest PBL had in a domestic satellite was their desire to become involved in the wider telecommunications market. Free indicated to the SPO officials that he thought Telecom had 'performed badly' in servicing requirements (e.g. in data etc).<sup>2</sup> He also stated that private organizations should be given the opportunity to provide such services through the satellite.

This latter point was followed up by Kerry Packer in early 1980. Packer wrote to Tony Staley to say how heartened he was that the Working Group had given favourable consideration for private sector involvement in the provision of telecommunication services in Australia.<sup>3</sup> Packer was concerned however by the Working Group's comment that there had not been any "...substantive expression of interest in private sector investment in the space segment."<sup>4</sup> In Packer's view this failed to take into account PBL's previous and firmly stated attitude over the past three years, as expressed in the following extracts,

...forming a consortium of the appropriate Government departments and private investors.(Letter to Government dated August 8, 1977)

...in the nature of a corporation with shareholders representing governmental and private enterprise users, with the governmental owners owning together a maximum of 50%...(P&B Ltd. submission to the Task Force date April 1978)

...the Government invite persons representing the private sector of the telecommunications industry to become members of the proposed satellite Commission.(P&B Ltd. submission to the Working Group dated March 1979)<sup>5</sup>

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<sup>1</sup>.Svensson, H.C. "Contact Report: National Communications Satellite - User Requirements", Meeting with L.R.Free 20 November 1979. Minutes prepared 22/11/1979, Signed 10 December 1979.

<sup>2</sup>.Ibid.

<sup>3</sup>.Packer, Kerry. "Letter to A.A.Staley", Minister for Post and Telecommunications, 2 January 1980.

<sup>4</sup>.Working Group Report, Op.Cit. p 158

<sup>5</sup>.Packer, Kerry "Letter to A.A.Staley", Op.Cit.



Packer qualified the final extract by stating that after the release of the Satellite Task Force Report, PBL believed private ownership to be a lost cause and that direct financial investment by the private sector was the best way to ensure a consultative arrangement.

Packer added a statement he had made to a Labor Party Conference in 1979,

...if the Government didn't feel that it could afford the satellite then an American and Australian consortium would be put together to put that satellite in the air. I have not moved away from that. I've said I think it is something that should have private enterprise and Government ownership...(K.Packer answering a question at Labor Party Conference at Orange in May 1979)<sup>1</sup>

Packer recommended to Staley that the first generation satellite system should be at least 50% owned by the Government but have an element of private sector investment and be managed by a Commission. He also stated that in the absence of interest from anyone else in the private sector, "I would be prepared to go it alone i.e. to provide an element of private investment in the space segment".<sup>2</sup>

Packer also took the opportunity to advise Staley that PBL was studying aspects of private sector involvement in the Australian telecommunications market mentioned in the Working Group Report viz.,

- Compete or take over Telecom's business of providing terminal equipment.(WGR 9.39.5)
- 'Value-added' services. (WGR 9.39.5)
- Sub-leasing of channel capacity. (WGR 9.47)
- Commercial Limited DBS Service (WGR 4.3.34)
- and
- The consequent need to redefine the interface between a common carrier and the private sector provider.<sup>3</sup>

At this stage Staley was concerned that the private ownership question loomed large enough to stall the project for years and, as such, he recalls that he never really entertained initial private ownership. This was the reason he came to regard OTC ownership as the most attractive option. Staley later recalled that he didn't want to lose the project because of the political difficulties in deciding the ownership question, and

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<sup>1</sup>.Ibid.

<sup>2</sup>.Ibid.

<sup>3</sup>.Ibid.

that when the matter came before Cabinet there was not a lot of debate, because Minister's recognized it could be readily converted at a later date.<sup>1</sup>

Faced with with Staley's position on the ownership question PBL concentrated their attention on the design of the satellite. The SPO continued to have meetings with Free in early 1980, at which time he reaffirmed PBL's desire for two transponders but indicated that the company would be looking for a third, subject to being able to provide data services as an alternative to Telecom.<sup>2</sup> The first two transponders would be used for the 'syndication' of programmes and the second for their assembly. Free stated that PBL would want to sub-lease parts of the second transponder and also use it to provide 'value added network services'. As to 'syndication' Free envisaged a transponder with an Australia wide footprint coverage being able to deliver programming to anyone wishing to buy and re-use a whole of part of the total package including advertisements.

At this time PBL was still operating on the basis of the Task Force Report which included a detailed map with two footprints covering Australia. Richard Johnson indicated that the SPO had moved away from this concept towards four footprints with a maximum power of 20 watts per transponder. Free stated that PBL was against such a proposal as a "substantial departure to what was offered in the White Report."<sup>3</sup> For PBL a national footprint was preferred mainly because it was all they needed to distribute programming to syndicated stations. At that time P&T had recently devised the Supplementary Licences Scheme which would have enabled existing provincial stations to own two additional licences.<sup>4</sup> Packer welcomed this idea because it would ensure that at least one of these stations would have to rebroadcast the majority of Channel Nine's programmes.

If the satellite had four footprints then PBL would need to lease four transponders for broadcasting, in the event of a commercial limited DBS service being made available to

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<sup>1</sup>.Staley, Personal Interview with Author, Op.Cit.

<sup>2</sup>.Svensson, H.C. "Contact Report: Meeting with L.R.Free, Publishing and Broadcasting", Sydney, 25 January 1980. The meeting was attended by A.F.Guster, W.G. Gosewinckel, R.C.Johnson and H.C.Svensson from SPO. In addition R.T.Lord and D.Tapp (P&T Broadcasting Policy Division) and W.E.Beard (P&T Broadcasting Engineering Division) attended.

<sup>3</sup>.Ibid. p 3

<sup>4</sup>.Hugh Payne states that this policy was hastily designed by Bob Lord to get Tony Staley out of trouble after he made a statement to the press not to assume that Canberra would always be served by only one television station. Payne, Personal Interview with Author, Op.Cit.

the outback. While PBL would have preferred not to incur the additional expense, it obviously could not afford to be 'left out'. As such Kerry Packer again wrote to Staley on 29th January 1980 to indicate PBL's interest in leasing four transponders. Albeit Packer still seemed to be working on a White Report footprint principle because he proposed that two transponders would be used for television signal relay and programme assembly, and two for digital transmission. Again he emphasized the point,

Our use of the latter two transponders is naturally predicated upon the Government permitting us the right to sell the service of digital transmission to others.<sup>1</sup>

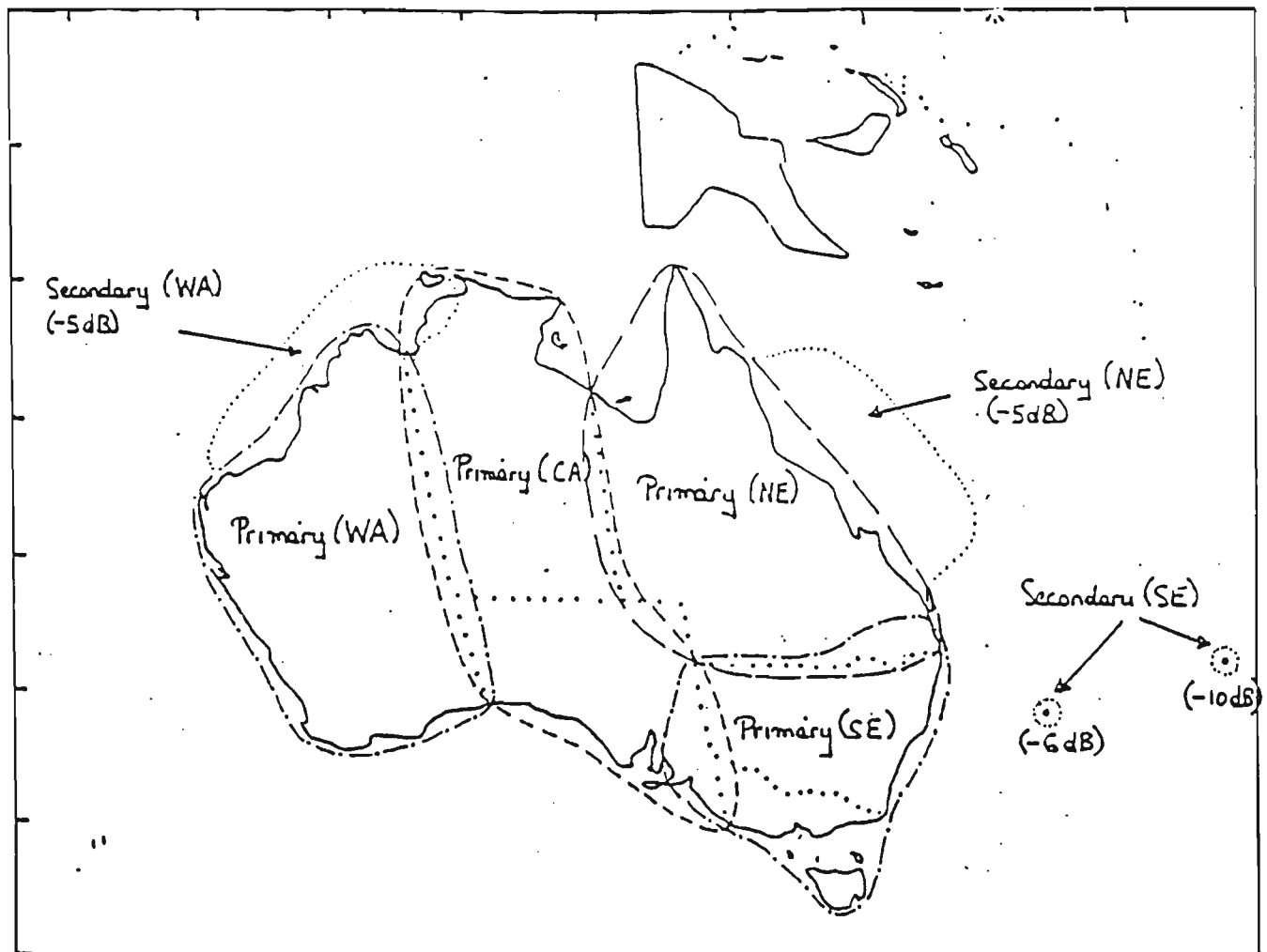
As the SPO planning progressed in early 1980 it became clear to PBL that a two footprint low powered system was not the preferred HACBSS option. This was of concern to Packer because as the ABC would inevitably have access to all the footprints it would be able to retain its network advantage over commercial rivals. In the early stages of consultation Free had argued that the HACBSS service should be provided by a body like the Special Broadcasting Service to which PBL would make its programmes available free of charge. Aware that this was unlikely, PBL concentrated on making sure that there was a commercial limited DBS service alongside the ABC's HACBSS for outback areas. This they argued would be in line with the Government's rationale for providing Supplementary Licenses, so that everyone in Australia could receive a 'complete television service'. Rather insightfully Packer added that such a service would require a Government subsidy.<sup>2</sup> This question had not been considered in any of the financial planning for the satellite.

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<sup>1</sup> Packer, Kerry. "Letter to A.A.Staley, Minister for P&T", 29 January 1980.

<sup>2</sup> Ibid.

By May 1980 PBL realized that to provide a commercial service on a national basis it would need to lease 4 x 30 watt spot beam transponders. The SPO's draft report to the Minister, entitled "Planning for a National Communications Satellite: Situation Report", dated 20th May 1980 clearly laid out a four footprint plan.<sup>1</sup>



TRANSMIT SPOT BEAMS (POLARIZATION A)  
NE, SE, CA, WA

<sup>1</sup>.Satellite Project Office, "Planning for A National Communications Satellite System Situation Report," Draft Report to the Minister for Post and Telecommunications, 20 May 1980. Appendix H

An attempt by Les Free to dissuade the SPO from its preferred option of four footprints had failed. Free had suggested an alternative of three footprints could give almost total HACBSS cover of Australia. Free also indicated that "...it was essential for commercial television interests to be treated identically to the ABC as far as the satellite is concerned."<sup>1</sup> The ABC with the support of the South Australian Government was lobbying for five footprints in May 1980. The ABC's reason for wanting a fifth footprint to cover South Australia was that it believed that without one, it would be ill-equipped to compete with any commercial station which injected programmes into the HACBSS area.<sup>2</sup> The South Australian Government was concerned that remote areas of the State would receive their programming from Darwin without a fifth footprint.<sup>3</sup> As such both were opposed to PBL's proposal.

When Free's suggestion was rejected, PBL decided to attempt to secure the transponders necessary to broadcast nationally. As such Robert Graham, Director of PBL wrote to Bob Lansdown on 22nd May 1980 stating,

This company is continuously reassessing its transponder requirements in the light of evolving engineering/policy decisions being made by the Satellite Project Office with regard to the satellite system...It now appears that to provide a HACBSS service it will be necessary to "purchase" 4 x 30W spot beam transponders. For program assembly purposes 1 x 15W transponder would be required. We now formally request the right of first refusal on 4 x 30W spot beam transponders and 1 x 15W National footprint transponder.<sup>4</sup>

As with Free's three footprint proposal PBL's request for the first right of refusal was also rejected by the Government conscious of the fact that this would have excluded other media corporations from owning a 30 watt transponder. With that avenue closed to it PBL attempted eliminate the 30 watt transponders from the design altogether, and approached Staley to have the design reconsidered. Staley, in turn, requested Graham

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<sup>1</sup>.Graham, Robert M. (Director of Publishing and Broadcasting Limited) "Letter to R.B.Lansdown", 22 May 1980.

<sup>2</sup>.Hartley, John. (ABC Sydney), "Vocadex to Alan Guster SPO", 28 May 1980. As such the ABC was opposed to Free's suggestion.

<sup>3</sup>.Tonkin, David. Premier of South Australia, "Letter to Mr G. Taylor, Chief General Manager for South Australian ABC", 1980.

<sup>4</sup>.Graham, Op.Cit.

Gosewinckel to contact Les Free to discuss the problems PBL had with the present design.<sup>1</sup>

Free indicated to Gosewinckel that he had two areas of concern relating to the satellite's power. Firstly Free had advice to the effect that the present design called for more power than presently available with current satellites and that this could lead to a more expensive system. Gosewinckel countered by pointing to "...the extensive consultation work being undertaken by COMSAT in the power/weight area...to ensure that our final RFT documentation is realistic, consistent with current technology and cost effective."<sup>2</sup> Gosewinckel added, "Mr Free accepted this explanation. Naturally, special pleading from parties with vested interests at this stage of the design process is not unusual and indeed must be expected."<sup>3</sup>

Secondly, Free stated to Gosewinckel that in his view HACBSS was in effect direct broadcasting and as such the 30 watt transponders were wasteful of valuable satellite power. He argued that by allowing only the ABC to broadcast through the high powered transponders, it had a considerable advantage over commercial operators through the use of a scarce resource. Gosewinckel countered with the suggestion that 30 watt transponders were needed if television and radio receive only earth stations were to be priced at \$1,000. Free questioned this aim which he saw as a political objective rather than a cost effective one. Gosewinckel also recorded in his record of the conversation a question he put to Free which is quite revealing of PBL's concerns.

I asked Mr Free if his organisation was allocated the HACBSS whether he would still believe that 30 watts is excessive - he replied that on the contrary, in that case he would be looking for even more power to provide a true DBS broadcasting service.<sup>4</sup>

When Staley was told of this response he resolved to press on with the existing design.<sup>5</sup>

Staley later recalled Packer was far from pleased with the course taken,

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<sup>1</sup>.Gosewinckel, Graham. "Discussion with Mr Les Free of Publishing and Broadcasting Limited", Satellite System Management Unit, 28 August 1980.

<sup>2</sup>.Ibid.

<sup>3</sup>.Ibid.

<sup>4</sup>.Ibid. p 2

<sup>5</sup>.Staley, Personal Interview with Author, Op.Cit.

But would you expect him to be when he had wanted the satellite and to control it and we had said 'No'? I mean that's the way you would expect a person who has said, "I want this, I want first rights, I commissioned a report originally"...He never quite said it in so many words but [it was implied that] this is my concept. But as Minister you make policy in the light of all interests and you weigh them and come up with the best overall policy. We didn't in those days make policy for one person.<sup>1</sup>

PBL continued to lobby Government members on the question of 30 watt transponders even though they had failed in their initial efforts to have first right of refusal and then to eliminate them altogether. The Government responded to this pressure by establishing a National Satellite System Committee of Review.

### Packer Discontent and The Carver Committee

The establishment of a supposedly independent committee of review, with terms of reference framed in such a way as to determine the outcome of any investigation, has long been an effective tool for Governments to create a 'negotiation space' for technological projects. On this occasion however there was not unanimity within bureaucracy planning the implementation of the satellite system that this was the best way to insulate the project from criticism. The Satellite System Management Unit argued that OTC's engineers led by Graham Gosewinckel had experience with satellites which was without peer in Australia. In addition, they added that Gosewinckel's team had been heavily supported by COMSAT and the European Space Agency (ESA) who had world wide reputations in the satellite field.<sup>2</sup> The SSMU also pointed to the extensive consultation with industry and major users they had undertaken. They concluded,

Taking into account the highly qualified but scarce Australian resources brought to bear on the project, the substantial involvement of experienced international consultants of high repute in the industry, the dialogue with the potential bidders for supply of the system, and the involvement of the major potential users in the system design process, a further review of the system design is seen as having little if any value. Indeed, it is believed that within Australia there is no authoritative source of system design advice which has not been tapped, and no other overseas consultant could claim knowledge or experience in the satellite system design field greater than that available from COMSAT and ESA.<sup>3</sup>

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<sup>1</sup> Ibid.

<sup>2</sup> Satellite System Management Unit, "Confirmation of the System Design", August 1980. p 1

<sup>3</sup> Ibid. p 2

Alan Guster also had reservations about the satellite review as expressed in a minute to Lansdown,

The terms of reference seem fairly narrow in their own right, but I believe we should be prepared for Pandora's Box being opened up in relation to commercial broadcasting. I cannot believe that Mr Packer is going to give up easily even though a strong case is available on the introduction of 30 watt transponders for system design purposes.<sup>1</sup>

Guster also revealed his interpretation of why Packer was lobbying for the removal of the 30 watt transponders, stating,

The real question is what is Mr Packer on about...It seems clear that Mr Packer realised he will not get a lot of the action on satellite services within the states with only one commercial service available (although he could have adopted the Murdoch line and aimed at the south-eastern footprint) - hence the pressure to get more access by way of 15 watt transponders, bringing the ABC back to the field at the same time.<sup>2</sup>

Guster was concerned that as of September 1980, the Government was still to annunciate a policy on a commercial HACBSS service. He believed this was not an issue for which the SPO's preferred technical option provided a solution, but instead a policy matter which could only be resolved by providing a commercial service which gives 'something for everybody' with respect to the major media groups. What troubled Guster about the Committee of Review was that they might find "...the second HACBSS is not viable, then we will be put to the test, either as to its alternative uses or whether the design should be changed."<sup>3</sup>

Despite reservations within the SPO the National Satellite System Committee of Review (Carver Committee) was established by the Government on 3 September, 1980. The membership of the Committee was made up of:

Professor John Carver, Director, ANU Research School of Physical Sciences.  
 Sir Roderick Carnegie, Chairman and Executive Director, CRA Ltd.  
 Sir Arvi Parbo, Managing Director. Western Mining Corporation.  
 Professor Robert Frater, Associate Professor in Electrical Engineering, University of Sydney, and Chairman, National Committee for Radio Science of the Academy of Science.  
 Dr Cec Costain, Division of Physics of the National Research Council of Canada.  
 Dr Dennis Cooper, CSIRO, Division of Radio Physics.<sup>4</sup>

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<sup>1</sup>.Guster, Alan "Satellite Review", P&T Minute Paper, 1 September 1980. p 1

<sup>2</sup>.*Ibid.*

<sup>3</sup>.*Ibid.*

<sup>4</sup>."Report of the Satellite Committee of Review", J.H. Carver (Chairman), The Australian National University, 10 September 1980.



Staley recalls that the inclusion of such powerful Australian business figures as Parbo and Carnegie, was important to balance the weight of pressure coming to Cabinet from PBL. Mostly Packer would use his direct line to Fraser rather than approaching Staley and it often occurred during these years that the first time DOC would hear of an issue arising was when something would come out of the Prime Minister's Department. In essence the objective of the inquiry was very clear for Alan Guster, who later stated, "We knew it would not throw up new technical information, it was more political, we could use it when we wanted."<sup>1</sup>

The formation of the Committee of Review itself was confidential and indeed its very existence remained undisclosed until April 1981.<sup>2</sup> Its report submitted on 10th September 1980, just seven days after the terms of reference were framed, was never publicly released.

The three questions put to the committee were,

1. Whether or not the decision to introduce 30 Watt transponders was well taken;
2. What implications does this have for commercial flexibility in the use of transponders;
3. What implications would use of 15 Watt transponders for the HACBSS service have for the design and cost of the remote area receiver.

The interpretation the Carver Committee placed on these questions was, as Guster had hoped, a narrow one. The report noted,

The Committee considered that its role was not to review specific Government decisions but rather to examine whether appropriate consideration had been given to all important factors in arriving at the technical solutions chosen.<sup>3</sup>

In this context Packer's preferred option had little chance of receiving endorsement from the Committee. Rather than reviewing the decision to include 30 watt transponders, Carver *et al* saw their role as assessing the much more woolly criterion of whether 'appropriate consideration' had been undertaken in making that choice. What the Committee looked at then was not the decision but the decision making process, which

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<sup>1</sup>.Guster, Alan. Personal Interview with Author, Canberra, 30 August, 1988.

<sup>2</sup>.Staley states that with an election in the offing the last thing the government wanted was to set of another round of public inquiries. Staley, Personal Interview with Author, Op.Cit.

<sup>3</sup>.Carver Report, Op.Cit. p 1

consequently influenced their approach to the specific questions addressed. For instance, in regard to the first question, the Committee interpreted "...'well taken' to mean 'not inappropriate or unreasonable under the Government guide-lines and practical design constraints'."<sup>1</sup> This allowed the committee to sidestep the more complex issue of whether PBL's homogeneous proposal had merit. Indeed it allowed the committee to dodge criticisms Free had outlined to Gosewinckel.

As denoted in their report the Committee did not undertake a study of the technical reservations Free had about the Satellite's design,

In the short time available to the committee (seven days) it was possible to carry out only limited investigations. Consequently, the Committee has not conducted an engineering review of the design parameters of the satellite... it understands that specialist spacecraft consultants (COMSAT and the European Space Agency) will be reviewing the system design and providing a certification that it is both practical and appropriate. On the basis of the information available to it, the Committee has no reason to query the technical specifications for the satellite.<sup>2</sup>

Over the week available to it the Committee met with,

- SPO officers responsible for the design;
- Messrs Les Free, Alan Reid, Len Mauger and Bruce Robinson of PBL;
- Mr Peter Holmes a Court of Business Telecommunications Services Pty. Ltd. (previously with IBM Australia);
- Mr Roy Hamilton of the Western Australian Government;
- Mr Rory Treweeke of the Isolated Children's Parents Association.(ICPA)<sup>3</sup>

The selection of those to be interviewed was in itself a political choice. Apart from PBL all the others interviewed could have been expected to support the inclusion of the higher powered transponders. It also emphasizes how the ICPA was used throughout the planning process to legitimate past decisions and this question will be addressed in a later chapter.

The report itself came down on the side of the existing design rather than PBL's preferred homogeneous satellite. It concluded,

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<sup>1</sup> Ibid. p 3

<sup>2</sup> Ibid. p 1

<sup>3</sup> Ibid. p 2

The Committee's investigations suggest, for a four spot beam system, 30W transponders are the minimum size necessary to ensure a reasonably low cost to the individual HACBSS user. Such a system with a ground antenna of about 1.5 metres would result in acceptable reception.<sup>1</sup>

PBL's argument that the cost of the system would be significantly reduced by adopting an homogeneous transponder capacity were discounted on the basis that the additional costs would be incurred by users. The Committee stated that, on the figures available to it, the break-even point was about 20,000 HACBSS receivers and that above that level significant cost savings would accrue to the community from the 30 watt approach.<sup>2</sup> Consequently the Committee concluded the decision to include 30 watt transponders was not unreasonably taken. It was not a result which pleased PBL. PBL's position at the time was put to P&T on 5th September 1980 by Free and included the following points:

- (1) Trying to do too much with technology in the first generation system.
- (2) There is no 30 W proven transponder.
- (3) Ours will have to be specially built unit - costs will escalate - users (particularly commercial) will have to meet the higher costs.
- (4) The 1.2m dish is impractical in present state of technology - therefore P&T aim for such a dish at \$1,000 is not realistic.
- (5) People will buy bigger dishes to get better performance - 1.6m or 1.8m at \$1500 or \$1600. This slightly bigger dish with slightly better receiver will provide much better service.
- (6) Sensible way to go is 3 spot beams - 15W or 20W transponders - 1.6 or 1.8 m dishes in homestead or community situations.
- (7) Use cable or low power translators to distribute in communities - place more emphasis on communities than on individual homesteads.
- (8) All 15 W transponders would allow four HACBSS services on 2 operational satellites and have a potential to extend the design life of the satellite.<sup>3</sup>

Tony Staley, displeased about not being able to accommodate PBL, tried to find a technical solution, and ordered P&T to provide information on the costs and service implications of a satellite with only 30 watt transponders. It again fell to Graham Gosewinckel to justify the SPO's existing design. Gosewinckel advised that such a design would provide less capacity and result in higher costs to users.<sup>4</sup>

### Department of Finance Discontent

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<sup>1</sup>.Ibid. p 3 Coleman's report is discussed in the following chapter.

<sup>2</sup>.Ibid.

<sup>3</sup>Lord, Bob. "The Packer/Free View", Note made of a phone call to P&T, 5 September 1980.

<sup>4</sup>Gosewinckel, W.G. "Implications of a National Satellite System Based on 8x30 Watt Transponders", P&T Minute Paper, Satellite System Management Unit, 11 September 1980.

By 1980 the Department of Finance had the credentials of the satellite project's leading critic within the Government. DOF representatives had dissented from both the Task Force and Working Group's recommendations. It is a curious irony of the decision making process which led to the establishment of a domestic satellite system, that on occasions DOF and PBL were in opposition and yet at other times were allied in their views. Their most fundamental disagreement centred on the DOF's consistent opposition to the establishment of a satellite system. PBL was highly critical of John Coleman's dissenting report to the White Inquiry recommendations in its submission to the Working Group.<sup>1</sup> In this submission, PBL was also critical of the fact that the Task Force had not included a representative from the private sector. As this chapter has indicated this was a prelude to Packer advocating private sector participation in the ownership and control of the projected satellite system. On this latter point the DOF position was much closer to PBL's, as although they consistently opposed the satellite project, they argued that if it went ahead it should have a component of private ownership. Finance believed that a 50:50 equity split between the Government and private interests would considerably ease the burden on the public purse.

Studying the means Finance used to achieve its preferred ownership option is instructive as to why the debate over the ownership and control of the satellite took the course it did in 1980/81. The very nature of its portfolio gave Finance a powerful lever with which to exert influence over the decision making process, firstly under the SPO and then OTC as interim authority. The earliest example of Finance flexing its muscle to secure the participation of the private sector occurred early in 1980. In line with the SPO's objective of an earliest possible launch, Tony Staley wrote to Eric Robinson, the Minister for Finance, to request the provision of funds to enable the Commonwealth to place deposits with launch organizations for possible use of their services in late 1983 or early 1984.<sup>2</sup> Robinson replied,

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<sup>1</sup>.PBL. "National Communications Satellite System", Submission to the Interdepartmental Committee arising from an invitation to comment on the Task Force Report, 30 November, 1978.

<sup>2</sup>.Robinson, Eric. "Letter to The Hon. A.A. Staley", 8 May 1980. p 1

As you know...Cabinet, in agreeing in principle to the possible implementation of a national satellite system, set down a number of guide-lines for the planning of such a system. Among these guide-lines was that private enterprise should be involved in the planning of the system...<sup>1</sup> (Underlined in Original)

Robinson further stated that the SPO's timetable for the launch of the satellite as announced to industry at the April 1980 briefing gave him cause for considerable concern. He pointed out that this would allow two years less than the period suggested by the Task Force as being the amount required for the proper planning of the system; that an early launch would entail use of more expensive expendable rockets and preclude use of the Space Shuttle with a consequent increase in cost of \$30 million; and most importantly for Finance preclude private sector participation from the design and evaluation of tenders for the satellite system.<sup>2</sup> After pointing out that both the Task Force and Working Group, had recommended that the organization selected to control the satellite system should be fully involved in all stages of the implementation process, including the design phase, Robinson argued,

...I believe that early private sector involvement could have substantial advantages for the implementation of a satellite system. Effective private sector inputs in the initial design phase could materially assist in focusing attention upon various cost and technical factors, including any possible trade-offs, which might be necessary or desirable to stimulate private sector use of the system; while the application of private sector management and entrepreneurial skills could contribute substantially to the efficiency of operation and the most effective utilisation of the system in future...I am concerned that if this is not done then there is a distinct possibility, if not likelihood, that the operators of the system will not have the same degree of commitment to its success as would be the case if they had a major share in the design of the system. To deny prospective private sector participants, in particular, the chance to influence key cost and performance factors (including the timing and mode of launching) could have important implications for the future viability of the satellite system, because of the possible consequences for its capital costs, for user charges, and the likely level of demand for its services, etc - and might well also jeopardize that private sector participation with all of its attendant advantages to the Commonwealth in future.<sup>3</sup>

Robinson followed this up by noting that his Department had advice from the Canadian team of 'experts' who visited Canberra in 1979, that when Telesat was established as a joint public company to own, manage and control their national satellite system, their new directors "...felt obliged to reject some of the initial technical (design) work which had been done by officials in that country and on which several million dollars had been

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<sup>1</sup>. Ibid.

<sup>2</sup>. Ibid. p 1-2

<sup>3</sup>. Ibid. p 2

spent."<sup>1</sup> Robinson went on to say that he was concerned that the SPO was basing their design work around certain public sector functions, such as remote telephony, for which the cost effectiveness of utilizing the satellite was open to question. Robinson added,

Accordingly, I am concerned to ensure that further technical design work by the Satellite Project Office does not proceed on the assumption that these proposed uses of the satellite are necessarily "fixed" at this juncture.<sup>2</sup>

As such Robinson replied that he did not feel able to accede to Staley's request for the provision of funds for launch deposits. The clear message from Robinson's letter was that Finance could delay the project unless private sector participation was placed firmly on the project's agenda. What shaped Robinson's reaction to Staley's request was the fact that Finance was represented on an Inter-Departmental Working Group that had been convened in January 1980 to consider the ownership, management and control of the satellite system.<sup>3</sup> This Committee was due to report at the end of May. In effect what Finance was doing was holding the threat of delaying funding over P&T, so that it would be given its own way in framing the report's recommendations. Thus, even though, as Jack Curtis had suggested, there were elements of the portfolio which favoured the satellite system being given to OTC, the Working Party's recommendations reflect strongly the views of Finance. After considering the following ownership options,

- (a) a new statutory authority;
- (b) Telecom;
- (c) OTC;
- (d) a consortium of public and private sector interest.<sup>4</sup>

The recommendations were,

- (i) the owner organization provide for public and private sector participation in both management/control and capital contribution;
- (ii) this be in the form of a consortium of public and private sector interests; and that
- (iii) ownership not be vested in either Telecom or OTC although it does foresee that there would be advantages in having one or both of these authorities represented on the management board of the ownership organization, and perhaps contributing equity.<sup>5</sup>

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<sup>1</sup>. *Ibid.* p 3

<sup>2</sup>. *Ibid.* p 3

<sup>3</sup>. The committee met on nine occasions between 16 January and 19 May 1980. It was not established in May 1980 as indicated by Fisher, *Op.Cit.* p 90 Refer Draft Report to the Minister for P&T, "Planning for a National Communications Satellite System, Situation Report", SPO, P&T Dept., 20 May 1980. p 55

<sup>4</sup>. *Ibid.*

<sup>5</sup>. *Ibid.*

Having got its own way in the working party's deliberations Finance agreed, in June 1980, to P&T's request for a \$100,000 deposit to be placed on a Space Shuttle launch, but still did not grant funding for an expendable rocket launch reservation.<sup>1</sup> The letter from Robinson to Staley in May 1980 must be read against the machinations taking place on the inter-departmental working party which comprised representatives of DOF, P&T, Department of Transport and of the Department of Prime Minister & Cabinet.<sup>2</sup> By withholding funding for expendable rocket launch deposits, Finance was attempting to ensure that the recommendations of the working party would be implemented.

Despite Finance opposition OTC being given control of the satellite was still the favoured option within the SPO. As such Robert Somerville, the then Chairman of OTC, was encouraged by the SPO to write to Staley on 4th August 1980, proposing that his organization take control of the project.<sup>3</sup> The offer was timed to coincide with the matter going to Cabinet on the 16th September 1980. On that date the Cabinet agreed that as an interim measure, OTC was to be designated as the authority to own and manage the proposed domestic communications satellite system.<sup>4</sup> The trade off for Finance was that a further Inter-departmental Committee (IDC) was established to survey the interests of private sector organizations participating in a company to own and manage the system.<sup>5</sup> In accordance with the decision to designate OTC as an interim authority to own and manage the system, that organization now had primary responsibility for planning the system including releasing the RFT in October 1980.<sup>6</sup> As such Graham Gosewinckel's SSMU was re-incorporated into OTC as their National Satellite System Division(NSSD),

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<sup>1</sup>.Staley, A.A. "Letter to The Hon. Eric Robinson,M.P.", 13 June 1980.

<sup>2</sup>.When Cabinet made the 'in principle' decision to implement a satellite system on 18 October 1979, it directed Staley and Robinson in conjuncture with their colleagues, the Ministers for Transport and Industry and Commerce, to determine the extent to which private enterprise should be involved in planning the system. The Inter-departmental Working Party, Gosewinckel and Lansdown incorporated into the structure of the SPO was to fulfil this directive.

<sup>3</sup>.Fisher, *Op.Cit.* p 91

<sup>4</sup>.Refer interviews with Minister Staley and Senator Susan Ryan, P.M. ABC National Radio Public Affairs, Australian Reference Services Pty Ltd, Transcript, Melbourne 18 September 1980.

<sup>5</sup>.For background on the use of IDC's in Australian government, refer Martin Painter and Bernard Carey, Politics Between Departments: The fragmentation of executive control in Australian government, University Of Queensland Press, St Lucia, 1979.

<sup>6</sup>.Refer to the "Memorandum of Understanding Between the Postal and Telecommunications Department and the Overseas Telecommunications Commission (Australia)." This document was signed by Bill Schmidt General Manager of OTC) and Alan Guster (For Bob Lansdown) on 4th November 1980.

while Alan Guster's SPCU stayed within P&T with the new name - Satellite Policy and Co-ordination Division (SPCD). Gosewinckel's NSSD took on the role of interim authority within OTC.<sup>1</sup> The dismantling of the SPO also meant the end of the Portfolio Committee which was replaced by a Bridging Committee. While the committee retained two members of the original Portfolio Committee, Lansdown and Schmidt, Duckmanton and Jack Curtis, who ceased to be Telecom's Managing Director in 1981, were jettisoned. The latter two were replaced by Hugh Payne and Graham Gosewinckel.

On 14th October 1980, four days before an election, polls suggested the Government could lose, Malcolm Fraser announced that 49% of the satellite would be sold off to private investors.<sup>2</sup> The decision was warmly received by the corporations represented by BTS, who had pressed for private equity. When the Government was returned Ian Sinclair, the new Minister, confirmed the decision to senior Department officials. While the DOC was aware that this was likely to be the case it still represented an unwelcome complication to the planning process. Hugh Payne cautioned against a sell-off because of the many issues which lay unresolved, such as the fact that tenders were not due to close until 5th May 1981. Payne felt the Government could be 'crucified' if the sell-off failed. Sinclair's response to being told it was impossible in the time frame, he envisaged was to tell Payne to contact David Bloch, an influential Sydney Merchant Banker, who often acted as a conduit between government and the finance world in Australia.<sup>3</sup> Bloch told Payne that the private sector would invest in the satellite system and Payne begrudgingly returned to tell Sinclair the sale could proceed.<sup>4</sup> The Department then commenced a long and arduous series of interviews with prospective investors.

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<sup>1</sup>.Fisher, Op.Cit. p 93

<sup>2</sup>.Summers, Ann. "New Poll Shows...Fraser Looks Like Losing", Australian Financial Review, 15 October 1980. p 1 and Susan Woods, "Satellite: 49pc to the private sector", Australian Financial Review, 15 October 1980. p 1

<sup>3</sup>.Payne, Personal Interview with Author, Op.Cit. For biographical details on David Bloch refer Deidre Macken and Norman Abjorensen, "Movers and Shakers", Good Weekend Magazine, (*Sydney Morning Herald*), 14 January 1989.

<sup>4</sup>.Payne, Personal Interview with Author, Op.Cit.



The Department of Finance maintained its insistence for private participation in the project through into 1981. In line with this Margaret Guilfoyle, the new Minister for Finance, wrote to Ian Sinclair,

I am writing to express my concern about the need I see for the Government to maintain a fairly close surveillance over, and control of, the expenditures that OTC is currently incurring and plans to incur next year in relation to the proposed domestic communications satellite system. You will recall that Cabinet...stated...that as an interim measure, OTC should be designated as the official organisation to own and manage the satellite system. However, that decision also directed officials to examine the possibility of a company, in which the private sector might have an equity interest of up to 49 per cent, being set up to own and manage the satellite system in future. As to the latter matter, I understand that officials are reasonably confident that suitable arrangements could be made to establish such a company later this year, in time for that company to participate in tender evaluation and the award of contracts, etc.<sup>1</sup> (Underlined in Original)

The sting in Guilfoyle's letter came in the next excerpt,

I do not believe that Cabinet...gave OTC a free hand to incur whatever expenditures it deemed appropriate or necessary in order to further the development of the satellite system, regardless of the progress being made with respect to the other part of that Decision mentioned above - nor do I think that OTC should have such a license, especially not at the present time with the emphasis being placed on the need for expenditure restraint in the public sector. My concern in this regard has been heightened by several decisions that I understand OTC has taken recently, which will impact financially upon the proposed satellite company. I refer in particular, to the decisions to pay deposits in respect of both the Delta and Arianespace launch alternatives, in addition to that placed with NASA for the Space Shuttle last year; to create 37 new staff positions to work on the satellite project; and to enter into arrangements to lease relatively expensive, long term accommodation for such staff in the very heart of Sydney.<sup>2</sup> (Underlined in Original)

For Finance,

These actions and initiatives by OTC could conceivably cut right across the Government's objective to involve the private sector in the ownership and management of the satellite system, and could also have the undesirable effect of circumscribing the ability of the proposed satellite company to "take its own decisions" when that company is established, hopefully later this year. The possible implications of the company becoming a hostage to decisions taken by OTC which were not really necessary should not be discounted in my opinion...I believe that all major expenditure "decisions" taken by OTC in relation to the satellite project should be carefully scrutinised by the Government before they are acted upon.<sup>3</sup> (Underlined in Original)

As such, Guilfoyle sought an assurance from Sinclair that appropriate procedures would be instituted to ensure that P&T and DOF could maintain effective surveillance and control over OTC's expenditures. Sinclair replied on 24th April 1980 that he did not

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<sup>1</sup>.Guilfoyle, Margaret."Letter to The Rt Hon Ian Sinclair, MP", 30 March 1981. p 1

<sup>2</sup>.Ibid.

<sup>3</sup>.Ibid.p 1-2

believe there had been any unwarranted expenditure and gave no assurance of the type Guilfoyle was seeking.<sup>1</sup> In response Guilfoyle reiterated that the Government was yet to finally commit itself to the introduction of a domestic satellite "...to compete with the existing terrestrial network operated by Telecom."<sup>2</sup> Guilfoyle added,

The large potential costs involved and the possible ramifications of an alternative satellite system for broadcasting and telecommunications activities in Australia are such that I believe the Government generally should be kept closely informed of and have the opportunity to comment on progress in regard to this project, to ensure that it does not run off the rails.<sup>3</sup>

In response to a compromise suggestion by Sinclair, Guilfoyle stated,

...I am frankly less than enthusiastic about your proposal to establish another small Committee of officials so that Departments (including my own) which have prime functional interest in the satellite project can be kept informed only of the "planning decisions" taken by OTC, with no power to seek to modify those "decisions" if the need should arise. Given the interim nature of OTC's role in regard to the setting up of the proposed satellite system, I do not consider that the creation of such a Committee is an adequate response to my concerns. I am re-inforced in this view by your advice that OTC proposes to enter into arrangements with no less than 5 separate firms (3 foreign and 2 Australian) at an estimated cost of approximately \$1.35 million, to assist it in evaluating the tenders received for the supply of the space segment of the satellite system and the major "gateway" earth stations. In my opinion, the cost of that proposal - which the various public and private sector investors in the proposed satellite company will eventually be expected to share - and its possible system design implications for the future are such that it should have been referred to several Ministers (including myself, as Minister for Finance) for consideration before OTC was authorized to proceed with it.<sup>4</sup>

Sinclair had implied in his letter that DOF's proposal for close surveillance of OTC's actions would unduly delay the project. The NSSD (OTC) retained the SPO's objective of the earliest possible launch, something DOF thought would be a small price to pay to ensure the involvement of private interests. Guilfoyle informed Sinclair that close scrutiny of the project would "...minimise the possibility that Ministers might be pressured by the momentum of events and the tight, arbitrary timetable which has been drawn up for this project - which I might add, I do not regard as being sacrosanct."<sup>5</sup>

The same issue was taken up by H.G.Heinrich,(Principal Adviser, Transport and Industry Division, DOF) in a letter to Hugh Payne on 27th May 1981 in which he stated,

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<sup>1</sup>.Guilfoyle, Margaret. "Letter to The Rt Hon Ian Sinclair, MP", 22 May 1981. p 1-2

<sup>2</sup>.Ibid. p 1

<sup>3</sup>.Ibid.

<sup>4</sup>.Ibid. p 2

<sup>5</sup>.Ibid. p 2

...we in this Department are guided by the decisions of Cabinet and the views of the Minister for Finance (rather than the wishes or public utterances of individual Ministers) in determining our approach to matters which involve the expenditure of large sums of public moneys. And the fact is that, to the best of our knowledge, Cabinet has still to decide whether or not Australia should have a domestic satellite communications system - the economics of which have not yet been proven - let alone that such a system should be operational by 1985. The arbitrary timetable which OTC and your Department have drawn up for the satellite project must be viewed in that light and the current serious concern of the Government to restrain expenditures in the public sector - as well as the important related policy objective enunciated by the Government last year that the private sector should be permitted to participate in the ownership and management of the proposed satellite system, if established, through a significant (49 per cent) shareholding in a new company to be set up for this purpose.

In our opinion, the ownership issue is so basic and important to the future of this project that it must be resolved first and should not be subordinated to the quest to achieve some arbitrary timetable which as yet, has no special status and cannot be regarded as being either sacrosanct or immutable. As you will gather, we are strongly opposed to the latter idea.<sup>1</sup>

Guilfoyle and Sinclair had another exchange of letters in June 1981, essentially going over the same ground. As with the 1980 exchanges between Robinson and Staley, when the interdepartmental working party was considering the ownership question, the new Ministers' correspondence must be read against the preparation of the IDC report ordered by Cabinet.<sup>2</sup> The Department of Finance wanted to maintain the momentum towards private equity for two reasons. The first was that private investment would reduce the Commonwealth's financial commitment to the company.<sup>3</sup> Secondly and perhaps more importantly Finance had an ideological commitment to the deregulation of Australia's communications industry.<sup>4</sup> The price of their cooperation was an underlying agenda of deregulation.

As noted earlier, during this process Cabinet had detailed an Ad Hoc Committee of Ministers to address the question of ownership. The committee included the Ministers for Communications (Chair), Industry and Commerce, Finance, Attorney-General, Transport and the Treasurer.<sup>5</sup> After the ministerial committee had decided to create a joint

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<sup>1</sup> Heinrich, H.G. "Proposed Domestic Satellite Communications System", Letter to DOC Secretary, Attention E.E. Payne, 27 May 1981.

<sup>2</sup> "Report of the IDC on Establishment of a Company to own and Manage the Domestic Communications Satellite System", May 1981.

<sup>3</sup> Satellite Policy and Coordination Division, "Meeting Between the Minister for Communications and the Chairman of Aussat Pty Ltd - Monday 1 March 1982", 26 February 1982. p 2

<sup>4</sup> Maclean, John. Personal Interview with Author, Canberra, 29 August 1988.

<sup>5</sup> The Committee was established on 11 May 1981. Subsequently the Treasurer was replaced by the Minister for Veterans' Affairs and the Minister Assisting the Treasurer. Refer "Reporting to Government on the Satellite Project", Departmental Committee on the NCSS, Agenda Item 2 for meeting of 12 June 1981, Satellite Policy and Coordination Division 11 June 1981.

public/private company on 30th June 1980 as a matter of urgency, it requested a paper with information on the tender evaluation timetable and the type of company which could be established.<sup>1</sup>

Hugh Payne and Graham Gosewinckel met in July 1981 to discuss the draft paper, which would go to the Ad Hoc Committee, on the establishment of a private company with initially 100 per cent Commonwealth funding. With the Government moving away from OTC ownership solution, favoured by Staley, the problem they could see arising would be the Commission itself or, more particularly senior management's reaction to not being involved after 1982. Gosewinckel told Payne that he thought "...there could be some pressure from areas of OTC to have the senior engineering talent now devoted to the satellite project allocated to other OTC areas of interest."<sup>2</sup> When they discussed the matter with Bill Schmidt, who had been supportive of Gosewinckel's group, the OTC General Manager said he was "...concerned that the company when established would get ambitious and seek to recruit key people from OTC."<sup>3</sup> While Schmidt indicated that he would continue to support Gosewinckel's satellite division, Payne commented to Lansdown,

I am uncertain how the Commission as such will react to the latest decision. Mr Schmidt will need Board support to maintain the expert officers, who have now been assigned to the Satellite Division, when we all recognise that the company would look to those officers as a main source of recruitment after the evaluation phase has been completed.<sup>4</sup>

During this period Lansdown allowed the 'OTC' members of the planning process to progressively move more and more towards the ultimate organization owning the satellite system. For their part, OTC's officers in the SPO recognized that the potential for career advancement was much greater in a separate company. Alan Guster remembers that by this time the Sydney OTC satellite group really had the 'bit between their teeth and were pushing harder and harder'.<sup>5</sup> At the same time a delay in allowing private equity allowed

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<sup>1</sup> Ibid.

<sup>2</sup> Payne, E.E. "Ownership of the Satellite System", Memo to the Secretary, 9 July 1981

<sup>3</sup> Ibid. p 2

<sup>4</sup> Ibid. p 2

<sup>5</sup> Guster, Personal Interview with Author, Op.Cit.

the OTC satellite group to position themselves in control without having management positions filled by the directives of investors.

In addition, the difficulties Payne had initially put to Sinclair, not least of which was securing loans to finance the system from bankers wary of the strength of the Government's commitment, continued to make it difficult for the Cabinet to risk allowing private investment in the initial stages. Instead Cabinet decided on 24th September and 19th of October 1981 to endorse the establishment of Aussat Pty Ltd, as a 100 percent Commonwealth owned company, with a view to the sale of 49 per cent of its share capital at a later date. Four days later on 23rd of October Lansdown told Stan Owens, a Sydney banker who had been recruited by Graham Gosewinckel, that he would be appointed as Chairman,<sup>1</sup> and shortly after Hugh Payne told John Duncan to take some petty cash and go and register the company.<sup>2</sup>

During 1982 BTS maintained its lobbying efforts for private investment in Aussat, but reiterated that this was just the first step in its deregulatory agenda. Typical of the political approach taken by BTS was a letter from Peter Holmes a Court to Ian Sinclair on 21st April 1982, in which he stated,

Of particular concern to us is the form in which the Government envisages the need for the private sector to be more widely involved in the provision of telecommunications services, as per the terms of reference of the Davidson Inquiry. We believe that the private sector participation in the provision of telecommunications services is a totally different concept from private sector investment in a Government dominated AUSSAT, and that the two should therefore not be confused.<sup>3</sup>

Apart from the ownership question protagonists were still contesting decisions in other areas.

### Packer Discontent Continued

As Alan Guster had predicted Kerry Packer did not give up without a fight. In April 1981 the *Financial Review* made the first public disclosure of the thrust of the Carver

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<sup>1</sup>.Fisher, *Op.Cit.* p 122

<sup>2</sup>.Payne, Personal Interview with Author, *Op.Cit.*

<sup>3</sup>.Holmes a Court, Peter. "Letter to the Hon., Ian Sinclair, Minister for Communications, BTS, Sydney, 21 April 1982.

Report.<sup>1</sup> The leaking of the confidential report to Judith Hoare, a journalist with the paper, occurred from within the Department of Communications. The article itself sparked wide interest, especially amongst those unaware of the Carver Committee's existence. Graham Gosewinckel expressed his surprise that the Carver Committee information had got out and stated that the article was very much 'on the ball'.<sup>2</sup> It also produced another round of justifying the existing design, this time with the interest of the Prime Minister, Malcolm Fraser.<sup>3</sup>

Hoare's article headed "Packer bids to reopen Satellite Debate", maintained that PBL was attempting to reopen deliberations on the value of incorporating 30 watt transponders. Les Free had continued to lobby Hugh Payne in March 1981.<sup>4</sup> Gosewinckel and Guster prepared a brief to again rebut PBL's case for a homogeneous satellite, adding,

The matter could become sensitive when tenders are being evaluated, particularly if some tenders are received for a 'homogeneous' satellite (i.e. a satellite in which all transponders are of the same power.) The request for Tender (RFT) specifies a 'mixed satellite' containing 15 watt and 30 watt transponders but does not exclude other propositions. The Packer organisation's continuing advocacy of a homogeneous satellite relates directly to commercial broadcasting interests associated with the introduction of direct TV broadcasting by satellite to viewers.<sup>5</sup>

Hugh Payne felt that Guster was being somewhat unfair to PBL's position. His comment on the draft of the brief made the point,

To be fair to Publishing and Broadcasting, its objections to the 15 and 30-watt configuration are the extra costs, which it assesses at \$30M...The P&B view is that the use of the higher-powered transponders for other than direct broadcasting would be a waste of power in the sky.<sup>6</sup>

The final brief to the Minister did not include Payne's thoughts on Packer's position but did make an important omission from the draft based on the Deputy Secretary's Minute. The draft brief for the Minister included as a justification for the 30 watt transponders the goal of \$1,000 dishes for remote users. Payne commented,

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<sup>1</sup>.Hoare, Judith. "Packer bids to reopen the Satellite Debate", Financial Review, 6 April 1981.

<sup>2</sup>.Guster, A.F. "Financial Review Article (6 April 1981) re Packer etc.", Minute to E.E.Payne, 6 April 1981.

<sup>3</sup>.Ibid.

<sup>4</sup>.Payne, E.E. "Briefing Material on Financial Review Article on the Satellite", Minute to Alan Guster, First Assistant Secretary, Satellite Policy and Co-ordination Division, 7 April 1981.

<sup>5</sup>.Guster, A.F. "Financial Review Article of 6 April 1981", Brief for Minister, 9 April 1981. p 1

<sup>6</sup>.Payne, "Briefing Material on Financial Review Article on the Satellite", Op.Cit.

We should avoid giving any estimate for the cost of small earth terminals. The \$1,000 terminal could be a dream, and it certainly would not be the retail price.<sup>1</sup>

Instead the final brief referred to the Carver Committee Report to justify the existing design on the basis of providing low cost earth stations.<sup>2</sup>

Throughout 1981 pressure was being put on DOC and OTC (now the interim authority) to reconsider the design. In May 1981 Dr Brian O'Brian attempted to reopen the question of orbital location and rain attenuation.<sup>3</sup> To again try to insulate the project from on-going scrutiny, Graham Gosewinckel suggested to Rein Mere that it might be,

...useful to either re-convene the 'Committee of 6' or to otherwise conduct a review of the same questions in the light of present information so that the assumptions regarding 30W transponders, orbital positions and selection of 14/12 GHz could be again questioned and put to bed. I [Mere] said I would raise this in the Department, noting that an early scuttling of any controversy would be desirable.<sup>4</sup>

Kerry Packer continued to lobby the Government, but instead of his executives working through DOC, he went directly to the Minister. By 1981 Ian Sinclair had replaced Tony Staley as Minister of the Department of Communications (Formerly P&T). Packer lunched with Sinclair in early October 1981, at which time he placed the question of the 30 watt transponder back on the agenda. Packer advised Sinclair "...that no one else in the world had 30 watt transponders and this was all a new thing."<sup>5</sup> Sinclair brought the matter up with Lansdown who replied,

(1) it was not really a matter of giving an advantage to the ABC. What we were concerned about was the size, ease of establishment and maintenance and cost of the little dishes to the consumer. I gave comparative sizes and figures.

(2) I said also that this particular matter was the subject of a review by a Committee of four(*sic*), twelve months ago and I would get out the report for him.

(3) I said further, that several countries were going into direct broadcasting satellites with transponder power very much higher than 30 watts.<sup>6</sup>

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<sup>1</sup> Ibid.

<sup>2</sup> Payne's skepticism of the \$1,000 figure did not stop others in DOC using the figure in justifying planning decisions to portfolio members such as the ABC. Carl Wilhelm, the ABC's Assistant Controlling Engineer, reported from one meeting in August 1981 "There is a fanatical acceptance of the 1.2m dis[h], \$1,000 receiver concept." Broadcasting and the National Satellite System, ABC Inter Office Memo, 4 August 1981.

<sup>3</sup> Mere, R.P. (Assistant Secretary, Planning and Co-ordination Branch) "Discussion with OTC(A) on Tender Evaluation", Minute to Alan Guster, 25 May 1981.

<sup>4</sup> Ibid.

<sup>5</sup> Lansdown, R.B. "Transponder", Minute to Alan Guster, 7 October 1981.

<sup>6</sup> Ibid.

On 16th October 1981, Lansdown followed up the Minister's inquiry by presenting him with a copy of the Carver Committee report.<sup>1</sup>

One can only speculate on where Sinclair received further advice on small earth stations, but a week after Lansdown had recorded the Minister's initial query, he wrote to Payne,

From my observation of the Hills-Hoist Earth Station and the economy of its establishment, it seems that the provisions requiring 30W transponders on the domestic satellite may no longer be valid. Would you please advise what capacity the satellite could have if these 30W ABC transponders were to be reduced to say, 15W (or 20W).<sup>2</sup>

The request was an unusual one for Sinclair who was a 'broad brush' Minister, with little general interest in the portfolio and who would not as a rule concern himself with detail. For DOC he was in many ways an ideal Minister to have at this stage of the planning process because he was a 'winner' in Cabinet. The Department would prepare cabinet submissions and Sinclair would take them in, almost, sight unseen. The attention Sinclair paid to this matter was obviously prompted by outside lobbying. Payne responded along the line that eliminating the high powered transponders would increase the cost of earth terminals. He added,

Eliminating the 30W transponders would call for a fundamental re-design of the satellite system. We could not proceed with existing tenders. This means that we would have to issue new tenders and suffer the delay (about 15 months) and extra costs. Tenderers would also be a bit upset. Each space tenderer has probably spent over \$A1m to prepare its tender.<sup>3</sup>

On 21st October 1981, Lansdown presented Sinclair with a detailed brief in an effort to convince the Minister that persevering with the existing design, not only best fulfilled Government policy but was also the most politically expedient course to adopt. The argument was again couched in terms of providing inexpensive earth terminals to people in remote areas and of problems with retendering. Lansdown stated,

Recalling tenders would put significant delays and costs on the present system planning. We can only rely on OTC estimates of 15 months' delay, extra costs in the order of \$40M, and writing off all expenditures to date on the satellite.<sup>4</sup>

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<sup>1</sup> Lansdown, R.B. "30 Watt Transponders", Minute Paper to the Minister, 16 October 1981.

<sup>2</sup> Sinclair, Ian. Minister for Communications "Letter to E.E.Payne", 13 October 1981.

<sup>3</sup> Payne, E.E. "The Satellite Transponder Power", DOC Minute Paper, 20 October 1981.

<sup>4</sup> Lansdown, R.B. "Satellite Design", Brief for Minister, 21 October 1981. p 2



Lansdown critiqued the notion that Australia could buy a satellite system 'off the shelf' as Kerry Packer maintained.<sup>1</sup> The Secretary suggested,

Two of the major arts in Satellite design are aerial configuration and switching capability. It would be incorrect to assume that we could abandon the present system design and order a standard homogeneous satellite from an assembly line. The four tenderers for the present system are using a standard satellite bus - the technical art is in aerial design to meet particular Australian needs, i.e. the spot beams, and to switch the aerals to provide the required flexibility.<sup>2</sup>

Lansdown's second tack was based on the argument that the present design was adequate to meet existing Government policy. He argued that before he could countenance a design modification, the Government would have to make a major policy shift in an area such as direct broadcasting.

That is to say,

If the Government were to decide that the first generation satellite system should provide for a nation wide direct broadcasting service by Channels 7, 9 and 10, there would be a sound case to say that the present system design is inadequate and that we should recall tenders and specify a new system. The implications of this for regional broadcasters will be obvious.<sup>3</sup>

Casting the debate in terms of the complex policy issues raised by allowing commercial networks to blanket Australia with their signal was an astute move by the Secretary. As deputy leader of the National Party, Ian Sinclair would have been loath to make any move threatening the entrenched interests of rural television stations. Lansdown provided an appealing alternative for the Minister, by stating,

...the Department has initiated the Satellite Broadcasting Development Project which is studying the use of the back-up 30 watt transponders on an experimental and developmental basis. The purpose of this project is to encourage a wider understanding of the satellite options, to maximise satellite use and to improve satellite company finances. The initiation of this development is also designed to avoid the need for Government to make hard decisions now about the second group of high powered transponders...<sup>4</sup> (Underlined in original)

In October 1981, Sinclair also met with representatives of OTC's National Satellite Division. OTC was vehemently opposed to any alteration to the existing satellite design. On 26th October 1981 OTC presented a number of briefing papers to the Minister

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<sup>1</sup>.Day, Op.Cit. p 7

<sup>2</sup>.Lansdown, R.B. "Satellite Design", Op.Cit. p 2

<sup>3</sup>.Ibid.

<sup>4</sup>.Lansdown, R.B. "Satellite Flexibility", Brief for the Minister, 21 October 1981. p 4

supporting the inclusion of 30 watt transponders and critiquing the homogeneous proposal.<sup>1</sup> After presenting the same arguments made in DOC's briefs to Sinclair, albeit with greater technical detail, OTC concluded,

In summary, a change to the specification of transponder power can only be satisfied by initiating a new tendering process, which would need to be preceded by a review of the Government's broadcast service objectives for the system. This could be expected to lead to a project delay of well in excess of one year, the project costs could be expected to increase by \$40 million or more, and the present competitive tendering situation could well be lost. The improvements to services (particularly in remote areas) promised as a result of the satellite system would be delayed or lost, and the credibility of Australia's intention to proceed with a national satellite system would be severely reduced.<sup>2</sup>

Lest Sinclair was in doubt about PBL's motives for pursuing the transponder question, OTC spelt out what it perceived to be Packer's motives. In doing this OTC did what Hugh Payne had restrained Guster from doing because he felt it understated PBL's concerns. Thus, on the last page of the briefing material provided to Sinclair, OTC stated,

On the basis of extensive discussions with the broadcasting industry during the system design stage, it is believed that:

- (1) The commercial television industry has no real interest in providing programs to the remote HACBSS viewer.
- (2) Some elements of the commercial television industry have a very strong interest in networking via Aussat, should the Government decide to permit networking.
- (3) The satellite design as it currently stands provides the capability and the capacity to meet all of the needs of the broadcasting industry.
- (4) A modified design based on homogeneous 15 watt or 20 watt transponders would not provide additional flexibility, capability or capacity for the broadcasting industry.<sup>3</sup>

Even though OTC & DOC were able to defend the 30 watt transponders before Sinclair, the question still represented a political headache for the Minister. While the bureaucracy within the communications portfolio was united against PBL's proposal, the Department of Finance favoured a homogeneous satellite. With this in mind Sinclair wrote a letter to the newly installed Chairman of Aussat, E.S.(Stan) Owens, to indicate that it was the new Board's responsibility to advise the Government of any inadequacy in the conceptual design. The letter is a curious mixture of the Department officials trying to steer the

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<sup>1</sup> National Satellite Division, OTC(A) "Briefing Material for Discussion with the Minister for Communications - 26 October 1981", 23 October 1981. And "The Consequences of a Decision to Review the Need for 30 Watt Transponders in the Australian National Satellite System", Paper by National Satellite Division OTC(A) 23 October 1981.

<sup>2</sup> "The Consequences of a Decision to Review the Need for 30 Watt Transponders in the Australian National Satellite System", *Ibid.* p 4

<sup>3</sup> National Satellite Division, OTC(A), "Aussat - Design Features of Interest to the Broadcasting Industry", 23 October 1981. p 4

Minister's directives to the new board along certain lines, while retaining reference to his initial reservations which had been prompted by PBL. The letter emphasized 'the interlocking nature of the entire project', to reinforce to the Board the hurdles the project faced before being granted Cabinet approval. A major hurdle in this process was the Department of Finance's co-ordination comments which had to be included in any Cabinet submission. Finance asserted,

The decision (for a non-homogeneous configuration) would also inflict significant cost penalties on the Government and all other users of the satellite system.<sup>1</sup>

and

On both technical and financial grounds, Finance consider that fresh tenders should be called for an homogeneous satellite system, using 18/20 watt transponders.<sup>2</sup>

The Department of Finance's arguments were similar to PBL's, though whereas Les Free was quoting a penalty of \$30 million for the inclusion of 30 watt transponders, the former thought it could run as high as \$50 million. Finance was also unconvinced by the Carver Committee's economic analysis of the trade-off between high powered transponders and smaller earth stations. In their view,

...the cost penalty - e.g. cost of larger earth stations - of using 15 watt transponders (as against 20 watt transponders) in the national beam is much greater than the cost advantage obtained from using 30 watt transponders (as against 20 watt transponders) in the spot beams.<sup>3</sup>

It is with this problem in mind that the letter the bureaucracy drafted, for Sinclair to send to Owens, should be read. For after reinforcing the 'interlocking' nature of the policy process the letter went on to justify the existing design by arguing that it embodied the Government's desire to provide services, particularly HACBSS to remote areas "...in a way which permits cheap, readily available and easily installed domestic ground receivers".<sup>4</sup> It was stated in the letter that,

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<sup>1</sup>.DOC, 'Response to Department of Finance Co-ordination Comments', Satellite and Broadcasting Submissions - Briefing, for Minister, 14 December 1981. p 1

<sup>2</sup>.*Ibid.* p 2

<sup>3</sup>.*Ibid.* p 1

<sup>4</sup>.Sinclair, Ian. "Letter to E.S.Owens, Chairman of Aussat", 30 November 1981.

...so great has been the importance which has been attached to these policy matters, that the overall system concept and the design characteristics of the spacecraft have been shaped by them in quite a fundamental way.<sup>1</sup>

It went on to note the Carver Committee's endorsement of how these policy objectives had been crystallized in the satellite design before in reference to DOF, PBL and the Minister's concerns, stating to Owens,

If in spite of this earlier advice there are now reservations about the adequacy of the conceptual design, it would be desirable for your board to also advise on the consequences of modifications of the technical specifications in the request for tender. This would embrace an assessment of the time consequence of any modification, the cost penalty which would flow, and the implications for Government policy decisions taken with regard to public sector use...<sup>2</sup>

Through this letter the Department and Sinclair were able to shift the responsibility for the conceptual design to Aussat, while at the same time the former was able to lay down guide-lines which would inevitably shape any such advice. The criteria under which the Department stated it would like to receive advice were identical with those of OTC's briefing to the Minister in October 1981. As Aussat's senior staff was largely drawn from OTC's National Satellite Division there was little danger of their advice conflicting with the earlier briefing.

The complicating factor for DOC was that Sinclair had decided that each of the networks could have a representative on the Aussat Board. Both Murdoch and Packer had sent in extremely capable people who were described by one Department official as being 'headhunters'. For PBL it represented another chance to reopen the design question. Accordingly it fell to Hugh Payne, DOC's representative, to fight to preserve the preferred design in the early board meetings and he remembers becoming most unpopular.<sup>3</sup> While other board members did not support PBL's proposed changes they were content to let Payne be seen as the person frustrating PBL. Evidence for lack of support from other board members came as the PBL representative put up motions but failed to get any seconders. On one occasion Owens consented to let a failed motion be recorded in the minutes, stating that while this was unusual, he understood why it was

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<sup>1</sup>. Ibid. p 2

<sup>2</sup>. Ibid.

<sup>3</sup>. Payne, Personal Interview with Author, Op.Cit.

important for the PBL representative.<sup>1</sup> However, lest the Board be swayed by the PBL representative, a carefully worded last sentence in Sinclair's letter to Owens concluded,

In these circumstances you would realise that were your Board to make a recommendation for a variation in the conceptual design of the satellite system, this would require very careful consideration by the Government itself.<sup>2</sup>

Thus by December 1981 the last avenue through which PBL might try to exert influence on the design of the satellite was closed. When Lansdown again briefed the Minister on 14th December 1981, he presented arguments distilled over the previous two years for the non-homogeneous satellite.<sup>3</sup>

#### Packer's Displeasure, B-MAC and the ABC

It is ironical that a project PBL helped initiate, so they could define their own communications needs, should have merely shifted that responsibility from Telecom to OTC's National Satellite Division. In briefing Sinclair in October 1981, it was OTC rather than PBL who determined the commercial broadcaster's needs.

Packer lost out on the question of the high powered transponders, first in being prohibited from leasing four and then failing to have them eliminated. Although both Staley and Sinclair tried to accommodate PBL, the former by proposing a satellite with uniform 30 watt transponders and the latter by raising the possibility of their elimination, neither was prepared to allow Packer to threaten country stations. In Staley's case this stemmed from a commitment to the concept of localism.<sup>4</sup> Staley made clear at a Satellite General Policy Meeting in Canberra on 15th January 1980, that, while he had no objections to some networking, it would have to be implemented to ensure the protection of localism.

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<sup>1</sup> Ibid.

<sup>2</sup> Sinclair, "Letter to E.S.Owens, Chairman of Aussat", Op.Cit.

<sup>3</sup> Lansdown, R.B. "Satellite and Broadcasting Submissions - Briefing", DOC Ministerial Briefing Paper, 14 December 1981.

<sup>4</sup> Lansdown, R.B. "Outline of Minister's Comments on Policy Issues Raised at Satellite General Policy Meeting in Canberra on 15 January 1980." P&T, January 1980.

It was Staley's belief that the viability and independence of existing provincial operators should be preserved by allowing them to participate in any developments that might affect their areas. As such, when the question arose as to who would be given access to the second set of 30 watt transponders, Staley favoured regional television stations participating. It was this that set off PBL's moves to first lease then eliminate the 30 watt transponders. Staley's Ministerial successor was well aware of his Party's strong ties with regional broadcasters and their opposition to networking and/or direct broadcasting. Packer made clear what he felt about this relationship in 1983 when he stated,

...it's time we stopped being governed by a Country Party rump in the area of telecommunications, rather than worrying about which Country Party minister has shares in what Country Party station.<sup>1</sup>

At the same time, in an interview with Christopher Day, Packer expressed his thoughts on the planning process leading to the non-homogeneous satellite, after he presented the Government with the *Bond Report*.

From that point in time, every government department and busybody and group of people who had absolutely no comprehension of what was going on were dedicated to the destruction of the scheme...It includes OTC and it includes Telecom and it includes the whole lot...the stupidity with which the government departments have handled the communications satellite is terrifying. There's absolutely no reason why we couldn't have bought an off-the-shelf package which would probably have cost \$200 million, and we could have put the thing up and had it flying by now. No we had to rediscover the wheel. We are building satellites now that have been built by nobody else anywhere in the world. The whole thing is probably going to cost \$600 million. It has been an unmitigated disaster.<sup>2</sup>

Later in September 1983, Packer reiterated his criticism in a *Four Corners* interview with Jim Downes,

Packer: I'm completely disillusioned with the way it's been handled. It's been bungled from the beginning.

Downes: What went wrong?

Packer: Well I mean to start with they wanted to reinvent the wheel. This whole system could have been up and operating for about \$200 million. It now looks like it's going to cost \$600 million. That's \$400 million dollars worth of incompetence....I've given up. They've got me to the stage now where I really don't care any more.<sup>3</sup>

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<sup>1</sup>.Day, *Op.Cit.* p 7

<sup>2</sup>.*Ibid.*

<sup>3</sup>.Downes, Jim "A Slice of Pie in the Sky: Speculation on the Services Likely to be Provided by Australia's Telecommunications Satellite." Transcript Four Corners Programme 10 September 1983, Commonwealth Parliamentary Library, September 1983. pp 13-14

Kerry Packer may have been disconcerted with the planning approach and the decisions made but he did not stop trying to intervene to assert PBL's interests.

While altering the design of the satellite was an avenue which had been closed to PBL by 1983, the new Hawke Government still had to resolve the issue of HACBSS-2. At that time Packer was publicly proclaiming,

We haven't even been given transponders at this stage. We have thought of it, we have financed it, we have brought it up to date, we have kept it on line, and we have not at this point in time been given a right to use it.<sup>1</sup>

Faced with the same intractable interests of the conflicting media groups which had besotted Staley, Sinclair, and Neil Brown, Michael Duffy, the new Minister for Communications, announced that the Government would scrap HACBSS-2 and use the second set of 30 watt transponders for Satellite Program Services (SPS).<sup>2</sup> A design alteration in 1982 allowed these transponders to be switched to national beams, which made them more attractive to the major networks.<sup>3</sup> In addition, as Kerry Packer had hoped, the eviction of the Country Party or more precisely the Coalition, brought in a Government which had few qualms about allowing Aussat to lease these transponders to the major metropolitan media groups. Duffy's announcement was welcomed by PBL with Len Mauger, the General Manager of TCN9 commenting,

...genuine simultaneous networking is now a reality and must make things easier for advertisers by giving them full national coverage at reduced cost of commercial distribution.<sup>4</sup>

The only restriction media interests such as PBL had placed on their use of the 30 watt transponders was that their signals would have to be encoded. This did not particularly concern PBL in that they had always been more interested in using the satellite for networking rather than direct broadcasting which they had opposed from the time of the Task Force. This was picked up by the Australian Broadcasting Tribunal (ABT) inquiry

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<sup>1</sup>.Day, *Op.Cit.* p 7

<sup>2</sup>.Fraser, Doug. "Television and the Satellite: 1 (The story so far)", Legislative Research Service, Department of Parliamentary Library, Current Issues Brief, No 6, 1985. p 16

<sup>3</sup>.Barr, *Op.Cit.* p 179

<sup>4</sup>.Morgan, Kevin. "Aussat: The Background to the Decision", A paper to the New South Wales ATEA Branch Conference, Clyde Cameron College, 9 May 1985. p 17

which was appointed by Duffy to investigate the form SPS would take, when it commented in its report,

...the established interests seemed to have wished to reserve the field of DBS to themselves until such time as it became profitable to enter; and meanwhile sought to close it off to new entrants who might have been prepared to undertake the initial risk investment.<sup>1</sup>

Packer believed direct broadcasting to the outback to be totally uneconomic, which he made clear in 1983,

There are 200,000 or 300,000 people living in the remote parts of Australia who should then be receiving TV signals from the three commercial networks plus the ABC. You're talking about increasing the audience to any one of these networks by 70,000 people. Its completely uneconomic to sell to anybody. You don't know who's watching it. How are we going to do ratings surveys? Who's going to go out with a diary into the middle of the Northern Territory and write down which house is watching what, and who gives a damn?<sup>2</sup>

Duffy's statement was warmly received by Aussat which was now free to lease the second set of 30 watt transponders for much needed revenue. Duffy followed up his statement in early 1984 with an announcement that HACBSS-1 would use PAL (phase alternating line) for the TV signal and provide two radio services by Single Channel Per Carrier(SCPC), with a proviso that this would be reviewed in the middle of that year.

The decision to use the PAL system for television transmission and carry FM radio services by SCPC had been taken early in the planning process. Yet there were still doubts that the PAL/SCPC system could deliver adequate signals to inexpensive earth stations.<sup>3</sup> Delivery of television and radio signals via low powered transponders was still not established. Doug Fraser contends that trials carried out in 1984 showed,

That with the available bandwidth, the signal strength expected to be available at the ground and the design of the earth station imposed by the previous cost ceiling, there was no way of gaining adequate reliable reception of the television signal, unless the extra audio channels were deleted.<sup>4</sup>

There was, however an alternative system available and in the two years leading up to 1984, Multiplexed Analogue Components (MAC) was developed, which the ABC's

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<sup>1</sup>.Australian Broadcasting Tribunal, Satellite Program Services: Inquiry Into Regulation of the use of Satellite Program Services by Broadcasters. Vol 2, AGPS, July 1984. p 205

<sup>2</sup>.Day, Op.Cit. p 7

<sup>3</sup>.Maclean, Personal Interview with Author, Op.Cit.

<sup>4</sup>.Fraser, Doug. "Television and the Satellite: II, The Current Issues" Education and Welfare Group, Legislative Research Service, The Parliament of the Commonwealth of Australia, 1985. p 7



engineers realized "...made possible better quality television pictures, together with more sound channels of greatly improved quality, including stereophony, and a host of data services, including expanded teletext and the possibility of encryption for Pay TV."<sup>1</sup> Conscious of the need to retain the ideal of inexpensive earth stations which had been such an important argument for the system, Alan Guster later suggested the change was imperative.<sup>2</sup> The issue is still contentious, and as will be shown below Lansdown resisted the change before bowing to the B-MAC lobby. Tony Staley later suggested the decision was 'crazy' and in fact increased the cost of earth stations.<sup>3</sup> Bill Rayner, the Chief Executive of the Golden West Television Network, also stated that the use of B-MAC technology, placed 'huge costs on broadcasters and potential remote viewers.'<sup>4</sup> The decision to use B-MAC was certainly not without implications for other justifications for the project, and seriously impaired Australian industry's ability to involve itself in the manufacture of earth stations. This point will be examined in a later chapter.

This development, combined with the Minister's announcement on SPS, placed the ABC in an awkward position, which the commercial media interests were eager to exploit. Under the abolished HACBSS-1&2 scheme the ABC would have been allocated two 30 watt transponders on both Aussat I & II leaving the two other high powered transponders on each satellite for HACBSS-2. This meant that a viewer in any given location could receive both HACBSS programmes applicable to their area from one satellite. With the scrapping of HACBSS-2 the commercials saw an opportunity to seriously disadvantage the ABC by lobbying for HACBSS-1 to be confined to one satellite. If the Government subsequently allowed SPS programmes to be unencoded, a viewer would need two dishes (or a steerable dish) to receive signals from both satellites. In that event the ABC felt a significant number of viewers would opt for one dish aimed at the SPS service. The

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<sup>1</sup>.Bourke, T.K. "Choice of Transmission Method (PAL vs MAC) for the ABC's HACBSS Service", ABC Board Paper, Meeting 11, Agenda No: 5.A(i), 30 March 1984.

<sup>2</sup>.Guster, Personal Interview with Author, Op.Cit. Refer also Craig Addison, "B-MAC A Front Runner for World DBS Standard", Australian Electronics Engineering, July 1985. pp 46-49

<sup>3</sup>.Staley, Personal Interview with Author, Op.Cit.

<sup>4</sup>.Rayner, Bill. "The Media Industry: Challenge and Change in Australia", in Australian Communications Technology and Policy, Elizabeth More and Glen Lewis (Eds), Centre for Information Studies Publications, Kuring-gai CAE, Sydney, 1988

crux of the matter the ABC felt would be that viewers would be placed in an either/or situation. All this of course was predicated on whether the Government would allow direct reception of the SPS signal. The ABC was in little doubt as to what was likely to eventuate,

Although the Minister's announcement ruled out the use of SPS for direct broadcasting it left a loophole for people outside of the coverage of existing transmitters, and these people are the potential HACBSS audience. There is considerable evidence that the commercials themselves intend that at least some of the public will be able to use SPS for direct reception, and further overseas experience suggests that public pressure will prevent any action against people who do receive it. Therefore it is very likely that HACBSS-1 will face competition from three commercial channels of SPS.<sup>1</sup>

For the Commercial Stations an additional advantage of having SPS confined to one satellite was that it would enable them to avoid the need for using dual dishes (or steerable dishes) at their earth stations.

Doubts about PAL and the development of the MAC technology further complicated the issue. If the ABC started HACBSS-1 using the PAL system it believed the commercials would adopt and utilize the MAC transmission method. The ABC's controller of Engineering, T.K. Bourke put it to the ABC Board that,

Commercial television interests seem confident that public access would soon be permitted to their SPS systems. If that eventuates, we feel that viewers faced with the choice would put their money into MAC receivers to view commercial programs rather than lower quality PAL receivers to view ABC programs. The situation would be worse if ABC PAL services and commercial MAC services were transmitted from the same satellite.<sup>2</sup>

Thus the ABC's private reaction to the Minister's announcement was that,

By abandoning the HACBSS-2 concept and allocating the spare 30W transponders to SPS the Government has prepared the way for a chaotic satellite broadcasting scene which disadvantages the ABC as well as the viewer/listener.<sup>3</sup>

With this in mind the ABC made strong representations to a generally unsympathetic DOC, seeking to delay the commencement date of HACBSS-1. At a meeting with Lansdown on 5th March 1984, the ABC requested delaying the start of HACBSS for nine months while it changed over to the MAC system. While agreeing to review the

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<sup>1</sup>.ABC, "Unresolved Problems Resulting from Minister's Announcement of HACBSS System Standards", ABC, Sydney, 1984. p 2

<sup>2</sup>.Bourke, T.K. Op.Cit. p 6

<sup>3</sup>."Unresolved Problems Resulting from Minister's Announcement of HACBSS System Standards", Op Cit. p 4

issue Lansdown insisted that the ABC continue to work towards the original starting date, thus necessitating their use of PAL. High on the list of Lansdown's consideration was the fact that Aussat had already placed contracts for PAL/SCPC equipment and Telecom was about to do the same. The ABC realized this reason would only become a more compelling factor against change by the time the review, Duffy had announced, was undertaken in mid 1984. As a result Kenneth Myer, the Chairman of the ABC, wrote to Duffy to inform him that "...it is the view of the ABC Board that the HACBSS service should use a modern MAC system rather than inadequate and outdated PAL technology."<sup>1</sup>

The letter itself is instructive of how language can be used to promote a policy option and conceal disadvantages. Myer asserted that one of the advantages the ABC saw in the use of MAC, was that the cost of a HACBSS receiver would be lower. He argued,

Because of the mass production of MAC decoders for the USA and for Europe the cost of the HACBSS receiver is expected to be eventually considerably lower with the MAC than with PAL-SCPC.<sup>2</sup>

In reality, although the ABC engineers regarded the MAC system as technically superior, they also knew the receivers to be more complex than PAL equivalents. This was because the MAC signals, sent sequentially in time, had to be stored in the receiver until all were ready to flow out simultaneously.<sup>3</sup> The storage devices for the MAC system were expensive and in 1984 were not being widely manufactured.

The matter of the 'split bird' was resolved in the ABC's favour in meetings between the ABC and Aussat on the 4th and 12th of June 1984,<sup>4</sup> and Lansdown's decision to go with B-MAC ensured that the ABC would not be disadvantaged in that respect. The last major design battle of the first generation was closed.

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<sup>1</sup>.Myer, Kenneth. "Letter to The Hon Michael Duffy, MP, Minister for Communications", 30 March 1984. p 3

<sup>2</sup>.*Ibid.* p 1

<sup>3</sup>.Bourke, *Op.Cit.* p 6

<sup>4</sup>.Moriarty, G.E. "Satellite Services - Agreement between Aussat and ABC", ABC Inter-Office Memo, 20 November 1984.

## Chapter Conclusion

Satellites were placed on the political agenda because of PBL's desire to expand its television interests. It had monitored events in North America, and would be joined by other actors, such as IBM, in attempting to break Telecom's monopoly. Although Kerry Packer's initial action has been highlighted by other investigators, what has not been made clear is the way the project was captured by certain groups within the bureaucracy. This chapter has shown the means by which PBL and other actors were held off, while design and organizational questions were settled. In addition the social, economic and political forces which shaped the Aussat sociotechnical system have been documented. This chapter has shown which groups were enroled as allies; how other groups were excluded; and, importantly, how a major collaborator (PBL) turned into a project critic. While, as will be shown in a Chapters Six, PBL would later undoubtedly benefit from the acquisition of a satellite system, other collaborators in the initial process would grow more hostile.

In the next chapter we turn our attention to the major instrument used to defend the project while this process had taken place.

### Chapter 3

#### Aussat and Modelling

The longest running and most keenly contested part of the entire debate over whether Australia should acquire a domestic satellite system, was undoubtedly the project's financial viability. As Aussat nears completion of its third year of actual operations this question is still very much unresolved. The purpose of this chapter is to examine the policy making process over the three years (1981-83) during which the continuation of the project appeared to rest on the outcome of this debate.

The thesis being forwarded for consideration is that although the question of Aussat's viability was at the forefront of the constellation of issues being publicly and privately contested, it was not perceived by certain influential actors within the policy process as being of decisive importance for their own support of the project. It is not suggested that these actors held that consideration of this issue was of diminutive import for enrolling support or in deflecting the torrent of criticism directed by opponents, uniformly of the opinion that this was Aussat's most vulnerable point. This would not be true, because in terms of the public debate with the ATEA and the private struggle with Treasury/Finance, proponents of Aussat within the decision making process recognized that this issue was of crucial importance. However the distinction which should be made is between the importance the issue assumed for the purposes of debate and for the formulation of Australian communications policy. It will be suggested that the Department of Communication's preoccupation with the former concern and its faith in vaguely defined wider national interests, meant that a rational and informed analysis of Aussat's financial viability was never undertaken. Instead a case for the project's viability was constructed

as a resource which could be used to reinforce beliefs, justify past decisions and enroll the support of other actors. The most widely used and possibly influential part of this resource was computer modelling. It is modelling that best illustrates how this resource was constructed to assert rather than assess the project's viability. Computer modelling became a ritual, designed to produce certain outcomes rather than be used as an evaluative resource.<sup>1</sup>

### The White Inquiry and the Origins of Cost/Viability Debate

Prior to 1977 Telecom conducted a series of on-going studies to cost the possible acquisition of a domestic satellite system. Without exception all of these studies demonstrated that such a system would not be a financially feasible proposition for Australia's national communication carrier. In 1977, after fifteen years of study, Telecom's position was that,

A national satellite system cannot at present be justified on purely economic grounds for the provision of those services which are the responsibility of Telecom Australia...<sup>2</sup>

Thus, while the idea of a satellite system was certainly being considered by Telecom, it was not to be that organization which directly precipitated the process leading to the establishment of Aussat. That distinction is generally attributed to media mogul Kerry Packer interceding with the then Prime Minister Malcolm Fraser. PBL was aware that Telecom was preparing a report which was not going to recommend the acquisition of a satellite system. Packer's prompting led the Minister for Post and Telecommunications Eric Robinson to take the *Bond Report* to Cabinet and the decision to establish a National Communications Satellite Task Force under the Chairmanship of Harold White, the

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<sup>1</sup>.As Wynne notes, "When the political need to render decisions immune from constant challenge - a need most often fulfilled by appeals to objective authority - is added to this, ritual evidently pervades policy analysis and implementation." Brian Wynne, Rationality and Ritual, British Society for History of Science, Chalfon, St Giles, 1982. p 4

<sup>2</sup>.Telecom Australia, "National Satellite Communications System Studies", Melbourne, November 1977. p 10 The Australian Post Office had monitored satellite development since the early 1960's. Curtis believes he let the Telecom group go on long after he should have but that they were always waiting for a breakthrough, which might make satellites an economically viable proposition. Curtis, Personal Interview with Author, Op.Cit.

General Manager of OTC, in 1977. Robinson and Green's selection of White reflected the Government and PBL's determination to receive a report favourable to the acquisition of a satellite system. The influence PBL had in initiating the inquiry was paramount. Prior to the announcement the company was consulted about the idea of an inquiry, asked what form it should take, how it should be conducted and what the terms of reference should be. Given its dissatisfaction with Australian communications and the knowledge that the national carrier had a negative attitude towards a satellite system, PBL would have been loath to nominate that Telecom play a leading role in the inquiry.

Unlike Telecom, OTC was well disposed towards a domestic satellite. In 1975 OTC had narrowly escaped being absorbed by Telecom, based on the majority findings of the Vernon Commission, whose members, with the exception of the Chairman, could find no sound reasons for it to remain as a separate entity.<sup>1</sup> Originally there had been unanimity among the three Commissioners that OTC should be merged with Telecom. Jim Kennedy and Bernard Callinan were later astonished when Sir James Vernon indicated that he had changed his mind.<sup>2</sup> Vernon had been the subject of intense lobbying from OTC and in particular Sir Gregory Kater.<sup>3</sup> Vernon's final position was that if the Government wanted to incorporate OTC into Telecom it should be delayed until the latter was well established.<sup>4</sup> Thus the question of OTC's independence was still very much on the mind of its management.

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<sup>1</sup>. Report of the Commission of Inquiry into the Australian Post Office, Volume 1, April 1974, Commission Report, Commonwealth of Australia, 1974. pp 294-99 This report initiated one of the most intense lobbying efforts ever mounted by a Government owned organization (OTC). On OTC's efforts to remain independent - see Reinecke & Schultz, Op.Cit. p 240. As one of OTC's most politically astute executives Graham Gosewinckel was used extensively in this capacity. It was to be an experience which would serve him well in 1983, when he repeated an intensive exercise designed to ensure the continuation of the Aussat. Margret O'Neil, "Moon Signal Prompted Telegram Boy to Reach for the Stars", The Age, 31 August 1985.

<sup>2</sup>. As Chairman, Sir James Vernon was by convention solely entitled to the services of Hugh Payne, the Commission's Secretary, to write up his recommendations. Kennedy and Callinan had to write their alternative verdict by themselves.

<sup>3</sup>. Sir Gregory Kater was the Chairman of the Commercial Banking Company of Sydney Pty Ltd.

<sup>4</sup>. Payne, E.E. Personal Interview with Author, Op.Cit. Personalities also played a part in Labor's desire to have OTC incorporated. Harold White had got Lionel Bowen's 'back up' when the latter was Post-Master General in 1975, particularly the Commission's *penchant* for Jaguar automobiles. At that stage White was heading OTC's Canberra lobbying efforts. It has been suggested that Kennedy had a remit from Bowen to eliminate OTC.

OTC now perceived that if the Government was to establish a domestic satellite system it would be unlikely, for a variety of reasons, to grant control to Telecom. A possible alternative was for OTC to be given control, in which case it would have a 'genuine' reason for remaining as a separate entity. OTC was also conscious of the fact that it was Telecom's largest single user with payments, in 1978, in the order of \$35 million.<sup>1</sup> A satellite system offered the possibility of directing much of the long distance traffic through a by-pass before rejoining Telecom's local network.

The composition of the Task Force (OTC had three of the twelve representatives to Telecom's one) reflected the Government and OTC's shared enthusiasm for the project.<sup>2</sup> Unsurprisingly the OTC representatives on the Task Force led by White held opinions indistinguishable from the organization. This can be no better exemplified than by comparing quotes made by Harold White as Chairman of the Task Force and later in 1984 by the then Chairman of OTC, Robert Somervaille, reflecting on OTC's position during this time. In perhaps the most widely quoted remark from the Task Force hearings, White stated to Kerry Packer, "We'll get a satellite, the only issues are when, what design, who controls it, how much it's going to cost, who pays for it all ect., etc..."<sup>3</sup>, while Somervaille stated, "In OTC's view it was not so much a matter of whether or not Australia should establish a national satellite system but rather, when this should occur and how it should be financed and administered."<sup>4</sup>

At least one of the Task Force representatives had little doubt as to the expectations of the Government and how this influenced his colleagues. The Department of Finance representative John Coleman would later recall,

One only has to examine the terms of reference for the Task Force and its report to see the question which most of that group of officials studied was not really whether to have a satellite but what form it should take.<sup>5</sup>

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<sup>1</sup>.OTC, "The Australian Government Task Force: National Communications Satellite System", Submission by the Overseas Telecommunications Commission (Australia), Sydney, January 1979. p 17

<sup>2</sup>.The first meeting occurred at OTC House on 17 November 1977. Refer Fisher, Op.Cit. p 24

<sup>3</sup>.National Satellite Task Force Conference, P&B, Tape 3, Op.Cit. p 8

<sup>4</sup>.Somervaille, R.D. "OTC's Role in the Introduction of the Domestic Satellite", Australian Domestic Satellite Seminar, Countdown to 1985, The Media Law Association of Australasia, 10 November 1984. p 4

<sup>5</sup>.Coleman, J.P. "Community Pressure: Is it a spontaneous, effective force in policy development", 'Australia's Communications - Where Now?', DOC Conference 16-17 November 1983. p 7



That the decision had been ordained before the inquiry began is perhaps reflected in the fact that White did not favour open public hearings. This was evident in the fact that he did not want to give Susan Ryan access to the inquiry transcripts.<sup>1</sup> Although closed hearings were politically untenable, the Chairman would always offer to move in camera when private companies came before the inquiry. When Kerry Packer appeared before the Task Force and expressed his suspicion of 'the other people who may attend', White assured him that the transcripts would be confidential.<sup>2</sup>

Coleman would later argue that the Task Force's report was influenced largely by 'vested interests', such as the Packer organization, rather than community groups.<sup>3</sup> From remarks made by Harold White in 1979, we can draw the conclusion that, as Chairman, he was dismissive of public participation in the Inquiry. As White stated in an interview with Ian Reinecke,

I never really believed that there would be a possibility of a wide ranging and informed debate on the subject. One needs a specialised knowledge to enter the debate. I believed that the debate which would ensue would be between the technocrats, outside interests and political interests.<sup>4</sup>

However this view did not inhibit the Chairman seeking Kerry Packer's view, when the media magnate candidly admitted before the Task Force, that he was a layman and not competent to comment on many aspects of satellites. The importance White attached to Packer's presentation is reflected in his response to the magnate's modesty, "On the contrary, Mr Packer, you started this whole exercise going."<sup>5</sup> The tenor of the White Inquiry and exactly what it was attempting to determine was reflected in the fact that shortly after this the Chairman asked Packer, 'how do we convince others'.<sup>6</sup>

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<sup>1</sup>Reinecke and Schultz, Op.Cit. p 106

<sup>2</sup>National Satellite Task Force Conference, P&B Tape 1, Op.Cit. pp 1-2

<sup>3</sup>Coleman, "Community Pressure: Is it a spontaneous, effective force in policy development", Op.Cit.

<sup>4</sup>Reinecke, Ian. "Intelsat as Domestic Satellite Dismissed as 'Rubbish'." Australian Financial Review, 11 July 1979. When in 1978 the ATEA submitted to White that there should be widespread community discussion, the Chairman replied, "There's been quite a bit of evidence already put to us, from overseas particularly, of the need for considerable debate within the community on the pros and cons of what can be done and my own personal view is that we will certainly be saying to the Government, there has to be an opportunity for debate within the community before a decision is taken down. That's my personal view." Refer "National Satellite Task Force Conference", ATEA, Tape 3, Melbourne, 16 March 1978. p

<sup>5</sup>As is evident from his statement to Reinecke, White did not believe this would eventuate.

<sup>6</sup>National Satellite Task Force Conference, P&B Tape 1, Op.Cit. p 20

<sup>6</sup>Ibid. p 25

The desire to convince others led the Task Force in search of justifications Telecom had spent years studying. When the Inquiry was announced Curtis suggested to White that the Task Force address its attention to networking. Curtis noted that as fifteen years of Telecom analysis showed the satellite was not a cost effective technology for purposes such as remote telephony, distance education and the Royal Flying Doctor Service, the Task Force should focus on the possibility of using the satellite for networking. Indeed Telecom's report maintained that although the satellite was not justified in terms of its charter, this could perhaps change if additional television bearers were required. Yet the whole question was virtually ignored by the Task Force because of its political ramifications.<sup>1</sup> Curtis would later say, "No politician was willing to discuss networking."<sup>2</sup>

Predictably the Task Force recommended, in 1978, that a satellite system be established as early as practicable. It was a recommendation not justified on economic grounds but on the basis that a domestic satellite system supposedly offered "the potential for applications and extensions of our national purposes, as yet unknown" and a "new dimension to the communications capability within our country which cannot be totally comprehended by detailed considerations of its impact upon known services, service by service."<sup>3</sup> The Inquiry's failure to find an economic justification for the project caused the Department of Finance representative, John Coleman, to produce a dissenting statement. The events leading to the dissenting report are revealing of the way the Inquiry was conducted. As is the convention with task force inquiries the Chairman instructed members to withhold from formally expressing a view on the satellite question until a date fixed by him. White's prohibition made his own comments to Packer all the more remarkable. The Chairman had certainly not been even handed about dispensing his own 'bias' towards the acquisition of a satellite system. When the ATEA tried to get some

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<sup>1</sup> Brown, Allan. "The Implications of a Domestic Satellite for Australian Television Broadcasting", Presented at the DOMSAT 79 Conference "A Communications Satellite for Australia - Who Will Benefit?", Centre for Continuing Education, The ANU, Canberra, 20-23 February 1979. Brown argued the White Report failed to address the detrimental effects of an extension of commercial television networking in Australia.

<sup>2</sup> Curtis, Personal Interview with Author, Op.Cit.

<sup>3</sup> Task Force Report, Op.Cit. p 114

indication of the direction the Task Force was taking, during their appearance before the Inquiry, White stated, "We've had no discussions of any sort which would allow me to say the Task Force is thinking in any particular direction at all, not at all."<sup>1</sup> This was less than a week after he had told Packer there was no doubt Australia would 'get a satellite'. On the day appointed by White for other Task Force members to express a view, they were asked to sit around a table and one by one deliver their verdict. Coleman would later recall that the Chairman listened as each member in turn said he favoured the acquisition of a satellite system.<sup>2</sup> The only member who qualified his support was Rollo Brett, the Telecom representative. Brett stated that even though he did not think a case had been made for the satellite, he recognized that the Inquiry was going to find in favour and as such said he would support this subject to Telecom being given control.

When it came to Coleman's turn White passed over him to the next member and so on until there was only those two left to speak. For reasons he later expanded on in his dissenting report Coleman spoke against the satellite. It then fell to the Chairman to speak. Before declaring his support for the satellite White spent twenty minutes lecturing the assembled members on the difference between 'men of vision' and 'small minded accountants'.<sup>3</sup> This statement reflects how Harold White felt about the Inquiry process and Coleman. For White it did not matter if the project could not be justified in immediate economic terms or even that a significant economic case had been shown against the satellite. White read the political mood and was under no illusion as to the outcome the Government wanted. His monologue was clearly directed at Coleman. It reflected his displeasure with Coleman's verdict and that it should come from someone who White personally held was not appropriate to sit on the Inquiry.

White resented Coleman's presence for two reasons. First Coleman, despite being the Department of Finance officer who had as part of his responsibilities, matters relating to the communications portfolio, did not have the seniority the Chairman thought was

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<sup>1</sup>.Refer National Satellite Task Force Conference, ATEA, Tape 3, Op.Cit., p 3

<sup>2</sup>.Coleman, Personal Interview with Author, Op.Cit.

<sup>3</sup>.Ibid.

appropriate for the Inquiry. Secondly, Coleman was the odd man out as far as not having an engineering background. To some extent he felt like an unexpected guest and recalled,

Candidly I don't know that I knew too well how to handle all those engineers and nor did they know how to handle someone whose interests were quite different. And I guess, clearly the riding instructions I had been given by the Department of Finance were to examine the proposition from an economics point of view and to reach a conclusion about whether we should proceed rather than what form such a process should take...it was primarily a technical group and in fact I did feel not isolated but the odd man out.<sup>1</sup>

The tenor of White's remarks and at times his petty treatment of Coleman reflected his feelings towards someone outside the 'technical and senior public service club'.

The Chairman clearly believed some areas of knowledge had more to contribute to the satellite acquisition process than others. The ATEA suggested to the Inquiry that a,

...body 'set up to inquire into all aspects' of such a system should include, and not merely have available to it, persons who may make meaningful contributions in other important areas... [such as]...educationists to consider the scope for use of satellite technology by educational institutions; sociologists, concerned with the impact of communications technology on various social groups and society in general, representatives of consumer interests and the trade union movement.<sup>2</sup>

The Union then asked White for an indication of the Inquiry's direction, so that they could target relevant areas for future submissions. In reply the Chairman displayed his belief of what areas of knowledge were relevant in terms of the Inquiry's focus. The position White put to the ATEA was that the Task Force was solely collecting neutral or value free facts from which decisions could be made. White stated, "Now maybe we're overloaded with scientists or engineers or something but we felt first of all we should have some data, so I'm answering your comment really on,(sic) there is no way I can guide you by telling you what [the] Task Force thinking is."<sup>3</sup> White argued that the inquiry needed to collect objective facts from an engineering perspective rather than utilizing the skills of social scientists or community groups as suggested by the ATEA. The fields of discourse not considered a priority by White, were those which were concerned with social need and impact, rather than the more technocratic question of how to go about acquiring a satellite system.

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<sup>1</sup>.Ibid.

<sup>2</sup>.APTU/ATEA, Op.Cit. p 6

<sup>3</sup>.National Satellite Task Force Conference, ATEA, Tape 3, Op.Cit. p 4

The other perspective which received limited consideration was the question of financial viability, and because Coleman considered the satellite system from this point of view, his contribution was not valued highly by the Chairman. For Coleman,

The whole process was not whether but when and in what form. The conclusion I reached in looking at the economics of the project were that on the basis of the information available to us it was not a project which would attract economic benefits sufficient to offset the cost. And what I really tried to say in my dissenting report...was that if you want to go ahead and establish a satellite for social or technology reasons, make your decision based on those grounds but don't make it in the expectation that there was going to be big economic benefits to the country because they don't show.<sup>1</sup>

Politically, it might be suggested that it was unwise for the Chairman to antagonize Coleman who was giving his honest assessment. As it eventuated Coleman became more obstinate as pressure was placed on him not to deliver a dissenting report. The other Task Force members who tried to convince Coleman to withdraw his opposition believed that anything less than a unanimous endorsement of a satellite would seriously impair the report's political utility.

Undeterred by Coleman's view, Tony Staley, the new Minister, established a working party of Commonwealth officials to examine the implementation of the satellite system.<sup>2</sup> Once again when their report was released with its recommendation to proceed, Finance dissented, this time joined by the Prime Minister's Department. It was to be these two dissenting reports that were to shape the parameters of the debate during 1981-83. Proponents of the system within DOC and OTC realized they would have to construct a resource with which to meet the continuing objections of Finance and to a lesser extent before 1983, the ATEA. This thesis contends that it was a resource which was used to reinforce the project's continuation rather than to evaluate its worth. A mechanism which could be used to create a time and space in which proponents could give the project a shape they hoped would allow it to survive.

To some within the policy process this represented the most pragmatic approach. As has been made clear to this author in interviews with DOC officials, their attitude was "The

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<sup>1</sup>.Coleman, Personal Interview with Author, Op.Cit.

<sup>2</sup>.Ironically Coleman received a transfer in employment during the Inquiry and shortly after it was completed joined P&T, where he had long discussions with Staley about the satellite system. Ibid.

politicians wanted it, we were going to give it to them".<sup>1</sup> While to some extent it can be agreed that DOC was legitimately carrying out the policies articulated by the Fraser Government in 1982, the ascension to the Treasury benches of Labor in 1983, invites a different conclusion. It also provides us with a point in the process at which to critically examine DOC and Aussat use of the resource they had constructed in support of the project. It will be argued that during this transition DOC played a far greater role than merely facilitating government intentions and that through various mechanisms ensured the project's continuation in the face of a concerted campaign by the ATEA and strong opposition from Finance. It will be suggested that opponents of the project failed because the issue they chose to contest was not seen by influential actors within the policy process as central to the premise on which their decision to proceed was based. As such their response to Finance skepticism and the recalcitrant ATEA should be seen as ritualistic.

#### Aussat/DOC Financial Modelling

In August 1979 a joint Australian/Canadian workshop was held ostensibly to examine the latter's experience with satellites. For the Canadians, keen to become a supplier of satellites to Australia, it offered an excellent promotional opportunity.<sup>2</sup> Immediately prior to the conference David MacDonald, the Canadian Minister for Communications, wrote to Staley offering to authorize Telesat Canada to conduct contract negotiations 'with or on behalf of Australia' for the procurement of satellites.<sup>3</sup> MacDonald proposed a 'cooperative arrangement' in which the two nations could 'share common sourcing and common sparing for their mutual financial benefit'.<sup>4</sup> For domestic proponents of the system the workshop was an ideal occasion to enrol further support for the project by

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<sup>1</sup>.Comment made to the Author, DOC, Canberra, 1987.

<sup>2</sup>.The Canadians asked to sit down around a table and discuss what type of system Australia wanted. This did not eventuate because Jack Curtis refused to allow Telecom to be represented, because he saw the exercise as being totally contrary to proper tendering and scheduling procedures for public sector purchasing.

<sup>3</sup>.MacDonald, David. "Letter to Honourable A.A.Staley, Minister of Post and Telecommunications", Canadian Ministry of Communications, 19 August 1979.

<sup>4</sup>.Ibid.

staging presentations favourable to the acquisition of a satellite. In all, the workshop was intended to be a celebration of satellite technology.

This eventuated with one notable exception. Jack Curtis, the Managing Director of Telecom, shocked the assembled audience by delivering an iconoclastic address arguing that an Australian satellite system would not be financially viable.<sup>1</sup> Curtis had invited himself along to give a paper knowing, as he would say later, that 'everyone would be gung ho' about a satellite. Amongst the audience, senior bureaucrats, convinced the project would proceed, whispered to each other that Curtis had made the biggest mistake of his career. Had he embraced the concept, DOC officials believed control might still have been given to Telecom. Curtis disputes this arguing "There was real pressure to break the Telecom monopoly what ever we had done".<sup>2</sup> It was also largely on Curtis's advice that the Canadians were frustrated in their desire to sit around a table after the conference and discuss Australia's requirements. Curtis refused to allow his staff to participate in this process and strongly advised Lansdown not to deviate from the established practice of putting public contracts out to tender. Alan Guster remembers the Canadian offer, although attractive, was refused because of the question of 'form'.<sup>3</sup>

Harold White's summation of the days proceedings, in the absence of Curtis, revealed what would become the project's *raison d'être* in the minds of DOC bureaucrats. He spoke of the national interest, the capacity to generate a new industry and, importantly, compared the projected satellite cost with Telecom's annual expenditure on capital works. For White the Government had to 'grasp the nettle'.<sup>4</sup> It was largely a repeat of the 'men of vision' harangue he had given to the Task Force. Although he was absent during White's summation it led to an acidic exchange with Curtis the following day. When he returned from Melbourne Curtis, already agitated by being unwell, was told by his staff that he had been 'rubbished' and in the discussion session that followed the next day he

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<sup>1</sup>.Curtis, Jack. Session A3 "Australian Communications & Satellite Opportunities - Workshop Discussion", Communications Satellite Workshop - Canadian Experience and Australian Planning, 22-24 August 1979. Transcript Unpublished DOC Library.

<sup>2</sup>.Curtis, Personal Interview with Author, Op.Cit.

<sup>3</sup>.Guster, Personal Interview with Author, Op.Cit.

<sup>4</sup>.White, Harold. "A8:Summary of the Day's Work", Communications Satellite Workshop - Canadian Experience and Australian Planning. Op.Cit. pp 83-84

indicated that he thought White had played the role of judge rather than chairman.<sup>1</sup> Throughout the rest of the day White and Curtis clashed on their differing estimates of costs and viability.

In his closing remarks to the workshop the newly installed DOC Secretary Bob Lansdown, indicated what was to become the Department's attitude to the question of financial viability. Lansdown noted,

It is essential to say that there be no mis-understandings about it, from my point of view again, that there is no way in the earlier run of the first generation satellite, that anyone is going to make money out of this. I just do not see any alternative to some sort of deficit situation on the overall costing of the project; and that does not bother me, provided one can identify the numbers with sufficient certainty anyway, for judgements to be made; identify the numbers, look at the deficit and lay that against the intangibles.<sup>2</sup>

and

...the judgement particularly if it is for a satellite - requires an effort of 'will'. There is no way at this stage, that we can cost and quantify all the benefits and the costs and give Government a nice tidy balance sheet, where they can look at the number at the bottom, and say 'yes' or 'no'; it is not like that. So it is going to require an effort of 'will' and by strong conviction which we will convey to Government. I hope that the time to decide about all this is 'now'.<sup>3</sup>

This was to be the last time anyone in DOC would publicly question the project's financial viability.<sup>4</sup> From now on it became a matter of translating the Department's 'will' into 'convictions' it could share with fellow enthusiasts in the Government. Yet, unable to enrol Telecom's support as an enthusiastic ally and given Finance's consistent dissension within the Task Force and Working Group reports, by 1981 senior bureaucrats within DOC had drawn the conclusion that a resource needed to be constructed to shield the project from criticism. This is clearly stated in a DOC Minute Paper from E.E.Payne (Deputy Secretary) to Peter Westerway (Acting First Assistant Secretary, Satellite Policy and Co-ordination Division), when discussing a proposal that

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<sup>1</sup>.Ibid. p 47

<sup>2</sup>.Lansdown, R.B. Ibid. p 192 From not knowing what a transponder was when he entered the portfolio, the new Secretary very quickly became a 'true believer'. Moyal, Op.Cit. p 348

<sup>3</sup>.Lansdown, R.B. Ibid. p 193; Fisher Op.Cit. on Page 73 possibly misattributes these two quotations to Harold White. According to the official transcript of proceedings the actual author was R.B.Lansdown. Refer "Communications Satellite Workshop - Canadian Experience and Australian Planning" Op.Cit., where an almost identical statement exists to the one Fisher attributes to White. Bob Lansdown's closing remarks are on pages 192 & 193.

<sup>4</sup>.The proceedings of the workshop were recorded and transcripts made, but the original intention of publishing was never carried out because of the criticisms Curtis made of the project. They have lain unused in the DOC Library's archives ever since.



the Department undertake the construction of a financial model. The Minute makes three important points which can be best illustrated by direct quotations;

The Secretary (R.B.Lansdown) and I agree that your Division should proceed with its financial evaluation of the satellite project, although we believe that the financial model being pursued has a limited value.

...it is our view that any argument that the capital invested in the system should be able to provide an economic return on invested capital is not the basis for the Government's decision to proceed with the satellite system.

The main, if not the sole, reason for pursuing the model adopted by the Department is to enable us to rebut Finance and Treasury arguments which are likely to be promoted using that modelling technique.<sup>1</sup>

This Minute Paper succinctly reveals DOC's private position on financial modelling. Although the Department consented to modelling taking place, it placed no importance on the technique for evaluating the viability of the project. In the main, as is made clear, this was because the highest echelon of Department officials believed this was not a central concern of satellite proponents within the Fraser Government. The Department consented to the internal evaluation only for the purpose of constructing a resource which could be drawn on in the debate with Finance and Treasury. Undertaking a study for the 'sole' reason of frustrating opposition from Finance could not do other than strongly influence the methodology and results. Payne recalled, "We did it for the politics of showing it could survive".<sup>2</sup>

The person selected to undertake the financial modelling in 1981 was John Maclean. Maclean remembers he was "...employed to push through in the face of Treasury and Finance opposition."<sup>3</sup> His background and experience made him the ideal choice for the Department. Maclean was a deft hand at cost benefit analysis having worked for Treasury and Finance for six years. During this period he had spent a lot of time deconstructing cost/benefit models forwarded by the States to the Commonwealth for grants. These fights gave him the experience to know how Treasury and Finance would read a model. This was a skill which the Department would put to good use over next two and half years. Maclean remembers,

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<sup>1</sup>.Payne, E.E. "DOC Minute Paper", 28 August 1981.

<sup>2</sup>.Payne, Personal Interview with Author, Op.Cit.

<sup>3</sup>.Maclean, Personal Interview with Author, Op.Cit.

Models were important in a bureaucratic sense. Basically the decision was going to be made by a Minister with a couple of close advisers. That was always going to be the situation provided the bureaucracy was neutral in that you had two opposing camps. The Ministers felt reasonably free to go their own way provided our side, if you like, were saying, 'Look its alright go ahead, we've done all the work, we've got all this documentation.' And Ministers would look at that and they felt comfortable. They could read it, they could understand it and it was not that complicated...And Treasury and Finance had taken the usual line saying wait and see, but they couldn't defeat us. We could defeat them because we could come up with a positive benefit/cost ratio...So long as they couldn't say we were wrong we were going to win...So on the basis of that Ministers were pretty well unfettered in how they could make their decision.<sup>1</sup>

Maclean's statement is a clear reference to the need to insulate the project from critics, to give decision makers a space and time in which to make decisions.

DOC's attitude towards the financial considerations of the project is well illustrated in its relationship during 1981 with OTC. The Department's indifference towards the viability question in relation to the decision to proceed with the project affected their reading of OTC's 1981 financial analysis. On the one hand the Department was keen to ensure that OTC's methodology conformed with its own. Not to do so would have run the risk of the two studies presenting differing results and a corresponding diminution of authority. Yet it was not an interest which stemmed from a desire to question or assess the results of OTC's work. As such Peter Westerway spoke to Graham Gosewinckel in August 1981, to suggest contact between their staff on the financial analyses being carried out to compare methodology. While Gosewinckel welcomed the initiative, he was not prepared to divulge the detailed information from OTC's study, which he held to be commercial in confidence. To ensure co-operation Westerway assured Gosewinckel that the Department's only concern was with methodology. Westerway later recorded in a Minute to John Maclean that,

Mr Gosewinckel has no difficulties with this and is going to ask Don [Cocks], Financial Controller, to call you direct to compare approaches. I would be pleased if you would do your best to assure Mr [Cocks] that we have no intention of "rocking the boat" and repeat my assurances to Mr Gosewinckel that our concern is only to ensure that when OTC's financial appreciation is eventually put to Government, we will not be among those suggesting that they should have used a different approach or that the conclusions should be questioned because of the methodology.<sup>2</sup>

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<sup>1</sup> Ibid.

<sup>2</sup> Westerway, P.B. "Financial Implications of the Satellite System", DOC Minute Paper, 19 August 1981.

For the Department's Financial Policy Section (FPS) OTC's approach portrayed the project in a too favourable light. In a memo to Westerway an FPS officer commented,

We mentioned to you earlier this week that we disagreed with the methodology used by OTC in its 1980 discounted cash flow study of the project. This disagreement revolves around the inclusion of debt and interest repayments in the OTC analysis. We consider that the initial capital expenditures and not the debt financing transactions, should have been incorporated in the cash flows. The effect of the difference in approach is that OTC's approach makes the project appear more favourable than it really is. The difference is quite significant because of the large difference between the opportunity cost used in the analysis (10%) and the after tax interest rate on debt finance..."<sup>1</sup>

The memo underlined the FPS's initial misunderstanding about the motive for financial modelling. Not surprisingly when the officer suggested distributing copies of a paper outlining FPS's preferred methodology to "...other members of the Working Group on Financial Implications i.e. Finance and Treasury, to ensure that they are in agreement with the methodology"<sup>2</sup>, the instruction came back not to distribute. DOC's main concern throughout this process was guard against criticism from Finance and Treasury as a Minute paper from Lansdown to Payne reveals,

We all agree that the pressure from Finance and Treasury to have financial and cost details in papers going up in December is inherently sensitive. The information we will put forward runs the grave risk of being used against us because it will be incomplete.<sup>3</sup>

Against this background the fledgling Aussat, largely staffed with former OTC officers fresh from the Satellite Project Office appointed Hill Samuel Australia Limited as their financial advisers. The appointment was not without controversy as both organizations shared the same Chairman, Mr Stan Owens. This should have raised serious questions of propriety given that the work Hill Samuel performed for Aussat was to become the central tenet of the defensive resource built to ensure the project's continuation.<sup>4</sup> Hill Samuel's financial assessment formed the legitimating basis for the Fraser Government's May 1982 decision to proceed with the project and justification for reaffirmation by the

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<sup>1</sup>.Phillips, I.H. "Financial evaluation of Satellite Project", DOC Minute Paper, Financial Policy Section, 21 August 1981.

<sup>2</sup>.Ibid.

<sup>3</sup>.Lansdown, R.B. "Satellite", DOC Minute Paper, 21 October, 1981.

<sup>4</sup>.To some extent Aussat's Board was sensitive to the issue, given that a draft of the first annual report was scrapped when it was decided to add an additional comment on the requirements, from the Memorandum of Articles of the company, regarding declarations of a conflict of interest. Refer E.E.Payne "Aussat Pty Ltd, Annual General meeting of Shareholders - 27/10/82", Minute Paper to Vin Kane, 29 October 1982. p 1

first Hawke Ministry in 1983. In terms of debate within both Governments it was the main instrument used to placate Finance and of special importance during the early months of the Hawke Ministry the econometric models were used to hit the ATEA over the head when it brought the issue into the public arena. At the very least the appointment of Hill Samuel was clearly inappropriate as it produced the ludicrous position of the Chairman having to stand aside every time the board considered financial advice. Aussat's justification for the appointment was that Hill Samuel had superior in house computing facilities to the rest of the large field of contenders. Whether or not their competing equipment was superior, it was extensively used to justify the project's continuation.

In the sections that follow I will briefly introduce some of the main issues related to the use of computer modelling as an instrument for making public policy; conduct the first complete public critique of the Hill Samuel report on Aussat's financial viability; and illustrate how this resource was used to reinforce rather than analyse Australian communications policy.

### Computer Models & Public Policy

It is clear that within the decision making process surrounding the acquisition of a satellite system by Australia, computer modelling was used not as an evaluative resource for the rational public control of technology but as a tool to reinforce and justify policy. In this sense modelling was used as political ritual. Political rituals provide instruments or means of organizing, reinforcing and recreating social relationships. Steven Lukes defines ritual as "rule governed activity of a symbolic character which draws the attention of its participants to objects of thought and feeling they hold to be of special significance."<sup>1</sup> In this way political ritual acts to "...organise people's knowledge of the past and present and their capacity to imagine the future."<sup>2</sup> For Lukes it serves as a means to exercise

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<sup>1</sup>Lukes, Steven. "Political Ritual and Social Integration", Essays in Social Theory, MacMillan Press, London, 1977. p 68

<sup>2</sup>Ibid.

power or seek to exercise power along the 'cognitive dimension'. This presents an interesting line of inquiry in relation to the acquisition of a satellite system. Even though many within the policy process were privately skeptical about modelling, it would also be true to say that their interpretation of results was greatly influenced by their metaphysics. When a policy maker was not directly involved in the construction of a model, it was easy to welcome a propitious outcome on the basis that it was in accord with the prevailing 'policy paradigm'. In turn this acceptance reinforced beliefs. Graham Gosewinckel described this paradigm within Aussat during 1983, in terms of,

Total belief to the point of religious belief in the satellite and what it was going to do for the country...That's the reason we survived all the political difficulties. When you've got that sort of belief it's pretty hard to knock - When you know you're right.<sup>1</sup>

Gosewinckel went on in the same article to describe the then Minister for Communications, Michael Duffy, as a 'true believer'.

This same process has been described in Wheeler and MacDonald's study of the controversy over the Tellico Dam in Tennessee. In this case even though many in the Tennessee Valley Authority(TVA) were uncomfortable about using speculative models, which more often than not contained mathematical fabrications designed to show a positive benefit-cost ratio, "...the more the agency employed these models, the more many came to trust that the models predicted what would definitely happen. TVA was building a dream world within its web of econometric models and then living inside it."<sup>2</sup>

In his essay Lukes proffers a number of questions which should be asked about political rituals including,

Who(that is which social groups) have prescribed their performance and specified the rules which govern them? Who (which social groups) specify the objects of thought and feelings they symbolise - specifically, certain forms of social relationship and activity - as of special significance. Who actually holds them to be specially significant, and significant in what ways? In the interests of which social groups does the acceptance of these ways of seeing operate? And what forms of social relationship and activity are as a consequence ignored as of less or no significance? Under what conditions are political rituals most effective in getting participants and observers to internalise the political

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<sup>1</sup>.O'Neil, "Moon Signal Prompted Telegram Boy to Reach for Stars", Op.Cit.

<sup>2</sup>.Wheeler, William Bruce and Michael J. MacDonald, TVA and the Tellico Dam 1936-1979: A Bureaucratic Crisis In Post-Industrial America, The University of Tennessee Press, Knoxville, 1986. p 90

paradigms they represent? How are such rituals used strategically by different groups, exerting or seeking power in society?<sup>1</sup>

Such an approach he feels would enable us to "...explore the symbolic strategies used by different groups, under specifiable structural conditions to defend or attain power vis-a-vis other groups."<sup>2</sup>

This thesis focuses on one such symbolic strategy -- computer/financial modelling. It suggests that one group was able to exploit modelling as a resource to defend and propagate the adoption of a particular technology in the face of an extensive attack on the project's financial viability.<sup>3</sup> This produced an extraordinary situation, in that, while the system's viability was on trial in terms of political debate, it was not an issue on which several decisions to proceed were based. For proponents of the system, the issue only assumed an importance because actors outside the immediate Aussat/DOC/Government policy network, contested the question in the wider political arena. In this context the construction of social myth became a concern which overrode the social reality of the satellite system's financial viability. Social myth became a powerful agent of arbitrary political authority.<sup>4</sup>

In the Tellico Dams' case the decision to proceed was clearly not based on the financial modelling undertaken by the TVA. Like senior DOC bureaucrats, TVA's upper echelon would have preferred not to have bothered with an economic justification for the project.<sup>5</sup> However, in the United States after the late 1950's, publicly funded projects had to demonstrate a positive cost/benefit ratio to the Bureau of the Budget and to Congress.<sup>6</sup> In response the TVA constructed models that would show a positive ratio and adopted practices designed to achieve this goal. Some of these practices included, keeping the project costs unrealistically low while inflating the benefits, ignoring completely

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<sup>1</sup>.Lukes, Op.Cit. p 68-69

<sup>2</sup>.Ibid. p 69

<sup>3</sup>.This is noted in relation to other large sociotechnical projects in MacKenzie and Wajcman, Op.Cit. p 18

<sup>4</sup>.Wynne, Brian. "The Rhetoric of Consensus Politics", Research Policy, Vol 4, 1975. p 110

<sup>5</sup>.Wheeler and MacDonald, Op.Cit. pp 36-37 DOC Deputy Secretary Hugh Payne remembers often wandering past John Maclean's desk and telling him that he was wasting his time. For Payne modelling was only important in terms of the bureaucratic infighting. Payne, Personal Interview with Author, Op.Cit.

<sup>6</sup>.Wheeler and MacDonald, Op.Cit. p 88

detrimental aspects, selective use of the best results of modelling even when predicated on questionable assumptions, and even including speculative land deals in the modelling process. Those within TVA who "...objected or refused to cooperate in this process were told to go along or leave."<sup>1</sup> The process highlighted the fact that,

...benefit-cost ratios are neither 'real' nor tangible. Rather, they are based on econometric models - theoretical projections of future economic behaviour which are highly speculative in character and founded on assumptions which are open to question.<sup>2</sup>

Like the TVA, DOC had to face a budgetary process in which no one is automatically entitled to money. While there are not rules set down as to the cost benefit ratio as in the United States, DOC needed to show a viable system in order to meet the opposition of the Department of Finance. Modelling was chosen as the primary instrument to defend the project because it could be used to take the fight to the Department of Finance on its own terrain of expertise. To have abandoned economic analysis to Finance would have ensured the project's demise. This was something DOC was always more acutely aware of than Aussat. Although Aussat engaged in its own modelling process, Maclean avers that they only started to cooperate with DOC when they thought Finance was 'going to roll them.'<sup>3</sup> It is important to note that the instruments used to form a 'negotiation space' are shaped by the strengths of opponents.

The construction of a defensive resource which included the creation of a separate centre of expertise enabled proponents to counter DOF opposition. In this way the DOC/Hill Samuel/Aussat models were not politically neutral. Although these models were presented as objective empirical knowledge unencumbered by value laden premises, they were constituted precisely to assert the interests of their creators. As such they served a political function.<sup>4</sup> This throws doubt on the view that politics can be made more rational and efficient by the use of computer based techniques. As a number of observers have

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<sup>1</sup>. Ibid. p 91

<sup>2</sup>. Ibid. pp 90

<sup>3</sup>. Maclean, Personal Interview with Author, Op.Cit.

<sup>4</sup>. Sellers, Wallace O. "Macro-Project Risk: An Investment Banking View", Technology in Society, Vol 10, 1988. p 158

noted it may be more appropriate to see computer based techniques more as the conduct of 'politics by other means'.<sup>1</sup>

The outcome of computer modelling studies, depends very much on the assumptions and information fed into a computer. Danziger *et al's* extensive work on US local government use of computer models, with the appropriate acronym FIBS, shows that "...embedded within every fiscal impact budgetary system are assumptions and theories that can systematically influence the model outputs in ways that benefit certain interests more than others."<sup>2</sup> Models can be used to automate existing biases and because of the complexity and mystique of the process it is difficult for opponents to question outcomes. Even if the outside observer is aware that models can be particularly sensitive to the interests and values of the 'dominant organizational coalition', it is nigh on impossible to effectively critique outcomes without a full understanding of their construction.<sup>3</sup>

As will be shown both the ATEA and the Department of Finance had difficulty obtaining the information and assumptions used by satellite proponents. Because the Department initiated modelling for the prime purpose of defending the project's viability with Finance there was no incentive to share this information. In the Tellico Dam controversy mentioned above Wheeler and MacDonald note that all the TVA's cost/benefit analysis was veiled in secrecy lest the opposition know just how vulnerable the project was.<sup>4</sup>

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<sup>1</sup> Giving a different twist to the 'End of Ideology' debate, Buckminster Fuller has argued just such a scenario, "You may very appropriately want to ask me how we are going to resolve the ever accelerating dangerous impasse of world-opposed politicians and ideological dogmas. I answer, it will be resolved by the computer. Man has ever increasing confidence in the computer; witness his unconcerned landings as air-transport passengers coming in for a landing in the combined invisibility of fog and night. While no politician or political system can ever afford to yield understandably and enthusiastically to their adversaries and opposers, all politicians can and will yield enthusiastically to the computers safe flight controlling capabilities in bringing all of humanity in for a safe landing." Fuller cited in Danziger *et al. Computers and Politics : High Technology in American Local Governments*, Columbia University Press, New York, 1982. p 139 Alternatively Joseph Weizenbaum, amongst others, has critiqued the notion that the use of computers increases rationality in the policy process. Weizenbaum argues that the mystique of problem solving by computers and the use of instrumental reason are being used to mask the conversion of ethical, moral and political questions into supposedly technical problems. Joseph Weizenbaum, *Computer Power and Human Reason*, Penguin, Ringwood, 1976. p 251-257 Brian Wynne has noted that the technocratic translation of political issues into scientific technical ones is a familiar theme. Wynne, "The Rhetoric of Consensus Politics", *Op.Cit.*

<sup>2</sup>.Danziger *et al.. Op.Cit.* p 192 See also Gary D. Brewer, *Politicians, Bureaucrats, and the Consultant: A Critique of Urban Problem Solving*, Basic Books, New York, 1973. p 58

<sup>3</sup>. For a general critique of accounting practices refer Tony Tinker, *Paper Prophets: A Social Critique of Accounting*, Praeger, New York, 1985.

<sup>4</sup>.Wheeler and MacDonald, *Op.Cit.* p 91



DOC's private skepticism in the value of their own models was well placed. Any modellers face a dilemma in that they require a great deal of accurate and relevant data which may be difficult or impossible to obtain. That information may be unavailable, misreported, altered to fit requirements or self contradictory.<sup>1</sup> Yet even if it is obtained it may be of no use as an evaluative tool. Accuracy may decline as detail increases. Thus it will be argued, that even though privately DOC held models to be of dubious importance for decision making, they recognized their necessity in terms of justifying policy. In the same way Danziger *et al.* found FIBS was "employed more often as a political tool to reinforce the prevailing biases of the model using organization than as a rational tool for public control."<sup>2</sup>

#### Aussat & Hill Samuel

In November 1981 the Government established Aussat as a 100% Commonwealth owned proprietary company to assume responsibility of the satellite project from OTC. On January 27th 1982 Aussat appointed Hill Samuel Australia Ltd as its financial advisers<sup>3</sup> and soon after instructed them to prepare a financial assessment of the satellite project. A little over one month later Hill Samuel's report concluded the project would be viable based on,

...realistic and publicly available projections of the use of the satellite by government and commercial users and that Aussat would recover the capital cost during the first generation, recover its capital costs, repay all debts, meet its on-going operational costs and commence paying dividends in 1988/89.<sup>4</sup>

The report itself, although never made public, became the foundation of Aussat and DOC's case for the proceeding with the project. Aussat claimed that it was on the basis of Hill Samuel's work that the Australian and Overseas banking syndication agreed to

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<sup>1</sup>.Greenberger, Martin *et al.*, Models in the Policy Process: Public Decision Making in the Computer Era, Russell Sage Foundation, New York, 1976. p 72

<sup>2</sup>.Danziger *et al.*, Op.Cit. p 190

<sup>3</sup>.Payne, E.E."Aussat Pty Ltd - Appointment of Financial Consultant", Minute Paper to Minister, 28 January 1982.

<sup>4</sup>.Hill Samuel Australia Limited, "Australian National Satellite Communication System", Information Memorandum, March 1982.

provide A\$175 million and US\$193 million respectively in bridging loans.<sup>1</sup> This Aussat stated, was as good as endorsing the report's conclusions, whilst conveniently overlooking the undertakings the Government provided to assure the banks of its intention to see the project through. It should also be noted that in the limited time available Hill Samuel would have had to rely almost entirely on information provided by Aussat, and that they would have been acutely aware they were producing a document designed to attract potential financiers.<sup>2</sup> Because the report was never publicly released (it was provided to Finance on a confidential basis and the ATEA eventually obtained a 'leaked' copy of an executive summary & computer runs), opponents of the project found it particularly difficult to mount an effective critique. Within DOC it was subjected to criticism on the basis that its projections were not as propitious as senior officials would have wished. After reading the report Lansdown sent a vocadex to Gosewinckel to express his concern, in which he stated,

A further concern is the real rate of return (averaging 10% per annum) used. While this Department did ask that such a rate be included in the modelling it was not envisaged that this be the only rate used. I think there is considerable merit in also using modelling predicated on achieving a modest dividend towards the end of the first generation system (after recovering in real terms capital expenditures and meeting all expenses) with a view that more solid returns can be expected with the second and later generations...I do...hold strong doubts as to the appropriateness, as I understand them, of some assumptions of the model given to bankers if this is to be the basis of advice we must give Departments and the Cabinet. Frankly I would have doubts about the project going ahead if this were to be the case.<sup>3</sup>

Not surprisingly the last sentence of the above quotation elicited a prompt reply, as Lansdown recorded in a Minute Paper, to Payne, on the same day,

Mr Gosewinckel rang me late this afternoon. He said that having read my letter he understood completely the cause of my concern. He assured me that additional financial models had been and were on stream and that the model used in the Hill Samuel exercise was, from our point of view, very much a worst case. His plan is to bring before the Aussat Board meeting on Wednesday 31 March, a range of modeled information and advice about pricing policies which would be consistent with the advice that both this

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<sup>1</sup>.Although this was to become a common utterance from Aussat, the first time it was used to justify the project was in a letter from E.S.(Stan) Owens to Ian Sinclair on 1 April 1982, where he stated "...banks have been willing to make commitments for financing up to \$350m on the basis of deliberately conservative financial analysis."

<sup>2</sup>.Sellers, *Op.Cit.* p 158

<sup>3</sup>.Lansdown, R.B. "Letter to W.G.Gosewinckel, Chief Executive Officer of Aussat", 29 March 1982. p 2

Department and OTC as interim owner have provided since 1979 and which Aussat confirmed in late 1981.<sup>1</sup>

Gosewinckel followed up this action by instructing Don Cocks to prepare a statement on the approach Hill Samuel modelers took in preparing their report. Cocks' memorandum dated 1st April 1982 was conveyed to DOC with the reassurance that,

In the financial assessments for bankers, a deliberately pessimistic view was taken. Outputs demonstrated that even in these circumstances bankers were satisfied that Australia had a financially viable system before it.<sup>2</sup>

and

The Aussat Board of Directors has considered the results of the "pessimistic" bankers approach and of the more realistic, though still conservative "Business Model". It is their view that undue pessimism is as misleading as undue optimism and the Board has endorsed the results from the "Business Model" as the most realistic assessment available at this time. The consequential Board Resolution that a sound financial basis appears to exist for a decision to go ahead with the project has been advised to the Minister...<sup>3</sup>

The entire chain of correspondence is instructive of two things. Firstly Lansdown's main concern was not the actual viability of the project but that the model showed it would be viable. The irony of the situation was that this was precisely what Hill Samuel modeler's objective had been. Lansdown's concern on that issue was related to the author by one DOC official as being a fundamental misunderstanding of the document, "They had produced the endorsement of the project that he wanted, and he told them to do it again."<sup>4</sup> This would be unfair however to the Secretary. What made Lansdown uncomfortable was the projected Aussat tariffs, which in the Hill Samuel model were far higher than those the DOC had or would ever give as advice to the Government.

Secondly it shows just how negotiable the assumptions applied to models can be, in that Lansdown, displeased with the Hill Samuel projections, felt entirely confident to order the construction of a more propitious justification. The exchange also showed how data was selectively used to produce projections tailored to please the intended reader. For instance in the vocadex mentioned above, Lansdown relates to Gosewinckel,

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<sup>1</sup>Lansdown, R.B. "Aussat and Financial Modelling", Minute Paper, Office of the Secretary, 29 March 1982. Gosewinckel repeated these thoughts in a letter to Lansdown on 30 March 1982.

<sup>2</sup>Cocks, D.K. Aussat Financial Controller, "Aussat Memorandum to General Manager", 1 April 1982. p 1-2

<sup>3</sup>Ibid.

<sup>4</sup>Comment made to Author, DOC, Canberra 1987.

One major concern centres on the concept of the MCES [Major City Earth Stations] access charge as defined on Page 61 and developed in Table 8.4.(Hill Samuel Report) Such a method of charging would take the ABC's cost of MCES usage from around \$2.0m per annum - as reported to Cabinet in December 1981 - to \$16.0m per annum. If this were the case the ABC's proposed usage of the system itself would undoubtedly be jeopardized. While I acknowledge that the previous charge based on a per annum transponder usage was perhaps not appropriate, the charge to the access approach results in an unheralded harsh penalty to the ABC. You will concur that it will develop into a highly sensitive issue. I particularly note the very limited MCES usage by users other than the ABC and Telecom. In effect the current modelling has the ABC and Telecom paying for the Aussat MCES.<sup>1</sup>

While potential financiers were no doubt pleased to read that a major part of the Aussat MCES cost was being met by the ABC and Telecom, DOC was certainly not. The Department had planned to use extracts from the document for Cabinet submissions, but now found itself in the position of having to tell the Government it had misinformed them of the true costs of ABC MCES use or that the Hill Samuel model was inaccurate.

It was a dilemma the Department had hoped to avoid by using a uniform methodology in the construction of models used to justify the project. Lansdown's concern was heightened by the advice he was receiving from Maclean. Knowing how Treasury and Finance would read a model, Maclean's task was to act in the capacity of 'quality control'. The problem he faced was that OTC, Aussat and Hill Samuel wanted to use a range of models unfamiliar to the controllers of the budgetary process. According to Maclean, Treasury and Finance traditionally look for models showing cash moving at the time resources move.<sup>2</sup> Yet there are other types of models which include such things as feeding in tax benefits and assuming lease back payments over a number of years instead of having the capital up front. In the case of the above memo, where Lansdown questioned the rate of return, we need to consider the problems Maclean was having with the Hill Samuel approach. Maclean remembers.

These organisations seem to have great difficulty in coming to grips with the concepts of today's prices or current prices, real rates of return and money rates of return, and they tend to mix it all up and they shoot themselves in the foot. Basically they do out-turn pricing and then they come up with the rate of return of 10% and say that is 'beaut'. Of course that is not, its about 2% or 3% and then inflation was 10%, therefore it was a zero rate of return. So we had to get these money return rates up around 17%-20% which is what we were pushing for.<sup>3</sup>

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<sup>1</sup> Lansdown, R.B. "Letter to G.Gosewinckel", 29 March 1982. p 1

<sup>2</sup> Maclean, Personal Interview with Author, Op.Cit.

<sup>3</sup> Ibid.

Without a positive cost benefit ratio DOC could not take the battle to Finance.

As it eventuated Aussat was able to produce models propitious enough for the Minister for Communications to announce on May 6th 1982, that the Government had approved the implementation of a National Communications Satellite System, to be in operation by the end of 1985.<sup>1</sup> Before considering the next point at which financial models were used to justify the project, after the ascension to the treasury benches of the Hawke Government, it is worth reflecting on the accuracy of the Hill Samuel model by comparing its prognostications with Aussat's 1986 annual report. What should be born in mind is that according to Aussat the Hill Samuel or 'bankers' model was supposedly, very much, a worst case scenario.

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<sup>1</sup>.As an interesting aside it was during this month that the Minister for Communications ordered the Department to undertake a study detailing by electorate, all Commonwealth programs and services provided by the Communications portfolio, such as capital works undertaken in the electorate, activities in the electorate, money spent in the electorate and any other activities which could be quantified or identified by reference to a particular electorate. The Satellite Project was made one of the major focuses of this review. (DOC Minute Paper from Lansdown,R.B to Robert Lord, 27 May 1982.) This practice of defining activities by electorates has been widespread in the United States for many years, and proved especially useful as a lobbying tool for the Military Industrial Complex.

	Hill Samuel(1982 Projection)	Aussat(Actual)
	<u>1985/86<sup>1</sup></u>	<u>1985/86<sup>2</sup></u>
Total Revenue	68.2m	26.374m
Operating Costs	<u>13.3m</u>	<u>19.350m</u>
Gross Profit	54.9m	7.024m
Operating loss	(8.2m)	(42.604m)
Accumulated loss	(8.2m)	(61.226m)
Dividend Paid	9.3m	0
Number of Employees	165	254
Shareholders Equity	57.6m	38.774m
Loan Balance	341m	390.538m
Insurance AI & AII	12.3m	
Insurance AIII	7.1m	71m(AI,II&III)
Exchange Rate	Aust\$1= US\$1.7	A70c= US\$1*
Transponder Charges	15 Watt= 2.6m	12 Watt=1.975-95m
	30 Watt= 4.2m	30 Watt=3.1-5m**
Depreciation	60.7m	22,951m
Interest Rate	17%	(unavailable)

\* The exchange rate fluctuated greatly in 1985/86. This figure is an approximation and most of the year would have exceeded the actual rate.

\*\*Transponder charges approximate to Aussat's published tariffs, but would not be their actual price i.e. standard rates would be below these prices. Some major customers such as the ABC and NZ Post Office have been given significant discounts below even the standard rate.

As can be seen in the above table the Hill Samuel model was far from a worst case scenario. The more optimistic 'Business Model' adopted by the Aussat Board would compare less favourably still.

The Hill Samuel report was flawed in a number of ways. These included a fundamental misunderstanding of the technology's capability; a 'Whiggish' approach to future technological development; highly selective use of overseas experience with satellite financial viability; and subjective judgements about the efficiency of satellite technology presented as objective. Consider for instance the following statements in relation to the state of the world satellite industry presented earlier:

<sup>1</sup>.Hill Samuel, Op.Cit.

<sup>2</sup>.Aussat, Annual Report, 1986.

On the Shuttle the report stated, "The manned vehicle ensures a very high probability of spacecraft survival".<sup>1</sup>

On Ariane, "It is a conservatively designed highly reliable vehicle which is now considered flight proven and it is commencing its commercial launch program."<sup>2</sup>

On both, "It is unlikely that there will be any delays in either the shuttle or the Ariane programs".<sup>3</sup>

On Insurance, "Launch insurance is available from Lloyds at about 10% premium" and "expected to decline to approximately 7% with the use of the shuttle".<sup>4</sup>

On Satellite reliability, "the probability of a catastrophic spacecraft failure in geostationary orbit is negligible".<sup>5</sup>

One of the greatest differences between the Hill Samuel model and Aussat's 1986 balance sheet is the shortfall in revenue. Uppermost among the reasons for this dramatic discrepancy is the difference between the projected and actual transponder tariffs. The projection of tariffs was a thorny problem for modelers. They needed to set high prices for the transponders in order for the model to show a viable revenue base. This was not a problem in constructing a fictional account for bankers, however it took on another dimension for policy makers conscious of the fact the Government agencies would be the major users of the system. Just as the use of the projections of the cost to the ABC of using Aussat's MCES found in the Hill Samuel model, would have been politically unacceptable, so too were their figures for the cost of transponders. Thus even though Hill Samuel's conclusions on viability were cited extensively over 1982-83, their extraordinary estimates of charges were never used. Indeed the Department continued to use figures purporting a low powered transponder charge of \$1.4 million and an annual high powered transponder rate of \$2.3 million.<sup>6</sup>

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<sup>1</sup>.Hill Samuel, Op.Cit. p 49

<sup>2</sup>.Ibid. p 42

<sup>3</sup>.Ibid. p 74

<sup>4</sup>.Ibid. pp 42 & 55

<sup>5</sup>.Ibid. p 57

<sup>6</sup>.The Department cited \$1.4 million and \$2.4 million, for low and high powered transponders, in the review requested by Duffy in 1983. The use of these figures is impossible justify. They were supposedly drawn from the Hill Samuel modelling process (refer Attachment B of the review), yet the Hill Samuel document clearly states on pages 68-69 that the tariffs at January 1982 prices they used were \$1.8 million

Once again it is clear that models were constructed to please their intended recipient. While it was expedient to use \$4.2 million and \$2.2 million as the annual rates for high & low powered transponders in the Hill Samuel model to show the system would be viable, DOC was advising others in the policy making process that rates would be nearly half that amount. Both Lansdown, Payne and Gosewinckel believed to do otherwise would have left themselves wide open to attack from Finance. This is clearly revealed in correspondence between the three as early as 1981. In a Minute Paper in that year Payne recorded Gosewinckel's views on possible transponder charges,

He is concerned that the Finance Department might be pressing for firm information on order of costs, and that it would be critical if OTC could not provide that information readily. OTC is working on possible cash-flows and financing of the system using its own computer resources. He said that some of the figures on transponder costs are not looking very cheerful at this stage.<sup>1</sup>

If OTC was using similar figures to those that were eventually implemented it is not difficult to see why they would not have been 'cheerful'. These less than propitious projections were never included in the Department's advice to others in the policy process. Lansdown thought it would be 'unwise to be too black and white' in submissions in this area.<sup>2</sup> The Secretary made the Department's objectives clear to officers working on financial assessments in a Minute Paper on the 15th of September 1981, in which he stated,

I think it highly unwise to present figures, particularly about tariffs and returns at the end of this year which assume a level of certainty which does not exist. I think we discredit ourselves, do potential damage to the project and make it easy for our opponents if we go down that track. Obviously we have an obligation to present Government with all the

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(LP) and \$2.9 million (HP) per annum. To the Minister reading Attachment B it would have seemed as though when Aussat started business in 1985, it would be charging \$1.4 million and \$2.3 million at 1982 prices. Hill Samuel was using \$2.6 million and \$4.2 million as its 1985 prices and \$1.8 million and \$2.9 million as its 1982 prices. Thus the estimated costs in the review, to the public sector in 1985 were premised on 1982 prices that were far below the Hill Samuel figures. It is impossible to reconcile the differences between Hill Samuel's figures and the Department's advice to the Minister. What appears to have happened is that the review, which was largely undertaken by Don Cocks (Aussat's financial controller), implied that the figures were taken from the Hill Samuel document, when they were actually closer to the 'Business Model', Aussat had constructed by itself. In a DOC document which was supposed to have been the final financial report on the project in April 1982 the figures \$1.4 million and \$2.3 million are cited as being from Aussat's business model. The difference between the figures is what had initially upset Lansdown about the Hill Samuel report. He knew he could not advise the Government that the transponder prices might be in the order of \$2.2 million and \$4.2 million, albeit there is no record of a letter advising prospective bankers of his problem with these figures.

<sup>1</sup>Payne, E.E. "Costs of the Satellite System", DOC Minute Paper to Alan Guster, 18 June 1981.

<sup>2</sup>Lansdown, R.B. "Financial Evaluation of the Satellite System", DOC Minute Paper, 15 September 1981.



facts and inputs as we know them and we would not want to fail in that responsibility. I would hate to lose the satellite project however because of somewhat academic calculations about levels of return and premature assessments of levels of tariffs. I hope that you and Mr Guster will take a personal interest in this matter along with Mr Maclean and his officers.<sup>1</sup>

In this statement we have the threads of the Department's handling of their dilemma. They would simply not provide information to an adversarial Finance which could be used against the project, on the justification that all projections have no certainty.

OTC were reluctant to share their modelling with the Department for the same reason, as shown in a letter from Gosewinckel to Lansdown,

You are aware, I know, that a range of financial modelling has taken place and that this has been of an exploratory nature only because of the number of assumptions that have to be made regarding modelling inputs. For that reason it is not sensible to suggest that transponder prices resulting from modelling should be used in the Department's budgetary calculations, as such figures could well be given more credence than they deserve when taken out of context, as they could be.<sup>2</sup>

This explains why DOC did not use the Hill Samuel figures for transponder charges in its advice to Government. While it is true that the figures were not certain, and of an 'exploratory' nature, their conclusions were never treated in the same manner. Thus the problem that was raised before about accepting the results of computer models without questioning the assumptions or data fed in rears its ugly head.

Lansdown's comment that he didn't want to lose the project because of some 'academic calculations' greatly upset John Maclean who had been working on financial models for about two months. Maclean later recalled,

The unwritten difficulty was that we were always scraping in on the financial figures. It was not a clear goer. We were basically fighting a line for a fairly marginal project. We were sitting on the costs we knew we were being conservative on and the problems Aussat is facing, now show that. Its never been a clear goer. We pushed it through on our own... There were plenty of people in the Department - the Hugh Paynes and the Lansdowns and Gusters - basically had an engineering or a policy viewpoint on it and just saw it as a good thing. If we didn't get into it Australia would lag behind, so bugger the economics... and my role both within and outside the Department was a fairly difficult one because of that, because I wasn't a great believer... I can remember we did an initial - and this is a classic example of what hit me in the first couple of months - best guess on the prices and cost/benefit analysis and we were showing it was a bit bloody dubious, and the Secretary, at the time Lansdown, wrote on it 'I don't want to lose this'. That was the most instructive thing. That was a seminal document to me. We were all

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<sup>1</sup> Ibid.

<sup>2</sup> Gosewinckel, W.G. "Transponder Prices for use in Current Estimates of Departmental Budgetary Impact", Letter to R.B.Lansdown, 11 November 1981.

quite upset over that. It was 'There's something rocking the boat bury it'. That was a classic example of a bit of a young Turk getting rolled by the bureaucracy.<sup>1</sup>

Maclean interpreted Lansdown's words in the following way,

It was basically saying 'Shut up Maclean'. You can do what you like but its not going anywhere. Its not going out of this Department.<sup>2</sup>

Looking back on his Departmental baptism, Maclean now says he understands why Lansdown took this action. Although he was experienced in the art of financial modelling, he had not previously worked on promoting policy projects. In a sense Maclean had always been on the opposing side trying to 'sink or shoot down' projects.

As a result he avers that in Treasury and Finance,

You wrote to be read outside. It was just a different approach. You might write to let your Minister secretly know something but you were not running a project yourself. In a research organization it's a bit different, you don't really care what you say as long as it stands up to like minds reading the same evidence. In a policy thing you're out to get your policy through, doesn't matter what. Now the Lansdowns and the Paynes and Gusters were pretty hard headed bureaucrats and they didn't want to be tripped up by some sort of financial analysis getting in the way. They just saw they were a long way down the track for a lot of effort. They were taking an incremental approach - get your foot in the door and then keep it in the door and then push the door open - get into a sunk cost situation where you have got so much built into it, that you have to proceed.<sup>3</sup>

Maclean's personal assessment of the main characters involved in this process casts light on their attitude towards the question of the satellite project's financial viability. Maclean placed the following assessments on the record,

Bob Lansdown was one of the most able bureaucrats I have ever seen and he was going to push it through, because he thought that was the way it should have gone. He believed in the technology and saw himself as a bit of a visionary and wanted to go ahead and do it. Hugh Payne was a crusty hard public servant. A head kicker. He wanted it to go ahead because he didn't like Treasury and Finance. He thought they were a pack of 'wankers'. Alan Guster was basically a soft, gentle, nice bloke but basically ineffective. I was caught in the middle. The Aussat or OTC people were very hard, very astute and pretty tough. The Finance and Treasury people were pretty ineffective. I don't think they fought a very good fight and I think they could have done better.<sup>4</sup>

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<sup>1</sup>.Maclean, Personal Interview with Author, Op.Cit.

<sup>2</sup>.Ibid.

<sup>3</sup>.Ibid.

<sup>4</sup>.Ibid. Payne's view of Treasury and Finance is far from unique among other Departments. Gerald Caiden described the terms of abuse leveled at the Treasury by other bureaucrats in a submission to the Coombs Royal Commission, including "stubbornness, rigidity, narrowness, inflexibility, pettiness, untrustworthiness, hypocrisy, unreasonableness, cynicism, scorn". Refer Gerald E. Caiden, "Towards a More Efficient Government Administration", Task Force on Efficiency Work Paper, Royal Commission on Australian Government Administration, Canberra, 1975. p 90 and Patrick Weller and James Cutt, Treasury Control in Australia: A Study in Bureaucratic Politics, Ian Novak, Sydney 1976. p 47

Within the 'negotiation space', however the project still needed to be stabilized. The change of Government in 1983 gave opponents a new chance to attack the project.

### Aussat, DOC and the Hawke Government

Until Malcolm Fraser set down an early election for March 5th 1983, Aussat and the Department could be reasonably confident that all their work was going to be rewarded with an Australian domestic satellite system. The Fraser Government, despite late reservations, had given Aussat the final approval for the contracts to be signed with the Hughes Corporation in May 1982. The possible election of a new government, however, raised all sorts of uncertainties as Labor had been critical of the satellite project in opposition. As the election drew closer it became increasingly obvious that Labor, under Robert Hawke, would win. After the Labor victory the party's deposed leader Bill Hayden would offer the memorable comment that a 'drover's dog' could have led the party to victory.

Thus, in the days leading up to the election, Aussat took action to ensure the project's continuation. An Aussat Board Memorandum dated 9th March 1983, reveals, just days before the election that the organization paid Hughes \$20m under a so called 'early payment arrangement'.<sup>1</sup> Ostensibly this was in response to speculation in February that a Hawke Government would devalue the Australian dollar as indeed it did on Monday March 7th 1983. More importantly, for an Aussat management unsure of Labor's intentions, it entrenched their position by dramatically increasing the cost of cancellation.

This action is questionable on a number of grounds. First and foremost it was a flagrant breach of caretaker conventions.<sup>2</sup> Although it was not a decision taken by a Minister or

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<sup>1</sup>Gosewinckel, W.G. "Aussat Board Memorandum", Aussat Pty Ltd., 9 March 1983.

<sup>2</sup>Guide-lines concerning the handling of government business during election periods have recently been restated by Senator Gareth Evans. Refer "Government Business During the Election Period", Senate Hansard, 5 June 1987. p 3668 The caretaker conventions embodied in Evans' statement to the Senate have a long tradition in Westminster Parliamentary Democracy. They reflect the fact that the time between an official election announcement and its actual occurrence is a unique period in government. Like most conventions, caretaker principles are not rooted in constitutional law but have arisen by the mutual consent of major political parties because they make for good government. If caretaker conventions are not observed, outgoing governments could clearly commit incumbents to decisions antithetical to their

carried out by the Department of Communications, Aussat's management as the proprietors of a fully Commonwealth owned company, were bound by the same guidelines. Yet not only did Aussat management not seek approval of the Minister or DOC, the action was taken without the ratification or knowledge of the Board.<sup>1</sup> Aussat management did seek the approval of the Chairman of the Board, Stan Owens, but he should have reserved judgement, given that he was also the Chairman of Hill Samuel Ltd, the company tendering the advice to make the early payment.<sup>2</sup> Had Aussat management properly sought approval from the Minister or the Department to make such a radical alteration to the approved schedule of payments, both would have been bound by convention to refuse. While the payment was not a new undertaking, it was clearly a 'major initiative'. This is spelt out in the *Guidelines of Official Conduct of Commonwealth Public Servants*,

In the period between the election announcement and the dissolution of the House of Representatives there may be some major initiatives or appointments of significance which ministers judge should not proceed...Departments should not take any action that might cause a Minister to breach the caretaker conventions.<sup>3</sup>

The pertinent point is that neither the Minister or the Department gave approval for the early payment. In addition one could interpret Aussat's Memorandum of Association as dictating that approval should not only have been sought from the Minister but also from the Treasurer. That document states the company shall have the power to,

subject to the Treasurer's approval (given either generally or in relation to specific cases), to lend or advance money or give credit to any person, to guarantee or give guarantees or indemnities for the payment of money or the performance of contracts or obligations by any person and to secure in any way the repayment of moneys lent or advanced to, or the liabilities incurred by, any person;<sup>4</sup>

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political programme. The argument has been succinctly put by Sir Paul Hasluck in his 1972 Queale Lecture entitled The Office of Governor General, Melbourne University Press, 1979. I am indebted to Professor Tony Blacksheild, formerly of the La Trobe University's Legal Studies Department, for this reference and wider insights on caretaker conventions.

<sup>1</sup>. Board members were notified of the transaction on 9 March 1983 after the announcement of the devaluation on 7 March 1983. This would have been the first time DOC would have been told of the early payment as Hugh Payne the Deputy Secretary was on the Board.

<sup>2</sup>. Aussat, "Companies Ordinance 1962, Company limited by Shares, Articles of Association of Aussat Pty Ltd," November 1981. p 26. Had there been a Board Meeting, Owens would not have been eligible to vote.

<sup>3</sup>. Public Service Board, Guidelines of Official Conduct of Commonwealth Public Servants, Canberra 1987. Refer 2.6 & 2.8

<sup>4</sup>. Aussat, Companies Ordinance 1962, Company Limited by Shares, Memorandum of Association of Aussat Pty. Ltd., November 1981. pp 7-8

and

...the company shall not, except in accordance with the Minister's approval (given either generally or in relation to specific cases), enter into: (a) a contract for the procurement of a space station or earth station: or (b) any other contract, transaction or arrangement involving the giving or receiving by the Company of a consideration exceeding in amount or value \$500,000.<sup>1</sup>

By disregarding caretaker conventions and its Memorandum of Association, Aussat management effectively limited the new Government's range of policy options. Although Aussat had paid Hughes \$20 million the implication was that the new Government was committed to advance a further \$25 million to the company. This was necessary because the Fraser Government had given certain undertakings to the banks providing bridging finance that it would not allow Aussat's debt to equity ratio to fall below a certain level. Thus the immediate effect of Aussat's action was to commit \$45 million to the project five days before an election.

Secondly, it was totally improper for a Government owned company to speculate against its own currency. While Aussat saved around \$2 million dollars<sup>2</sup> (there was a 10% devaluation) this must be matched against the wider damage to the confidence in the dollar from an international finance community which could only interpret this action as having an official imprimatur. In addition, the payment to Hughes was not an insignificant contribution to the massive outflow of capital just prior to the election, and in a sense the action became a self fulfilling prophecy in that the Government had little choice but to devalue the dollar. During the week after Aussat prepaid Hughes, approximately \$2 billion was shifted out of Australia.<sup>3</sup>

In this context the saving Aussat made was trifling against the potential damage to the economy. Yet despite the fact that Aussat failed to seek approval or even to consult with the Minister or DOC, the latter could not reveal this to the incumbent Minister, Michael Duffy. There are several reasons why Duffy was not immediately briefed on the early payment. Essentially the Department was extremely circumspect towards the new Labor

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<sup>1</sup>. *Ibid.* p 10

<sup>2</sup>. This figure would have been tempered by the added interest payments on the early loan draw down of the loan.

<sup>3</sup>. Carew, Edna. *Keating: A Biography*, Allen and Unwin, North Sydney, 1988. p 69

Minister. They believed he had a remit from the ATEA to cancel the project and owed political favours to the communications union. Even though Aussat management had not informed the Department about the early payment they remained enthusiastic supporters and therefore did not want undercut their argument that cancellation costs now made it irrational not to proceed with the project. The issue had the potential to disrupt what some have termed the socialization of Ministers.<sup>1</sup> This is the process whereby Ministers grow to hold the same views as the people that they work with because of the way the advice they receive is presented. Ministers need the cooperation of departments in dealing with their party, a factor the bureaucracy was not slow to capitalize on in the socialization of Duffy.

In this case an added dimension was the fact that Lansdown, as department head, had not enjoyed good relations with the three previous Ministers. Staley, Sinclair and Brown, had for various reasons, mostly preferred to work with Hugh Payne. In Staley's case it resulted from the relationship they had built up prior to Lansdown's appointment, for Sinclair it was a matter of not liking or trusting Lansdown, and Brown disliked him enough for the Secretary to confide to Payne that the former Minister would have 'had the knife out' for him, if the Fraser Government had been returned. Duffy on the other hand, represented the first chance Lansdown had to have an influential role with a Minister. By this stage Lansdown was growing more confident in the portfolio at a time when Duffy was widely regarded in the Department as being a 'hick suburban lawyer'. From then on it was Lansdown, rather than Payne, who was the primary officer the Minister would turn to for advice. Payne was in a sense excommunicated. With the machinations of Lansdown's socialization process in train and the feeling that Duffy was antagonistic towards the project it would have been unconscionable to have raised the propriety of Aussat's actions.

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<sup>1</sup>. Wilenski, Peter. "Labor and the Bureaucracy" In G. Duncan (Ed) Critical Essays in Australian Politics, Edward Arnold, Melbourne 1978. pp 34-35 Refer also Richard Lucy, The Australian Form of Government, MacMillan, Melbourne, 1985. p 283

It must also be said that Aussat's actions were not out of line with those of the Department. Although not referring to the initial early payment scheme, Hugh Payne would later recall the general tenor of the Department's strategy at this time,

As we understood it he (Duffy) had given certain promises to the ATEA and he came in with all this, 'We are going to review it and tear it down'. Well it was impossible. We were determined that we would get the Government so committed, so much money in, the contracts signed, so that with a change of Government they could never walk away from it. It would cost them as much to walk out it as to go ahead. That's the position they were in and to my mind all Duffy was doing was 'showponying'. In the end he was very supportive.<sup>1</sup>

For Payne the early payment was not as politically important as the work the Department had done in the previous months to entrench the project. Payne now believes the Government was more hemmed in because binding contracts had been signed and because of the commitment of other areas of the public sector such as the ABC and Aviation. The early payment scheme was clearly an Aussat management initiative and Payne would later ingenuously remark at the suggestion that it was specifically designed to lock in the new Government, "That's a little bit bloody trickier than I ever got."<sup>2</sup>

Aussat took the action they did because they were desperate. Graham Gosewinckel would later recall the feeling within the organization during this period,

They were desperate days... I spent a lot of time in Canberra lobbying like hell. I must admit there were times when I thought it was irretrievably gone. But I never showed it.<sup>3</sup>

Although it is normally expected that public servants should not set their own objectives or dominate the policy process this frequently eventuates. In this case such was the belief in the satellite system by Aussat's management that they were prepared to disregard convention in 'desperate days' and set objectives. Part of the reason for this action was what Gosewinckel stated was 'the total belief to the point of religious belief' which some proponents had in the satellite. Maclean describes how he believes different actors would have reacted to cancellation in the following way,

The group for which it would have been a big disappointment was the group which had pretty well captured the whole thing, no matter how you look at it, would be what's now

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<sup>1</sup>.Payne, Personal Interview with Author, Op.Cit. Maclean also believes it was the contracts which stopped Labor. Maclean, Personal Interview with Author, Op.Cit.

<sup>2</sup>.Payne, Ibid.

<sup>3</sup>.O'Neil, "Moon Signal Prompted Telegram Boy to Reach for the Stars", Op.Cit.

Aussat...They had bet their bundle on it. These people personally had bet their bundle, the Gosewinckels, the Johnsons, the finance person Don Cocks. They had taken this on board. They had been working on it for 3 or 4 years. They were a highly motivated very successful group. They were technically expert compared to anyone else. They had won over the face of Telecom, who had made an earlier bid in the early seventies...The group had outmanoeuvred Telecom to do the running on all the studies, to capture it, to certainly make sure Telecom didn't get it and if they couldn't get up as a separate company to make sure OTC had it. They used OTC and OTC personnel and there was a bit of friction towards the end because OTC could see that it had lost this thing and potentially it was some sort of competition for OTC and that they were going to lose a group of people. So that particular group of people, which is basically the OTC group that went to Aussat, would have been disappointed.<sup>1</sup>

One of the justifications for caretaker conventions is to protect incoming governments from public servants setting objectives during a time of minimal supervision. Despite Aussat's protestations of saving money by advancing the payment, it was clearly in breach of well established practice. It is difficult to interpret it otherwise than as a Machiavellian ploy which was central to Aussat's efforts to lobby the Hawke Government. Had this not been the case Aussat would have notified the Department of the action they intended to take. Yet not only was this not done at the time, Aussat took no subsequent action to officially notify DOC. If it had done so the Department would have been bound to bring the matter to the attention of the new Minister. Although Aussat disclosed the early payment to Directors after the election, on 9th March 1983, and, as such the DOC Deputy Secretary Hugh Payne a Board Member became aware, this can not be construed as official notification to the Department.

The matter would have remained hidden except for the fact that Payne let it slip to a Senate Estimates Committee on 10th May 1983.<sup>2</sup> In answering a question on why the new Government had to inject a further \$25 million into Aussat, Payne explained the need to maintain a certain equity ratio before stating,

...when the company [Aussat] thought that there may be a devaluation - in fact the world was barking that there would be a devaluation - it made some advance payments to Hughes, and Hughes accepted the payments in advance, to avoid the effects of devaluation.<sup>3</sup>

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<sup>1</sup>.Maclean, Personal Interview with Author, Op.Cit.

<sup>2</sup>Payne, E.E. Senate Hansard, 10 May 1983.

<sup>3</sup>Ibid.



Although the Senators did not pursue the line of questioning, Deborah Snow, of the *Australian Financial Review*, raised the matter in a story on the 18th May 1983.<sup>1</sup> This article produced the awkward situation of the Department having no official notification of Aussat's action and no record of Ministerial approval. As Ministers are apt to ask questions about media stories Aussat was forced to send an explanation for the early payment scheme to the Department on the morning the story appeared.<sup>2</sup> In that correspondence Gosewinckel essentially repeated the same justification given after the event to Board Members, stating,

In late February/early March 1983 it became clear that there was a widespread expectation that following the election on 5th March the elected Government would need to effect a structured devaluation of the Australian dollar in order to arrest the deteriorating position in Australia's balance of payments. Aussat, as a commercial enterprise, felt it incumbent to take any action practicable to protect the Company and its shareholder, the Commonwealth, against the effects of such a structured devaluation on the amount of foreign currency commitments still exposed.<sup>3</sup>

The statement is quite an extraordinary attempt to justify the action. Clearly Aussat claimed it was protecting the Commonwealth Government from itself. The pertinent point is of course that the Fraser Government was not consulted and therefore could not make a judgement on the action Aussat proposed to take with the wider national interest in mind.

It is this that makes Aussat's justification in the following sound extremely hollow,

While this was a proper commercial approach to take Aussat was nevertheless mindful of its obligation as an Australian company to protect the national interest as well as its shareholders. Action in regard to advance payments was not taken until AUSSAT's advisors confirmed that on any objective assessment of the money outflow that had taken place, there could be no realistic alternative to a structured devaluation. This was discussed fully with the Reserve Bank and approval was obtained for an early payment of approximately A\$20m to be made to Hughes.<sup>4</sup>

The reference to the Reserve Bank is interesting, because if Aussat did consult them and they advised that the early payment be made, they were clearly in breach of caretaker conventions, as was whoever specified the 'approval'. If the Reserve Bank did approve of the early payment and technically this should have come from the Treasurer, it begs certain questions about the propriety of its actions. How many other public sector

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<sup>1</sup>. Snow, Deborah. "\$25m into Aussat", *Australian Financial Review* 18 May 1983.

<sup>2</sup>. Gosewinckel, W.G. "Vocadex to E.E. Payne," DOC, 18 May 1983.

<sup>3</sup>. *Ibid.*

<sup>4</sup>. *Ibid.*

organizations were advised to make early payments and how did this collectively affect the amount of capital outflow? In short, what on earth was the Reserve Bank doing advising public sector companies to speculate against the Australian dollar for a trifling saving of two million dollars? Although the devaluation was later portrayed as inevitable, Carew avers,

Treasury was reluctant to approve a large one-off devaluation on the grounds that it would contradict the existing policy of a managed exchange rate. A large devaluation would also create a precedent which would feed speculation about future disruptive diversion from policy.<sup>1</sup>

Thus had Aussat consulted the Treasury rather than the Reserve Bank before the early payment was made, it is unlikely that they would have received an endorsement. In this sense the Reserve Bank was making policy rather than the Treasury. They followed this up by advising the Government that a 10% devaluation was necessary to reverse the capital outflow patently against the wishes of Treasury. After the event, Carew noted,

The Reserve Bank conducted a post-mortem, not just to assess the degree of speculation and profits made, but to examine the effectiveness of the system.<sup>2</sup>

The entire episode was enough to convince the incumbent Treasurer, Paul Keating, that the dollar should be floated based on the supposition that the Government could not control the outflow of funds through a managed exchange rate.<sup>3</sup> Keating's initial feelings were encouraged by the Reserve Bank which favoured financial deregulation.<sup>4</sup> Yet what was overlooked was the Reserve Bank's own role in precipitating the 'crisis'. They had advised a Commonwealth owned company, whose Board included representatives of diverse sections of corporate Australia (including members of the financial world whose primary business was advising large corporations on capital management), to speculate against the Australian currency. In these terms, foreknowledge of the advice the Reserve Bank would tender to the new Government was invaluable inside information.

It is strange that neither the consultation with the Reserve Bank or the 'approval' were mentioned in the memorandum to Board Members. The only person mentioned in the

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<sup>1</sup>.Carew, *Op.Cit.* p 83

<sup>2</sup>.*Ibid.*

<sup>3</sup>.*Ibid.* p 84

<sup>4</sup>.*Ibid.* p 86

earlier memorandum as having approved the action was Owens. The reference is vague but does not obscure the fact that neither the Minister or his Department were consulted.

As it eventuated Aussat need not have been concerned by the ascension of Labor. The new Hawke Government was determined to show that it was business as usual. As has often been noted there was a perception in the new Ministry that they should avoid the mistakes of the first Whitlam Government.<sup>1</sup> In 1978 Peter Wilenski argued that, based on the Whitlam experience, the next Labor government would have to modify its policies to use the bureaucracy effectively even if that meant a sharp break with the pace of reform.<sup>2</sup> Later legislation would reveal that the Government would closely align itself to certain media proprietors supporting the introduction of a satellite system.<sup>3</sup> If Aussat had been able to better read the political situation it may have been able to interpret the silencing of Susan Ryan, Labor's initial spokes-person, as a sign of the new Government's intentions. In any event the advanced payment provided Aussat with a powerful argument with which to lobby support from the new Minister. It represented the only cost counted irretrievably lost. After the 1983 election Michael Duffy, a Melbourne solicitor, with no previous experience in communications, was appointed as Minister. When Duffy began the lengthy process of familiarizing himself with his new portfolio the whole question of Aussat was once again placed on the political agenda.

During his initial briefings with the Department in March 1983, Duffy requested an appreciation paper on Aussat's financial viability. This caused considerable disquiet amongst senior department officials still uneasy about the new Government's intentions. A Minute Paper from Lansdown to senior colleagues illustrates the distrust in which the new minister was held. Lansdown records that he was able to extract an assurance from Duffy that he was not seeking grounds to cancel the project, but rather an exercise which would act as insurance against any later review of the decision making process. In this Minute Lansdown wrote,

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<sup>1</sup>.Evans, Geoff. Personal Interview with Author, ABC, Sydney 1987. Carew, Op.Cit. also makes this point. p 70

<sup>2</sup>.Wilenski, Op.Cit. p 46

<sup>3</sup>.Bowman, David. The Captive Press, Penguin, Melbourne, 1988. p 9

The minister did assure me that there was nothing sinister(*sic*) in the request. He recognises that contracts have been let and the project committed. He feels however, that if in subsequent times the financial health of the project came under pressure he would look foolish indeed not to have satisfied himself at this early stage on the financial position...It obviously needs to be handled with expedition.<sup>1</sup>

The statement is revealing in several ways. It shows that from the beginning Duffy had no intention of cancelling the project. The Minister was not requesting an inquiry to determine the system's viability, but a ritualistic exercise designed to cover his political future against a subsequent review of the decision making process. As such no new assessment of the project's viability was made and the reviews which occurred over the early months of Labor's first term were skewed towards justifying the existing course. The Minute also records the extraordinary use of the word 'sinister' in relation to the Minister's request. It is a measure of the Department's determination that the project proceed and consequent unease at the thought of cancellation that such a term would be applied to a perfectly legitimate request. It is also indicative of the negligible chance that any assessment conducted by the Department in early 1983 would have produced anything but an glowing endorsement of past decisions.<sup>2</sup>

Further evidence in support of Aussat's intention in regard to the early payment scheme at the time the payment was made, is to be found in their response to a DOC request for estimates of the cost of cancellation. In an addendum to Duffy's request for a review of the satellite cost to a senior officer, Lansdown wrote,

I mentioned this to Mr Gosewinckel. He was not shocked -- says Aussat had worked out the cost penalties for default in anticipation of such a request as this.<sup>3</sup>

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<sup>1</sup> Lansdown, R.B. "Satellite System Financial Appreciation", DOC Minute Paper, 23 March 1983.

<sup>2</sup> An additional concern of the Department was to ensure the information reaching Duffy was in accordance with that supplied to Labor in opposition. That is to say, Duffy was now entitled to documents denied to Labor in opposition and therefore the Department had to be careful that what the new Minister saw did not contradict information given out in response to the former opposition's parliamentary questions. After Duffy requested a paper on the Satellite's capital and operational costs, Lansdown wrote to Vin Kane "I do not recall whether, in earlier times, members of the then opposition have attacked this project over prospective costs but it would be worthwhile checking. I do recall Senator Button asked a question last year about Mr Sinclair's \$600m figure but I don't think we answered the question in a very informative way." R.B. Lansdown, "Financial Outlook for Aussat", Minute Paper Office of the Secretary, 23 March 1983. On the way departments control the information which flows to Ministers refer Kenneth Wiltshire, "The Bureaucracy" in the Pieces of Politics, Richard Lucy (Ed) 2nd edition, MacMillan, Melbourne 1979.

<sup>3</sup> Lansdown, "Satellite System Financial Appreciation", Op.Cit. Addendum dated 28 March 1983.

The fact that Aussat had already worked out the costs of cancellation prior to the new Minister's request indicates that they believed this to be their best argument against the project's demise. Although the Department of Finance and ATEA vigorously challenged the project's continuation in the early months of the Hawke Government, it was the money already spent which was to be their main impediment. Aussat management fully realized that the more money they could commit to the project, the less chance there was of cancellation. As such they continued to press the Department to be allowed to hand payments over to Hughes before they were due. Instead of an impending devaluation, Aussat now justified this by arguing that if the \$25.5 million early equity payment, which the Senate Committee had questioned, was forwarded to Hughes they could delay loan draw-downs (saving on interest) and seek a discount from the contractor. This led to a disagreement between senior DOC officers. Payne felt the latest early payment was justified but on the condition that it should only be made with respect to work completed and that Hughes make some discount. John Maclean, Assistant Secretary (STAPP Division) argued,

I can't see how 'work completed' could be measured and I think it a naive criterion...I agree with the second point re discount but I thought that would have been either obvious or unobtainable. I would add, however, that I think this caveat of the Board is also naive, if they are interested in maximising the benefit of the early payment then they should also have considered all domestic short term investment options up until the drawdowns were required under the Hughes' payments schedule. I note that the Board dismissed this option at the May meeting as not being 'sensible'. This option is just as viable on commercial grounds as are the caveats of the Board. Unless the discount is higher than the short term market rate then, on commercial grounds, no early payment should be made. I note also that, as far as I am aware, the earlier 'early payment' to avoid devaluation was not matched by any such discount, or any Board insistence on such a discount.<sup>1</sup>

The point is that although potential savings made from running ahead of the schedule of payments may not have equalled the best commercial path, they further committed funds in a way which would not have been done by an alternative short term investment.

The second early payment affair also highlights how the bureaucratic interests of the Department of Finance can be contradictory when the macro-political impacts on the micro-concerns of particular projects. Finance was actually pressing for departments to

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<sup>1</sup>.Maclean, J.D. "Mr Payne's Comments on Use of Aussat's \$25.5M Early Equity Payment", DOC Minute Paper, 28 June 1983.

bring expenditure programmes forward before 30th June 1983, so as to blow out the budget of the outgoing Fraser Government and place the new Government's first budget in a favourable light. Both Treasury and Finance were fed up with the economic management of the Coalition by the time it lost office,<sup>1</sup> and thus it was politically expedient for them and the Hawke Government to take this action. John Stone, the Treasury secretary had a particular enmity towards John Howard, the outgoing Minister.<sup>2</sup> The budget deficit was already going to be large so they were not too concerned if it was increased by a couple of hundred million dollars. Thus unwritten instructions went out for Departments to bring expenditure programmes forward to 'make the outgoing Treasurer look stupid and the incoming one good.'<sup>3</sup> This is the process whereby the so called 'worlds greatest treasurer' was made. During a time when he had virtually no experience in the economics portfolio<sup>4</sup>, Paul Keating was able to announce that the Government would be able to reduce the budget deficit for 1983/84.<sup>5</sup> Importantly it shows how Finance and Treasury's wider bureaucratic interests took precedence for the time over their opposition to the project.

During this period Michael Duffy's prime concern, like Keating, was to protect his new Ministerial position. This influenced his approach not only to the question of viability but also the contentious question of control. On 2nd May 1983, Duffy was briefed on the institutional form of Aussat. In this discussion with Vin Kane, the Minister asked that Telecom be consulted regarding the ownership of the satellite system. Kane later recalled in a note for file,

...the Minister said that there would be questions raised in Cabinet and also in the Caucus about Telecom's role. While he himself did not necessarily support Telecom taking over the satellite he thought that there would be Ministers and Members who would expect that to be the Government decision. He asked for a paper discussing the pros & cons of the satellite going to Telecom. He asked whether there had been discussions with Telecom on the satellite ownership. I said that as far as I knew there had been no formal discussions and that it was a little invidious, it seemed, to do so. However, the Minister asked that

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<sup>1</sup>.Whitwell, Op.Cit. p 238

<sup>2</sup>.Ibid. p 237

<sup>3</sup>.Maclean, Personal Interview with Author, Op.Cit. Refer also Coleman, Personal Interview with Author, Op.Cit. and Payne, Personal Interview with Author, Op.Cit.

<sup>4</sup>.Carew, Op.Cit. p 87

<sup>5</sup>.Ibid. p 89

Telecom be consulted as it would be easier for him with his colleagues to be able to report that there had been full consultation, even though the recommendation might be not to give it to Telecom.<sup>1</sup>

What is clear from this quotation is that Duffy was primarily concerned that the appearance be given to his colleagues that Telecom had been fully consulted over the ownership arrangements. It was politically necessary for this to be seen to be done even though Duffy recognized it would not affect the Department's position. DOC was against this taking place in the form suggested by the Minister. This reflected their belief that there should be a separate organization to own and manage the satellite system. The primary reason Kane gave Duffy for the Department holding this position is recorded in his 'Note for File'. Kane recalled,

He (Duffy) asked why we felt a company was preferable to, say, a statutory authority. I commented that flexibility was the key note in satellite technology and that the management/administrative structure ought to be capable of rapid changes and this was more possible in a company structure than in a statutory authority.<sup>2</sup>

Kane's justification, smacking of technological determinism, was not enough to deter Duffy from insisting that consultation take place with Telecom. The Department was equally determined that it would not, unless in a manner in which it could be confident that the outcome would not deliver the project into Telecom's control. As such DOC stalled Duffy's initiative and the matter was not placed before the Minister again for two weeks. On 16th May 1983, the issue resurfaced in a brief prepared to respond to the Minister's request. In this brief Kane cites a letter from Telecom's Managing Director (May 9th), commenting on the Davidson Report, in which it was advised,

...on the assumption that the satellite project proceeds, Telecom is clearly best placed both technically and operationally to integrate the satellite facilities into the national telecommunications and service delivery infrastructures efficiently and effectively, and stands ready to do so. Clearly in assuming responsibility to integrate the satellite facilities in this way it would be crucial to ensure financial arrangements which satisfactorily recognise the major funding obligations which the satellite represents. It is also considered that the potential financial burden of the satellite can be minimised by using the satellite facilities as an input to end user services delivered by Telecom.<sup>3</sup>

Kane went on to suggest,

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<sup>1</sup>.Kane, V.(First Assistant Secretary, Space,Telecommunications & Postal policy Division), "Discussions with the Minister, Monday May 2", Note for File, 3 May 1983.

<sup>2</sup>.Ibid.

<sup>3</sup>.Kane,V. "Aussat and Telecom", Brief for Minister, 16 May 1983.

This statement reflects Telecom's long held lack of enthusiasm for the satellite project. From the early 70's Telecom has been less than positive about the introduction of satellites in Australia.<sup>1</sup>

Recognizing, however, that the Minister's prime concern was the appearance of consultation as a political necessity, Kane was able to suggest an alternative.

I am not sure whether it would be appropriate now to consult Telecom on the ownership of the satellite. I do see merit however in discussions on working relationships between the satellite organisation (Aussat) and Telecom. Consultation on this basis would focus on the Government's policy for 'integration' of the terrestrial and space communications system. In order to have worthwhile consultation with Telecom, it would be desirable that we assume, for the purposes of the discussion, that the satellite communications system would continue to be owned and operated by a separate organisation established for the purpose.<sup>2</sup>

By this manoeuvre Kane attempted to placate the Minister's desire for the politically correct action to be seen to be done, while at the same time starting a dialogue with Telecom premised on DOC's preferred organizational structure. Although Telecom could be effectively shut out of the decision making process during the early months of the Hawke Government, the Department still had to contend with the project's two most persistent critics - Finance and the ATEA. In meeting these challenges after the change of Government the Department would draw heavily on the resource it had constructed to defend Aussat.

### Computer Models and the Department of Finance

When Michael Duffy ordered his new department to undertake an assessment of Aussat's cost and viability in March 1983, the reason he proffered was the need for his fellow incumbents in Finance & Treasury to be able to review the project. Duffy wrote to Lansdown on the 23rd March 1983,

I refer to the discussion of 22 March 1983 and confirm that the Department will provide a memo updating the costing. It is my intention to also have the issue of cost examined by relevant Ministerial colleagues, being the Minister for Finance and the Treasurer. Having regard to the current economic circumstance and, in particular the Budget deficit, I consider it necessary for the new Government to be fully briefed on the cost issue by all relevant Departments. In addition, I consider it necessary to have the Attorney-General's Department advice on the legal liabilities incurred to date as a result of contracts entered

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<sup>1</sup>.Ibid.

<sup>2</sup>.Ibid.



into by Aussat. Because of the obvious time problems, it may be more convenient for the Department to forward direct to both Treasury and Finance the information on costs as requested herein, or alternatively, the request could be made through my office on receipt of the information from you. However, because of the difficulty with time, it would appear to me that the former proposal would be more efficient.<sup>1</sup>

As with the Ministerial request for Telecom to be consulted on the question of control, the Department was reluctant to strictly comply with Duffy's directives. DOC would accommodate the Minister but on its own terms. The assessment took place but not necessarily the way Duffy envisaged. Over the next two weeks the assessment was prepared by Don Cocks and John Maclean, relying largely on Aussat's financial models. Asking Aussat to prepare an assessment of the project's financial viability inevitably produced a tendentious endorsement. After being re-worded by the Department the assessment noted,

Aussat concluded from its latest assessment of the system's financial viability that the system will be a self supporting, commercially based operation discharging its debts, re-generating and maintaining the purchasing power of capital, covering all operating costs and offering a fair rate of return on invested capital to its owner.<sup>2</sup> (Underlined in Original)

The assessment drew on the Hill Samuel model in two ways. First it noted that Aussat's financial advisers had produced models which showed the project would be viable. Secondly, it largely repeated information drawn from those models and consequently parroted Hill Samuel's assumptions without question. For instance it repeated the claim that Aussat's proposed tariffs compared favourably with those being offered in North America. The fact that systems such as IBM's Satellite Business Service were generating huge losses was either ignored or unknown.

In addition, as with the Minister's directive that Telecom be consulted over control, the assessment returned the advice that all relevant departments including Treasury and Finance had been provided with all 'pertinent information'. As has been noted the DOC was highly selective as to the information passed to these Departments, lest it should be used against the project. The obvious inference from the assessment given to Duffy was that the Department was still reluctant to pass information to Finance & Treasury. As in the case of consulting Telecom over control, DOC ensured that the Minister understood

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<sup>1</sup>.Duffy, Michael. "Re Australian Communications Satellite System and Radiated Subscription Television Services", Ministerial Memo to the Department Secretary, 23 March 1983.

<sup>2</sup>.DOC, "Review of the Financial Position of the Satellite Project", 18 April, 1983

that Finance & Treasury were against Aussat proceeding. The following paragraph expressed these Department's opposition to the project,

The Department of Finance vigorously opposed many of the decisions taken last year on the project proceeding. The Treasury Department took a similar view of the project. Despite the extensive work done by Aussat and this Department, Finance was of the view that the project had not been justified on economic grounds. This view was strongly contested by the Department and both views were considered by the then Government on numerous occasions.<sup>1</sup>

It is interesting to examine the wording of the above quotation, in that the word 'contested' is used rather than disagreed or opposed. As noted before the work done by DOC and Aussat was for the prime purpose of 'contesting' the issue with Finance. The modelling was not undertaken to evaluate the decision to proceed in acquiring a satellite system but to justify that course. In fact because past modelling had been predicated on the need to find the project viable, the Department was locked into accepting Aussat's advice. Not that DOC, convinced that the project was justified on other grounds, wished otherwise. Aussat was turned to as co-constructor of the defensive resource.

It was a strategy which worked very successfully for the Department on a diverse range of questions. During this period Lansdown would often initiate and shape the advice he wished to receive from Aussat. As a skilled bureaucrat he knew that this would allow him to present advice from Aussat to the Minister in accord with the Department's preferred position. For instance, in a memo to Hugh Payne on 8th April 1983 Lansdown noted,

I rang Graham Gosewinckel today to encourage him to have a letter sent from Stan Owens to the Minister about the importance of an appropriate use for the 30 watt transponders. I also suggested that the letter should make appropriate comments on Aussat's financial assessment of the overall project; further, that the letter should dismiss the radio program by Dr Swann as garbage.<sup>2</sup>

DOC also turned to Aussat on the question of Aussat's legal liabilities. On the original ministerial memo from Duffy to Lansdown requesting information on this subject, the latter penned in after "...legal Liabilities..." the words "and forward obligations".<sup>3</sup> Clearly the Secretary wanted advice which emphasized the binding nature of the contracts

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<sup>1</sup> Ibid.

<sup>2</sup> Lansdown, R.B. "Minute Paper to Mr Payne", DOC, 8 April 1983. The radio programme mentioned was "Communications in Confusion or Can White Elephants Fly?", Background Briefing, ABC Radio, 3 April 1983.

<sup>3</sup> Lansdown's notes are added to Duffy's Ministerial Memo, "Re Australian Communications Satellite System and Radiated Subscription Television Services", 23 March 1983.

which had been signed, but phrased in such a way as to imply the continuation of the project. As such it was not to the Attorney-General's Department for which Lansdown turned to for advice, but Aussat. Lansdown wrote to Gosewinckel on the 8th April 1983 stating,

You may be aware that the Minister also requested that I seek advice from the Attorney-General's Department on the legal liabilities and forward obligations incurred to date as a result of the contracts entered into by AUSSAT. It is possible that a suitable assessment from the Company's legal adviser might meet the Minister's requirements. To this end I would appreciate your arranging for the advice. It may be the case, however, that the Minister may still wish for the Attorney-General's involvement, but I think it appropriate, in the first instance, that such advice come from your end.<sup>1</sup>

As the covering letter from Lansdown to Duffy which accompanied delivery of the assessment to the Minister on 18th April 1983 makes clear, the request had been acted on but but not in the specific terms laid out by the Minister. Firstly, Aussat rather than the Department had largely authored its own financial viability assessment. This negated any possibility of an impartial analysis. Secondly, the Department turned to Aussat for legal opinion rather than the Attorney-General's Department as directed. Third, the information was not directed straight to Finance and Treasury and by the 18th April 1983 Lansdown had still made no arrangement for this to be done.<sup>2</sup>

It was not until the 19th May 1983 that Duffy wrote to John Dawkins,

My Department has provided me with a comprehensive report dealing with the financial viability of the National Communications Satellite System. I enclose a copy of the report for your information and would appreciate any comments you might wish to make on it as soon as possible; hopefully within 2-3 weeks.<sup>3</sup>

This letter was to set off an extraordinary series of correspondence between Duffy and Dawkins.<sup>4</sup> The first response to Duffy's initial correspondence was a letter from H.G.Heinrich (Principal Adviser Transport and Industry Division) to Vin Kane in which

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<sup>1</sup> Lansdown, R.B. "Letter to W.G.Gosewinckel", 8 April 1983.

<sup>2</sup> The tactics used by Departments to manipulate the Treasury have been described in Weller and Cutt, *Op.Cit.* pp 90-91. The Aussat policy process included most of the better known tactics, including providing insufficient or too much information; delaying sending information; underestimating actual costs; and getting the prior commitment of a minister, perhaps through a public statement, before the matter is widely discussed, which has the effect of binding Treasury to a certain course of action.

<sup>3</sup> Duffy, M. "Letter to John Dawkins", 19 May 1983. It is interesting to note that the report given to Finance was not identical to the actual report as implied in Duffy's letter. Finance's copy was an abbreviated version.

<sup>4</sup> These letters were released by the Department of Finance under a freedom of information request. Hugh Payne thought that this exchange was a mistake. From the Department's end most were drafted by Vin Kane and this reflected the lessening influence Payne had on the project after 1983.

he voiced reservations about Aussat's latest assessment. Heinrich was critical of the fact that much of the information used by Aussat was over 12 months out of date. For instance Aussat's 1982 business model did not include current (1983) exchange rates and thus did not accurately reflect future interest and loan payments. Heinrich also noted that the project's viability depended on certain policy decisions which had not been taken, and concluded,

In the light of the foregoing comments, it will be clear to you that we continue to believe that some (much?) of the detailed figuring done by Aussat on its likely/possible financial viability in future is based on assumptions which are (or at least appear to us to be) questionable.<sup>1</sup>

As with much correspondence, the most revealing comments are often appended onto letters circulated within a Department. In the case of the above letter Heinrich added a note for a colleague,

Mr Scholes

Another 'warning shot across the bows' ...[one word unreadable]... the proposed Cabinet Submission on Aussat. Would you pls check on the satellite related expenditures by the ABC, Aviation and Telecom shown in the report mentioned below. My recollection (which could be wrong) was that the figures quoted by Aussat in Attachment C were on the low side and incomplete. (signed) H 3/6<sup>2</sup>

Finance was indeed skeptical of Aussat's latest assessment and quite rightly concerned about some of the assumptions built into Aussat's financial models, given that they were premised on unresolved policy areas.<sup>3</sup> Heinrich's next step was to draw up a background briefing to be attached to Dawkins' reply to Duffy. It is worth quoting this document extensively both as background to Dawkins' reply and Finance's position on the satellite in 1983. Heinrich wrote,

We have delayed giving you any draft response to Mr Duffy's letter before this because of the sensitivities (and uncertainties) surrounding the satellite project at the present time and because we have been seeking, at the official level, some additional information from the Department of Communications and Aussat to enable us to advise you - a little more

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<sup>1</sup>.Heinrich, H.G. "Letter to Vin Kane", 3 June 1983.

<sup>2</sup>.Ibid.

<sup>3</sup>.As stated before Aussat and DOC had to be very careful in their handling of proposed tariffs. If they were set too low the models would not show the system to be viable. If they were aimed too high, the costs to predominantly public sector users would rise prohibitively and leave the project open to criticism from finance. Lansdown clearly recognized this in his advice to Vin Kane on the day Duffy requested an appreciation paper on the project's cost. He wrote, "A crunch point will be a prospective level of transponder tariffs, bearing in mind the working advices given to the ABC about the basis on which it should make its calculations." Lansdown,R.B. "Financial Outlook for Aussat", Minute Paper, Office of the Secretary, 23 March 1983.

confidently than would otherwise have been the case - about the 'validity' of the comments and, especially the conclusions, in the comprehensive report on this matter which Mr Duffy sent to you last month for information and possible comment. We have received some - but not all - of the additional information we requested....As you are no doubt aware, any assessment of the likely/possible financial viability of the proposed domestic satellite communications system depends very heavily on the particular assumptions made about a number of key 'policy' issues which have yet to be considered, let alone resolved, by the present Government. Among those issues are the likely inter-relationship (eg, the nature and extent of the competition, if any, that will be permitted) between Aussat and Telecom in the future; the type of regulatory constraints and/or bureaucratic controls that will be deemed necessary to ensure such competition is 'fair' and to minimise the prospect of wasteful capital expenditures being incurred on the unnecessary 'duplication' of costly telecommunications facilities by Aussat and/or Telecom in future; whether private sector participation in the ownership of Aussat will in fact eventuate, and if not, whether Aussat should continue as a separate entity or be subsumed within Telecom; whether the ABC and the SBS should be allowed to use the satellite system....whether any restrictions will be placed on the use of the satellite system for broadcasting purposes by the major commercial television networks, which would all like to provide direct broadcasting services via satellite throughout Australia...The attached interim reply to Mr Duffy is intended to impress upon him the importance of some/all of these issues being resolved as quickly as possible - hopefully before the Government commits itself to proceed with the implementation of this (potentially very costly) project.<sup>1</sup>

Finance's tactic was to place politically sensitive questions onto the decision making agenda. Dawkins wrote to Duffy, on the 4th July 1983, seeking information on the unresolved policy areas outlined by Heinrich. In the letter he stated,

It would make little sense for the Government to proceed with this potentially costly project if its future viability were to depend to an inordinate degree on usage by various government agencies for 'social purposes' of one type or another which could not really be justified on economic grounds and/or which would involve burdens on the Budget that the Government might subsequently decide that it could not really afford, having regard to the many other competing claims made on the limited financial resources at its disposal.<sup>2</sup>

Dawkins went on to request consultation with Telecom on the financial viability of the project. In his reply on the 11 July 1983, Duffy expressed surprise that Finance was still waiting for more information and stated that he had been informed that a copy of Hill Samuel's June 1983 financial modelling report had been forwarded to Dawkins' offices. Once again we can witness the reliance on Hill Samuel figures being used as a defensive resource by DOC. Duffy also fell back on Hill Samuel's model to refute Dawkins' suggestion that Telecom make an independent assessment of the project. Duffy went on to say,

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<sup>1</sup>.Heinrich, H.G. "Correspondence from Mr Duffy Concerning the Likely/Possible Future Financial Viability of the Satellite Project", Department of Finance Minute Paper, 3 June 1983.

<sup>2</sup>.Dawkins, J. "Letter to Michael Duffy", 4 July 1983.

Your [Dawkins'] officers would know that I have already consulted Telecom. They would be aware also that Telecom has advised formally that on the basis of information provided by my Department [essentially the relevant parts of the 1982 Hill Samuel modelling], the satellite, efficiently and responsibly managed, would be financially sustainable.<sup>1</sup>

The choice of the word 'sustainable' over viable is interesting, in that Telecom had consistently argued Australia could have a domestic satellite system if it was willing to pay the price. DOF's comments in regard to the 1982 Hill Samuel figures were in the context of the Fraser Government having given the go ahead for the project, and elements of Telecom wanting to control the satellite system. If the Department had asked Telecom for a new assessment in mid 1983 a decidedly different response may have been elicited. By this stage Duffy's letters to Dawkins were becoming more terse. In the Letter of 11th July 1983, he wrote,

May I take this opportunity to say how unhelpful I find your Department's co-ordination comments on my Cabinet Submission which seeks authority for the satellite system to proceed. It seems to me that your officers could have offered more positive comments that Ministers might find constructive and relevant. I find it extraordinary also that the suggestion should be made by your department that a decision on proceeding with the project should be deferred until the Government has resolved the broadcasting and telecommunications policy issues ... Presumably the suggestion by your department acknowledges that in the meantime, AUSSAT and its contractors would proceed with the construction of the satellite, the earth station equipment and the earth station buildings in Perth and Sydney? Alternatively is the Department of Finance suggesting that AUSSAT should call a halt to all this work while the Government addresses these major policy matters? I note also the persistent claims by your Department that the satellite project will cost \$650m, or even more. In my draft submission, I described the public use of this unsubstantiated figure of \$650m as 'a mischievous attempt to mislead'. I had not expected to find my position on this matter challenged in this way by officers of your Department...<sup>2</sup>

Dawkins' response on the 12th July 1983 opened by stating,

I refer to your letter of 11 July 1983 in which you criticised the Department of Finance for its refusal to make a snap judgement - as it appears you would like it to do - on the complex question of the likely/possible financial viability of the proposed domestic satellite system...<sup>3</sup>

Then after essentially repeating the argument, made in an early letter, that because there were many areas of unresolved policy the project could become a financial embarrassment to the Government, Dawkins stated,

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<sup>1</sup>.Duffy, M. "Letter to John Dawkins", 11 July 1983.

<sup>2</sup>.Ibid.

<sup>3</sup>.Dawkins,J. "Letter to Michael Duffy", 12 July 1983.

It seems to me that you want the Department of Finance to now put its seal of approval on a project which it has consistently and strongly opposed ever since inception, because the Department genuinely believes that the implementation of a domestic satellite system to compete with Telecom could not (initially) be justified on economic grounds. The Department of Finance does not feel able to do that because nothing has occurred in the interim to warrant a change in the initial assessment - though...the Department acknowledges that, because of the large 'sunk' costs which have already been incurred by AUSSAT, it may not now be desirable for the Government to abandon the project.<sup>1</sup>

Dawkins was also critical of the fact that Duffy had not chosen to consult Telecom, pointing out that,

...the Department of Finance has no independent means of checking the accuracy of the various cost estimates which have been provided to it by your Department and AUSSAT. That is why I suggested to you asking Telecom to run a critical eye over this project and to provide an independent assessment of its future viability.<sup>2</sup> (Underlined in Original)

Dawkins concluded by once again challenging the assumptions which underlay the financial models being used by DOC and Aussat, arguing,

My Department is naturally loath to give any credence to, much less endorse, questionable assumptions with which it does not fully agree as this could conceivably prejudice its ability to deal objectively with the proposals involving the expenditure of public funds which might subsequently be put forward on the basis of those assumptions.<sup>3</sup>

While the Department of Finance was skeptical about the assumptions Aussat & DOC were working with they had great difficulty in refuting the conclusions without access to the information used to construct the models. Underlying the exchange between Duffy and Dawkins was a series of correspondence between H.G Heinrich and Vin Kane. As we have seen in an earlier quotation from this series, Heinrich was trying to extract background information regarding the review of the project ordered by Duffy. On the 17th June 1983 Heinrich wrote to Kane to specifically question those aspects of the review dealing with the costs of cancellation. In the assessment of Aussat, cancellation costs in mid 1983 would have been in the order of \$150 million as outlined in the table below:

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<sup>1</sup>.Ibid.

<sup>2</sup>.Ibid.

<sup>3</sup>.Ibid.

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	Expenditure to date (irretrievably lost)	Expenditure required in F/Y83/84 terminate project now	Total Loss to the Common- wealth
Commonwealth Equity to date in AUSSAT	\$24.0m		
Bridging Loans drawn down		\$70.0m	
Estimated Net Cancellation Costs for the:			
Space Segment Contracts		.\$53.0m	
Major City Earth Station Contract		\$2.0m	
Misc. Minor Contracts		\$1.0	
TOTAL	<u>\$24.0m</u>	<u>\$126.0m</u>	<u>\$150m</u>

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Heinrich was concerned that these figures had been 'padded' and sought documentary evidence in support of the \$150 million figure, stating,

...we have had some difficulty in fully comprehending that data. For example, the above[-]mentioned report does not explain why the equity contribution of \$24 million which the Commonwealth has made prior to that report should be regarded as being "irretrievably lost" if the project were to be terminated. (It is claimed that this would also apply to the additional equity contribution of \$25.5 million to Aussat which is being brought forward from 1983-84?). We would like to know whether all of the \$70 million which AUSSAT has apparently drawn down against its bridging loans to date has been expended. Nor has any detailed explanation been given of the estimate that the net cost to the government in cancelling the contracts which have been entered into by AUSSAT for the space segment, the major city earth stations and various other minor purposes relating to the satellite project would amount to \$56 million.<sup>1</sup>

Based on the above queries, Heinrich went on to ask a number of specific questions. He was not, however, to receive answers from Aussat which were to satisfy the Department of Finance. As Dawkins made clear to Duffy on 12th July 1983,

...the relevant letter from AUSSAT was couched in general terms and did not answer some of the specific questions which my Department had asked several weeks ago.<sup>2</sup>

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<sup>1</sup>.Heinrich, H.G. "Letter to Vin Kane", 17 June 1983.

<sup>2</sup>.Dawkins, J. "Letter to Michael Duffy", 12 July 1983.



As a result of this series of exchanges Finance did not support proceeding with the establishment of a domestic satellite system when the matter came before Cabinet, but they had been held off long enough for the project to proceed.

### Chapter Conclusion

Financial modelling was used to ensure certain actors remained neutral, to gain the tolerance of some and the enrolment of others. It allowed DOC to create a time and space in which to entrench the project. Law and Callon have called the process in which proponents secure for a project a degree of autonomy, the creation of 'negotiation space'.<sup>1</sup>

Once a decision has been made to go ahead with the adoption of a technology, the most common way to ensure its continuation is to construct a resource which can be drawn upon to enrol support and deflect criticism. In the case of the Aussat project it involved the construction of financial models. In one sense, what became debated was not the social reality of the satellite system, but a model of that technological artifact.

It should hardly be a surprise then that the actual performance of the system does not accord with the model's projections. Hugh Payne would later note "We were always guessing on costs and Heinrich used to love shooting at us on costs."<sup>2</sup> The use of modelling translated the debate into another context. Along the way this exercise of political ritual was used to secure assent to the framework of this debate and the translation of political issues into technical problems. In the next chapter we turn our attention to how the project was shielded from the other major opponent and examine how the Labor Party's position took shape.

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<sup>1</sup>.Law & Callon, "The Life and Death of an Aircraft: A Network Analysis of Technical Change", Op.Cit.

<sup>2</sup>.Payne, Personal Interview with Author, Op.Cit.

## Chapter 4

### The ATEA Campaign against the Satellite

The first campaign against the acquisition of a satellite system could be said to have been initiated on 22nd March 1978. On that date a meeting was convened by the Australian Telecommunications Employees Association on behalf of the Media Workers Council with representatives of the Federal Parliamentary Labor Party.<sup>1</sup> After an initial overview of the proposed satellite system Kevin Morgan, representing the ABC staff association, presented an economic case against the project. This was followed by each of the assembled unions stating their view on the effects of a satellite. Their opposition was uniform.

Bill Hayden, Labor's new leader responded by explaining the parliamentary party's lack of knowledge about the Task Force Inquiry. Hayden was anxious to assert the party's intention to consider the inquiry from the union point of view, particularly in the area of broadcasting and media policies. As such the minutes of the meeting reveal that discussion revolved around why Kerry Packer had proposed a satellite and what effect it would have on the broadcasting industry. The Unions argued that regional stations would become relays for signals emanating from Sydney. Hayden asked what argument the

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<sup>1</sup>.Minutes of the meeting were taken by at least two participants - Ian Hundley (APTU) "Meeting, 22 March 1978 at the Australian Government Centre Chifley Square, Sydney", 23 March 1978; and Charlie Miller (ATEA) "Ref: A.L.P. and Satellites" ( Minutes recorded in a letter to Col Cooper, Secretary NSW Branch ATEA), 22 March 1978.

Those recorded as being in attendance were: Bill Hayden (Federal Parliamentary Leader), Ted Innes (Shadow Minister for Post and Telecommunications) and Susan Ryan (Shadow Minister for the Media); and from the Unions : A.B.C.S.A.- Sahrah Luud (State Executive) and Kevin Morgan (Organiser); Actors Equity - Don Crosby (Federal President) and Uri Windt (Organizer); ATEA - Peter Green and Charlie Miller; A.T.& A.E.A. Rod Picket (A/g Federal Secretary); A.P.T.U. Ian Hundley (Federal) and Lin Hopkinson (State); P.K.I.U John McCarthy (for Federal); U.P.T. John Densi (Federal); A.P.T.O.A. Marilyn Brown (State Secretary).

ALP could mount against networking by the use of a satellite. Uri Windt, representing Actors Equity, pointed out that the television industry was already monopolized and that the satellite would further concentrate ownership.<sup>1</sup> As the meeting drew to a close Hayden suggested a national public approach be adopted so that the Unions would not be cast as Luddites. The ATEA responded that they were going to pursue a 'peoples' inquiry and in addition were preparing information for distribution to the members of all unions under the auspices of the Media Workers Council. Hayden and Susan Ryan approved of the approach and asked that it be carried out as soon as possible to enable the party to adopt the 'public attitude'.<sup>2</sup>

The ATEA's campaign strategy had been fundamentally shaped by the hostile reception they received at the White Inquiry, a week prior to the meeting with Hayden. From the questions asked by the Task Force, it was apparent to the Union that they would be portrayed as a selfish vested interest group, depriving remote Australian's of the chance to to receive communications services. The Department of Defence representative Brigadier McMillen put to Ken Turbet, Ian Hundley and Peter Green representing the APTU and ATEA,

...we've heard from a number of people in what one could call deprived areas as far as telecommunications are concerned, whose eyes light up when they're told that they might get on[e] T.V. channel or perhaps a telephone in some outlying areas. Do your unions have a feeling, quite apart from the representation that you make on behalf of the employees, do you take that into consideration that the social consequences of the introduction of a satellite may be significant in Australian terms in welding the nation together from a communications point of view and in giving some of the deprived telecommunications people the facility to join Australia by telephone and television.<sup>3</sup>

With this in mind the unions turned their minds to putting their case to rural Australia, and to that section of the community in whose interests, proponents claimed the authority to act.

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<sup>1</sup>.Hundley, Op.Cit. p 3. It was an argument the ALP would jettison in mid-1979. Susan Ryan proposed critiquing the White inquiry on the grounds that the ABC was not represented.

<sup>2</sup>.Miller, Charlie. Op.Cit. p 1. Ted Innes suggested gathering together all the points against the satellite to be found in the submissions to the Task Force and Susan Ryan suggested Geoff Evans could undertake this work.

<sup>3</sup>.National Satellite Task Force Conference, ATEA, Tape 3, Op.Cit. p 26

### The First ATEA Campaign

During 1978 the ATEA initiated a trial campaign along the lines of that discussed at the meeting. Together with the APTU they orchestrated a "Satellite Awareness Program" which was to be aimed at people in rural areas of Australia, who, in their words "have been told they have much to gain but in fact have the most to lose."<sup>1</sup> The campaign was organized by Peter Green an ATEA industrial officer. Green suggested to the ATEA executive that they select a 'pilot area', representative of provincial Australia in which they could conduct an intensive publicity programme designed to assess the potential of a national equivalent. The area chosen encompassed the South East of South Australia and Western Victoria. The main reasons for this choice were outlined in Green's proposal. These included,

(a) It has a population of almost 100,000 within a hundred miles radius of Mt Gambier - the majority of whom are served by one commercial television station - SES 8 Mt Gambier; and (b) The management of this station and also the Mt Gambier newspaper - are prepared to give favourable coverage to the campaign - and provide local information which can be used.<sup>2</sup>

The regional media interests were more than willing to cooperate with any campaign against what they perceived as Packer's Juggernaut.<sup>3</sup> As it eventuated, with the assistance of the Mt Gambier media the campaign was moderately successful. The City Council passed a resolution against the satellite and wrote to local parliamentarians. A local action group was formed, letters to editors written and generally a heightened awareness of the ATEA's position achieved. The campaign was not, however extended nationally.

The reason for its lapse is not hard to understand when it is remembered that in 1978, the ATEA was fighting much more immediate battles. In that year a dispute with Telecom, over maintenance arrangements for new exchanges, escalated into a major public debate over the introduction of new technology.<sup>4</sup> Whereas the time-scale on the satellite placed

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<sup>1</sup>.Green, Peter. "APTU/ATEA Satellite Awareness Program for Rural Australia", ATEA Archives, Melbourne, 1978. p 1

<sup>2</sup>.Ibid.

<sup>3</sup>.Rayner, Op.Cit. p 57 argues that 'regional areas believed they would become suburbs of Sydney' in terms of the programmes they received.

<sup>4</sup>.For a comprehensive account of this dispute refer Reinecke & Schultz, Op.Cit. pp 159-162. The dispute and Myers Committee (CITCA) inquiry over the next eighteen months on which Bill Mansfield

the system's introduction and perceived threat at least seven years away. In such circumstances and given the fact that the Government had still to confer its official imprimatur, the loss of momentum was, perhaps, inevitable.

An additional problem for the ATEA was that certain readily identifiable 'public groups' were enthusiastic about the potential for the satellite in areas such as public broadcasting.<sup>1</sup> While Hayden had expressed the wish that the ALP adopt the 'public attitude' of opposition to the satellite fostered by the ATEA campaign the Public Broadcasting Association of Australia (PBA) was a firm supporter of the acquisition of a domestic system. In 1976, the PBA appointed Chris Deacon to research satellite broadcasting and liaise with Telecom's Satellite System Task Group. In August 1977, Deacon was invited, and given financial assistance, by the U.S. State Department to conduct a study tour of the United States, to examine the uses being made of satellites.<sup>2</sup> He returned having witnessed developments such as the NASA ATS-6 experimental projects convinced of the potential for 'low cost public usage'.<sup>3</sup> The curious facet of the PBA submission, prepared by Deacon for the White Inquiry, is that in respect to ownership it mirrored the position being taken by IBM. The PBA proposed to the Task Force private ownership of earth stations and that the satellite be 'implemented by a Telecom un-related body'.<sup>4</sup> This position placed them in opposition to the Union on both counts.

The ATEA interpreted PBA support for a satellite system as exhibiting misunderstandings about the actual cost of using the technology.<sup>5</sup> Yet it did not escape their attention that, "This non profit enthusiasm has given an air of respectability to the otherwise all too obvious self-interest of commercial satellite users."<sup>6</sup> Certainly PBA support, along with other hopeful public sector users, such as the distance education

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the ATEA's national secretary served, ensured that the satellite issue was pushed into the background.

<sup>1</sup>.Deacon, C.W. Australian Government Task Force: National Communications Satellite System Inquiry. Submission on Behalf of the Public Broadcasting Association of Australia, January 1978.

<sup>2</sup>.Ibid. pp 4-5

<sup>3</sup>.Deacon, C.W. "Domsat: Circular Letter to those Organisations and Individuals who have an Interest in the Development of Australia's National Communications Satellite System", Centre for Continuing Education ANU, Canberra 7 April 1978. p 2

<sup>4</sup>.Deacon, "Submission to Task Force", Op.Cit. p 41

<sup>5</sup>.ATEA, "The Unanswered Questions - Satellite Impact on Communications and Broadcasting, ATEA, October 1983. p 35

<sup>6</sup>.Ibid.

lobby and the Royal Flying Doctor Service, was used as an effective tool to lobby government. It also made it difficult for the ATEA to appear to be adopting the 'public attitude'.

### The Parliamentary Campaign and the Labor Party

When Charlie Miller reported the results of the meeting between the Unions and Hayden to Colin Cooper, he stated, "My impression is that we have won the first step in getting ALP support around technology versus people."<sup>1</sup>

He was essentially correct, in that over the next year Susan Ryan, by then Shadow Minister for Communication and Media, led an opposition attack on the project in Parliament. Assisted by Kevin Morgan, who joined her staff in 1978, Ryan repeatedly badgered the Government during question time and was vigorous in her use of the media. It was to be the only time the ALP subjected the utility of the project to a critique. The party's public pronouncements altered noticeably in mid 1979, from focusing on the need for a satellite system to critiquing Government's planning process. Fisher has argued that Labor shifted its position on the satellite in response to the Government's announcement of an 'in principle' decision to proceed on 18th October 1978.<sup>2</sup> According to this interpretation Tony Staley's ability to simplify the issue into one of providing services to remote areas forced opponents to accept the need for a satellite and consequently of shifting the focus of their criticism, to the Government's planning process. Certainly when Ted Innes rose in the House of Representatives to respond to Staley's speech, he made clear,

The Australian Labor Party is not opposed to a domestic satellite per se. It is clear to us that a communications satellite can be a boon to the nation as a whole and outback people in particular.<sup>3</sup>

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<sup>1</sup>. Miller, Op.Cit. p 2

<sup>2</sup>. Fisher, Op.Cit. pp 73-74

<sup>3</sup>. Innes. E. Reply to Ministerial Statement, Hansard (18 October 1979). p 2230 and cited in Fisher Op.Cit. p 74. Susan Ryan added in the Senate "...the opposition is not opposed in principle to satellite technology. There would be no rational reason to be opposed to any technology in principle." Hansard p 1615, 23 October 1979.

While there is an element of truth in the Fisher's explanation of why Labor softened its position towards the satellite, it was more accurately the result of a complex internal party struggle premised on the ALP's relationship with the media.

The key authors in Labor embracing the need for a satellite were Senator John Button and his principal adviser Dr Geoff Evans, who together started work on changing the party's direction six months before Staley tabled the Working Group's report.<sup>1</sup> In May 1979 Evans produced a discussion paper for relevant Caucus committees on the possibility of the ALP using a domestic satellite to alter the structure of the Australian broadcasting industry.<sup>2</sup> It was a seminal work in terms of the Party's media policies throughout the 1980's. The impact of its underlying philosophy was clearly discernible in the Hawke Government allowing a concentration of media ownership and its corollary of increased networking in 1986/87. Because of the importance of this paper it is worth examining it in some detail.

In his paper Evans critiques the notion that media monopolies are inevitably a bad thing for the ALP. His paper contends "the most important bias of commercial television is cultural" and that "this kind of bias has nothing to do with monopolies."<sup>3</sup> For Evans there are two kinds of bias, which work against the Labor Party. The first stems from the fact that because broadcasting is a business and hence aims at profit maximization, management sets a socially conservative agenda. According to Evans, because television aims to win ratings it will try to reflect the social attitudes of the majority of its audience in its programming. Therefore it works against 'a party of reform'.<sup>4</sup> The second bias is a more explicit political bias, which stems directly from management policy. Evans explains,

If a station is part of a chain, it means that this 'line' can be more effectively propagated than if it is independent, therefore monopoly is dangerous in that sense. Knowledge that

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<sup>1</sup>.On the 12 May 1979, Button chaired a session on the proposed satellite system within the "Australian Labor Party National Seminar on Rural Australia". Speakers at this occasion included Nigel Dick, Ken Walton and Les Free. There was also an extensive question and answer session with Kerry Packer. Consult transcript made by T. Finley.(Unreferenced or Dated)

<sup>2</sup>.Evans, Geoff. "Discussion Paper on the Domestic Satellite and Broadcasting: For Caucus Committees", Senator Button's Office, May 1979.

<sup>3</sup>.*Ibid.* p 1

<sup>4</sup>.*Ibid.* pp 5-6

a media owner can 'deliver' many stations is a greater threat to a politician than if only one station is involved. However, one should look at their business/political interest and recent history to see whether propagation of a 'line' is dependent on tight centralised control, or occurs anyway. With respect to business/political interest all commercial television naturally sees a 'safe' business environment as in their interests, and by inclination, associate this with the Liberal-NCP. How many TV stations, even in 1972, said "vote Labor"? And in 1975 and 1977 practically all mass media was strongly anti Labor. It did not take any centralised control to cause this.<sup>1</sup>

Evans goes onto say,

The only exception to these 'natural' tendencies, could be the appearance of a businessman, or controller of capital who deliberately went against the trend.<sup>2</sup>

Evans essentially argues that media bias against the ALP will occur irrespective of how diverse the ownership and control of commercial broadcasting is, unless at least one owner or section of capital can be convinced that it is in their best interest to support the party. Thus Evans forwarded the notion that Labor should be about fostering the emergence of a diversity of sectors within broadcasting rather than fighting networking, because given a domestic satellite, "there will be strong technical reasons for centralised transmission of major television transmissions. Pressure for networking arrangements in the ownership and control sense will then follow. Given the conditions, they may be irresistible."<sup>3</sup>

Evans also saw advantages in networking, given a sympathetic owner, for the ALP He argued,

...the real reason for insistence on local ownership in the Sixties probably lay in local interests working through the Country Party to get a slice of what promised to be a very profitable business. There were, and still are, strong links between local country press, and their television, and the Country Party. (There is said to have been a verbal agreement made, at a Cabinet meeting, sometime in the late fifties, that the Liberals could have the cities, and the County Party the country.) The policy was of course couched in terms of local independence.<sup>4</sup>

Thus Evans was arguing that it was very much in the ALP's interest to encourage networking to break up the alliance between the rural media and the conservative parties, because,

The ALP suffers electorally (at no time more than now) from lack of support in provincial areas, especially Western Australia and rural Queensland, but regions generally. By and

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<sup>1</sup>. *Ibid.* p 6

<sup>2</sup>. *Ibid.* p 7

<sup>3</sup>. *Ibid.* p 13

<sup>4</sup>. *Ibid.* p 3



large, the lack of metropolitan up-to-date orientation is greatest in the media in these places. Because much of ALP thinking and proposed reforms is in the vanguard of ideas, it is to the Party's advantage to promote an Australia-wide culture, with the same media facilities available everywhere.<sup>1</sup>

Clearly Evan's believed that 'localism' did not work in favour of the ALP. Evans made several other points in favour of networking, albeit they did not directly impinge on the relationship between the media and the ALP.<sup>2</sup> What is important for us to note is that this was the first exposition of the 'mates thesis', which would become a central concern of the next Labor Government. As such Evan's paper was a clear attack on the position of the combined Unions which met with Hayden in early 1978. As has been stated, at that stage Hayden and Ryan accepted the Unions argument that a domestic satellite would lead to a further monopolization of the Australian media. Alternatively Evans argued,

Apart from general statements about the undesirability of monopoly, and public participation, the ALP has determined no specific policy on broadcasting and the satellite...So far, therefore, only warnings against the dangers of the satellite have been issued. However, the proposal is a radical one, and because of the interests involved, it could cause debate on broadcasting structure and policy in a way never before accomplished in Australia. Therefore, rather than just reject it on the easy and obvious ground of monopoly and advancement of the Packer interest, it would be better for the ALP to think through its objectives on broadcasting, to see whether there is any way the opportunity can be used to improve broadcasting. Since the proposal has a long lead time (maybe five years) the ALP as a government could be involved.<sup>3</sup>

Based on these arguments Button and Evans sought to overturn the position adopted by the ALP in accord with the Unions. Their first step was to muzzle Susan Ryan's spirited criticism of the satellite system. Kevin Morgan, Ryan's assistant at the time would later recall,

...Senator Ryan, the then Shadow Minister for Communications and Media, was discouraged from pursuing her opposition to the scheme. Pressure was applied by elements of the party who saw opposition to the satellite as presenting a negative and Luddite image. Senator John Button and his principal adviser, Dr Geoff Evans, were to the fore in applying that pressure and received support from the West Australian Branch of the ALP which was concerned at the electoral costs of being against such a vote winning proposal. For ALP policy, the effect was that by mid 1979 questioning of the satellite's costs and true utility had become muted endorsement of its ability to provide a greater range of broadcasting and telecommunications services in country areas.<sup>4</sup>

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<sup>1</sup> *Ibid.* pp 8-9

<sup>2</sup> Evans proffers an argument that by fostering networks, profitability will be strengthened and therefore "networks could finance higher levels of Australian content". *Ibid.* p 11 There is, however, no logical reason why one will inevitably lead to the other. In fact, as it has eventuated, the creation of networks has turned profit making companies into debt ridden entities which face tremendous pressures to cut costs, by purchasing cheap foreign programmes and reducing local production.

<sup>3</sup> *Ibid.* p 3

<sup>4</sup> Morgan, Kevin. "The Domestic Satellite - The Need for Action and Involvement", ATEA, 19 May

Thus by the time Tony Staley rose to table the Working Group report and announce the Fraser Government's intention to proceed with the project Labor had reformulated its position on the satellite.<sup>1</sup> Casting Senator Ryan as a 'Luddite',<sup>2</sup> something Hayden had hoped to avoid, and the idea that networking by 'mates' of Labor would be beneficial to the party, caused the position hammered out with the Unions in 1978 to be dropped.

The next significant stage of the Union's campaign against the satellite would not take place until the change of Government in 1983.

### A Labor Government and Aussat

From 1979 until the election of the Hawke Government, the ATEA was relatively quiet on the issue of a communications satellite for Australia. From time to time the Union would run a story in its journal, *Teletech*, or comment on the latest Government pronouncement, but it had little impact on the decision making process. DOC's position on these spasmodic outbursts was simply to ignore them, in the belief that this was the best way to defuse criticism. A Minute Paper from Hugh Payne to Bob Lansdown succinctly describes the DOC's position between 1980 to June 1983,

You have probably seen the attached publication of the ATEA. I think we should take the ATEA campaign against the satellite as being a serious matter which will require some official action to rebut some of the illogical statements or claims which the ATEA has and will continue to mount against the satellite decision. One of the keys is when to put any official responses into the public area. At the moment the ATEA has not been able to work its satellite opposition into a major area of controversy, although it will seek to do that. If the Government were to go in now and respond to the ATEA journal it would

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1983. In a later paper Morgan stated, "Regretably Senator Ryan didn't find such support for her position even from her own Party. The West Australian Branch was highly critical of her stand with Mal Bryce now the West Australian Communications Minister complaining that her stand prejudiced the ALP's electoral chances in the West. Similarly John Button who had formerly been responsible for Communications, was critical of her stand while Button's staff argued against her position with other members of Caucus. Eventually these pressures told upon Ryan who also had to bear the sexism visited on a woman who dared to speak about boy's technology. When Senator Ryan was described in the *Age* as the ALP's leading Luddite in mid 1979 it was a signal for her to back off. For Staley the lessening of the public debate and criticism from Susan Ryan was welcome, as was the fall off in the ATEA's campaign." Kevin Morgan "Aussat: The Background to the Decision", A Paper to the New South Wales ATEA Branch Country Conference, Clyde Cameron College, 9 May 1985. p 6

<sup>1</sup>. In 1981, Ian Sinclair introduced legislation to allow OTC to create a company to own and operate the satellite system. Hayden, who was at that stage still parliamentary leader, was prepared to oppose the bill in parliament, but was stopped by Senator Button convincing Caucus that there should be no amendments. Morgan, Kevin "Aussat: The Background to the Decision" *Ibid.* p 10

<sup>2</sup>. Walker, Tony. "Opening Up our Heavens" *The Age*, 26 July 1979

seem to be playing into the ATEA campaign of having an emotional reaction to the proposed satellite. Nothing of what I have said above is new or perhaps helpful, but I think we should run a file on statements by staff associations/unions which are critical of the satellite, analyse those statements, and be prepared to take some rebuttal action at very short notice.<sup>1</sup>

Thus, in relation to the satellite, the period between 1980 and 1983 was characterized by inaction on the part of the ATEA, which mirrored the deliberate lethargy of the ALP. Much of the reason for this was that, as in 1979, the Union had more pressing battles to fight. In 1982 they vigorously defended Telecom before the Davidson Inquiry.<sup>2</sup>

After the election of a Labor Government in March 1983, the Union felt confident that Davidson's recommendations would not come to fruition. As such they turned their attention once more to the satellite. Within the ATEA itself there were two positions on the system. One faction within the Union still advocated that the satellite should be strongly opposed. The alternative line of thought was couched in terms of 'political pragmatism', a popular shibboleth in 1983. Proponents of the second position felt that there was an inevitability about the system's introduction and, as such, the Union's efforts should be directed towards bringing the system under Telecom's control. Quite possibly the latter position would have been adopted by the ATEA, had not Paul Keating, in his 19th May 1983 economic statement, announced Labor's intention to follow the Coalition and to sell 49% of Aussat to the private sector. On the same day Kevin Morgan, who had worked as a private communications consultant since leaving Senator Ryan's staff at the end of 1979, phoned Colin Cooper the Federal President of the ATEA.<sup>3</sup> Morgan proposed a study on the cost and viability of Aussat, and the potential impact it would have on Telecom. Morgan argued,

It is Aussat's intention to provide complete, competing network services, with the use of microwave tails to connect users to the major city earth stations. These services would be in addition to the use of Aussat by large corporations of their own networks through large ground stations which they own and operate. Network security, which is a polite euphemism for the ability to preclude industrial action in the terrestrial network, is a central element in the satellite proposal and this feature of the services obtained through

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<sup>1</sup>.Payne, E.E. "ATEA and the Satellite", Postal and Telecommunications Department Minute Paper to the Secretary, 9 April 1980.

<sup>2</sup>.The ATEA found themselves defending Telecom after the latter's most senior management decided not to defend the organization publicly. For the best account of the Inquiry and Telecom's response refer, Reinecke & Schultz, *Op.Cit.* p 175.

<sup>3</sup>.Morgan was well known to the ATEA for his work against the satellite project since 1978. In addition he had worked on their submission to the Davidson Inquiry in 1982, as a consultant.

the satellite cannot be ignored. Network security has been the subject of high level studies by the former government and given the complexion of the present Labor Government may not be too far from its own interests.

Both the damage to Telecom that will come with satellite use and the threat to the ATEA's legitimate industrial interests demands close attention be paid to Aussat. It should not be meekly conceded that the satellite decision cannot be reversed or its deployment changes i.e. by its incorporation into Telecom. The simple truth with the satellite is that it has reached this stage of development mainly because it has not come under the critical attack and scrutiny it demands. Also to neglect addressing the satellite as fully and forcibly as possible would be to leave the effort expended on Davidson as a pyrrhic victory.<sup>1</sup>

Following his discussion with Cooper, Morgan was contacted by Peter Green, and asked whether he could prepare a brief for John Saunderson MHR for the seat of Deakin.<sup>2</sup> As a member of the Caucus sub-committee on Communications, Saunderson was looking for information to present to that committee on 25th May. The estimates of Aussat's costs and revenues, which Morgan then prepared for Saunderson, became the basis on which he was able to convince the ATEA executive to campaign against the satellite. Still open to debate, however, was the question of the campaign's main objective. Ken Walton the Assistant Federal Secretary argued that opposing the project could backfire on the ATEA, because in the event that the satellite was launched, such action would be detrimental to any future effort directed at gaining Telecom control. Walton felt that the campaign could have one of two objectives,

- (1) An initial attempt to keep the 'bird' on the ground.
- (2) In the event that a launch occurs, ensuring that control of the 'bird' is firmly in the hands of the national carrier and that 'private interests' do not have any controlling factors.

On the surface the two objectives can be looked upon as contradictory in that public disclosure of the second objective could tend to take the sting out of the first.<sup>3</sup>

In Walton's opinion the first objective would be difficult to achieve because,

- (1) of an estimated \$100m plus cancellation cost, which would be difficult to quantify against undoubted future losses.
- (2) of the electoral backlash in marginal (rural) seats for the Government.
- (3) of the public view that anti-satellite corresponds with anti-progress.
- (4) of whether the media chiefs have reached an 'understanding' with the ALP.

While for Walton the second objective had in its favour the fact that it might be achieved

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<sup>1</sup>.Morgan, Kevin. "The Domestic Satellite - The Need for Action and Involvement", Op.Cit. p 2

<sup>2</sup>.Saunderson would later be one of the few ALP politicians to speak out against the concentration of the Australian media in 1986/87. Refer Bowman, Op.Cit.

<sup>3</sup>.Walton, Ken. "Walton Proposal - Satellite Programme", ATEA, 1 June 1983. p 1

by holding the ALP to their published policy of public ownership, whereas the first could involve public criticism of a Labor Government. Thus for Walton, the "ATEA's position should be one of attempting to win the issue within the party and not be seen as an effort 'to bring down a Labor Government'."<sup>1</sup> Walton's 'pragmatic' approach suggested that even if the first objective was pursued the ATEA should endeavour to present Telecom control as a 'suitable political settlement'. Morgan argued that it would be 'dishonest' to take on board both objectives in the same campaign. He was convinced that expenditure on a satellite system's utility could not be justified on economic grounds, and as such was a national scandal. Following lengthy discussions over 30/31st May 1983, the ATEA executive decided, in the first week of June, to accept Morgan's suggestion of a month long campaign aimed at cancellation. As such it hired Morgan and two journalists Alan Knight and Peter Gurry, to research and coordinate the campaign.

### The ATEA Assessment

Morgan was convinced Aussat's most vulnerable point was its cost and financial viability. As such the first action he suggested was the preparation of a paper challenging the economic basis of past decisions to proceed with the satellite. Morgan proposed that this document would contain,

A detailed economic statement analysing costs of three satellites plus launch, ground control, transmit and receive stations involving all areas of Government expenditure including Aussat Pty Ltd and public users such as ABC, Telecom, Department of Aviation, SBS etc. This statement would include an examination of satellite encroachment on Telecom's high density trunk traffic and the propensity for cream skinning.<sup>2</sup>

As with Walton's suggested campaign, Morgan proposed as a first objective briefing senior Ministers on the results of his detailed economic research.<sup>3</sup> The three key Ministers identified were Hayden, Dawkins and Kerin.<sup>4</sup> A second 'layman's' paper was to be prepared for distribution to other Ministers and backbenchers.<sup>5</sup>

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<sup>1</sup>. Ibid. p 2

<sup>2</sup>. Morgan, Kevin. "Domestic Satellite Program", ATEA, June 1983. p 1

<sup>3</sup>. The second course of action was to make this material available to other Unions and the Media.

<sup>4</sup>. The latter two being suggested by Saunderson.

<sup>5</sup>. Those included were Young, West, Duffy, Cohen, Geitzelt, Uren, Howe, Holding, and Hogg (Hawke

The research which was undertaken by Morgan in late May and early June formed the basis of an ATEA booklet entitled, "Policy Issues and Satellite Costs."<sup>1</sup>

The paper contained three key arguments:

Firstly, that the costs to the Commonwealth were excessive in terms of the utility of the satellite system. The cost to the Commonwealth in the ATEA document is made up of, \$302 million (for the establishment of the basic system) and \$360 million (for the public sector users cost). These figures were in accord with the \$650 million figure quoted by Ian Sinclair as Minister for Communications in May 1982.<sup>2</sup>

Secondly, that Aussat's loading predictions were unrealistic and pre-empted significant Government decisions. Morgan believed that this reduced loading would result in costs exceeding revenue by \$459.14 million by 1992.<sup>3</sup>

Thirdly, because of this loss Morgan predicted that "Viability for Aussat could therefore only be secured by allowing Aussat or users of Aussat capacity to offer services in competition to Telecom."<sup>4</sup> In this context, the significant damage done to Telecom would force the abandonment of the cross-subsidy principle and a corresponding rise in charges for rural subscribers.

Morgan arrived at these conclusions after examining the experience of Telesat in Canada.

As he stated later,

I obtained Telesat's complete marketing plan from 1975 and compared the plan with the reality in 1982/83 against the annual report's financial statements. These demonstrated that Telesat was over \$300 million in debt after 10 years of operational realities of satellites.<sup>5</sup>

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staffer)

<sup>1</sup>.Although Morgan produced the booklet in early June, his research could be said to date back to his preparation for the initial meeting with Hayden in 1978. Morgan would later state that he conducted exhaustive research which included a study tour of Canada to examine Telesat's satellite experience; had read every thing produced by the White Task Force Inquiry including all twelve volumes of transcript and submissions; studied the report of the Working Group; obtained through two Fairfax journalists in mid May 1983 a draft copy of the Aussat Executive overview which contained estimates of demand on which the study was based; and "Most importantly by mid 1983 I'd put in five and a half years detailed work in understanding Aussat and seven years on telecommunications policy work and broadcasting policy work." Morgan, Kevin "In and About the preparation of the Report", Private Papers, Melbourne 1985.

<sup>2</sup>.Sinclair interviewed by Helen O'Neil on PM (ABC Radio) 6 May 1982.

<sup>3</sup>.ATEA, "Policy Issues and Public Sector Cost: A Study Into An Australian Domestic Communications Satellite System - 'Aussat'", ATEA, Melbourne, June 1983. p 5

<sup>4</sup>.Ibid.

<sup>5</sup>.Morgan, "In an About the Preparation of the Report", Op.Cit. p 3

Morgan believed Aussat would share Telesat's experience, because of its high gearing ratio, in that,

...it has only 100 million in capital and it has a loan package of \$465 million. The tariffs for the transponders even if all were sold could not service the debt, meet operational costs and make provision for financing the second generation of satellites. That is the real point made in my Study and it was my consideration of the costs of servicing the debt which led to my conclusions.<sup>1</sup>

To test the accuracy of the study, Morgan made a final draft available to Ken Davidson the economics editor of the Melbourne *AGE* newspaper. Davidson had been a long time critic of both the satellite project and the Department of Communications.<sup>2</sup> In May 1983 he had written an article in the *Age* under the headline "Scrap the too-costly satellite" in which he proclaimed,

If I were wielding the axe, the first economy would be in the communications area, with the chopping of the domestic satellite which will chew up about \$650 million in capital costs by the time it is due to be launched in 1985-86.<sup>3</sup>

Morgan would later state,

I knew he would refer it to his senior contacts in Finance for their comments before he accepted what I had concluded. He subsequently told me that apart from some minor criticisms of the methodology Finance were in agreement with my conclusions. The interest of Finance in my work was confirmed in late June when the relevant First Assistant Secretary Mr Harold Heinrich contacted Mr Peter Green of the ATEA Office and asked for half a dozen copies of the study.<sup>4</sup>

After the report was completed in mid June the ATEA initially printed 600 copies for distribution to branches of the Union, the media, the bureaucracy and politicians.

Armed with the study Col Cooper and Bill Mansfield met separately with senior Cabinet Ministers, including Duffy, Young, Hayden, Dawkins and Button.<sup>5</sup> These meetings produced a welter of press interest with the most common line taken by journalists being "Minister's 'shocked' at cost of Aussat". The ATEA was assured that a thorough review

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<sup>1</sup>. *Ibid.* p 7

<sup>2</sup>. Davidson, Ken. "Vested interests clash over satellite and the public interest goes begging", *Age*, 22 November 1982.

<sup>3</sup>. Davidson, Ken. "Scrap the too costly satellite", *Age*, 12 May 1983.

<sup>4</sup>. Morgan, "In an About the Preparation of the Report", *Op.Cit.* p 4 Morgan also checked the reports accuracy with a senior employee in Telecom's marketing branch who had a detailed knowledge of the Australian telecommunications market. Morgan's contact in Telecom thought it was a thorough analysis which deserved wide distribution. Morgan, "Background to the Preparation and distribution of the Document *Policy Issues and Public Sector Costs*", *Op.Cit.* p 2

<sup>5</sup>. Button had been the former opposition spoke-person on Communications and had a strained relationship with the ATEA. Reinecke & Schultz, *Op.Cit.* pp 176-78 His private secretary Dr Geoff Evans had been assisting Duffy ease into his new portfolio.

of the project's cost and viability was to be undertaken by the new Government. This action was already being undertaken by Dawkins in his role as Minister for Finance and Michael Duffy had requested a financial appreciation of the project as one of his first acts of office.

As shown in the preceding chapter, Duffy had instituted a review of the project as much out of concern for own his political future, than for any reason of rational policy assessment. It could be argued that this was a politically astute move by the novice Minister, in that, he was able to assure the ATEA officials that a review was being undertaken without making any new concessions. In fact when Mansfield and Cooper were told by Duffy "...that he wasn't wholly satisfied by the financial information that was being supplied by his department and Aussat,"<sup>1</sup> one interpretation that it is possible to make is that this was because DOC was having trouble enrolling DOF's cooperation in putting together a July Cabinet submission. Finance was aware that Duffy was covering himself, as is made clear in the briefing notes prepared for Dawkins' meeting with Cooper and Mansfield. Harold Heinrich wrote to Dawkins,

We have been getting conflicting vibes from the Department of Communications about their Minister's real attitude towards the satellite project and wonder whether there may not be a degree of 'political manoueuvering' in his approach to you for advice on it, vis-a-vis the ATEA et al who question or oppose the project. If the project goes ahead and it proves to be a 'fizzer' in that AUSSAT depends unduly on Government usage (ie. implicit if not explicit subsidy) of the system for its financial viability - as could conceivably well prove to be the case - then Mr Duffy would naturally wish any odium for that situation to be shared as widely as possible. On the other hand, a decision to 'can' the project now is not one than (*sic*) can or should be lightly taken - no matter what we may have felt about its (lack of) justification in the first place.<sup>2</sup>

The ATEA and the Department of Finance were by no means natural allies. Finance supported the general thrust of the Davidson Report in terms of the introduction of competition into the Australian telecommunications market. One of its main reasons in adopting this stance was to lessen the ATEA's industrial strength. In his briefing for Dawkins, Heinrich added that if the project proceeded the Department of Finance did not favour Telecom being given control because this would not diminish "...our vulnerability

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<sup>1</sup> Morgan, Kevin. "Aussat: The Background to the Decision", Op.Cit. p 13

<sup>2</sup> Heinrich, H.G. "Proposed Domestic Satellite System - Briefing for Meeting with Messrs Mansfield and Cooper of the Australian Telecommunications Employees Association (ATEA)", Department of Finance Minute Paper, 15 June 1983. p 3



to possible industrial disruption in future (as has occurred in the past)."<sup>1</sup> This suggests the ATEA may have been wise to campaign for a cancellation of the project, a position for which Finance was sympathetic, rather than for the incorporation of the project by Telecom for which the bureaucracy was united in its opposition.

On 13th July 1983 the ATEA lost the first objective of its campaign when Cabinet approved the continuation of the project. Even so the ATEA had succeeded in developing the satellite issue into what Hugh Payne had termed in 1980 a 'major area of controversy' and consequently into something the Department had hoped to avoid. Placing the issue before the public's attention meant that Aussat and DOC could no longer ignore the debate taking place outside the immediate policy process or its impact on internal deliberations. Graham Gosewinckel wrote to Bill Kelty the secretary of the the Australian Council Of Trade Unions in June 1979 to protest about the ATEA's campaign. Aussat had adopted a position similar to the Department. In line with Payne's strategy Gosewinckel noted,

To date AUSSAT has deliberately decided to refrain from entering into a public debate with those opposing the satellite system. However a recent letter from Mr Cooper of the ATEA to the Financial Review ...makes it necessary for Aussat to respond.<sup>2</sup>

The question of ownership still had to be resolved by the new Government and as such, in DOC and Aussat's view, the ATEA's study had to be debunked.

#### Aussat and DOC Respond.

As was the Department's usual practice when they required information, DOC requested a critique of the ATEA's study by Aussat. On 1st August Graham Gosewinckel sent Bob Lansdown the appraisal prepared by Aussat's financial staff.<sup>3</sup> Hugh Payne in turn passed Aussat's paper to Vin Kane with the comment,

Mr Gosewinckel asked me how the appraisal might be used to counter the ATEA paper. I

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<sup>1</sup>. Ibid.

<sup>2</sup>. Gosewinckel, W.G. "Letter to W.J.Kelty", Aussat, 3 June 1983.

<sup>3</sup>. Gosewinckel, W.G. "Letter to R.B.Lansdown", Aussat, 1 August 1983.

said send it here & we would look for the right opportunity to use it.<sup>1</sup>

Kane responded,

A number of opportunities come to mind for using this critique. It could be sent to Mr Fleming, with a suggestion that he make copies of it available to the Caucus Committee. If it could get into the hands of Mr Mansfield that might be illuminating. I think we should try to make a two page precis of the key points in the critique which could be used as an attachment to letters which the Minister might sign in answer to representations about the cost of the satellite system. Perhaps our colleagues in other departments might be interested also.<sup>2</sup>

The appraisal itself argued,

The ATEA's assertions that Aussat cannot be profitable with the services currently proposed for it and that the total cost of the satellite system to the Government will be \$650m (in 1982 dollars) are both incorrect and flow from fundamental errors in the methodology employed in the financial evaluation. The errors which invalidate the ATEA study derive from both unrealistic and uniformed assumptions regarding the engineering of a satellite system, usage, recovery of capital costs, and from failure to observe the financial disciplines and fundamental accounting relationships necessary for accurate forward financial planning assessments.<sup>3</sup>

In support of the above contentions Aussat then sought to demonstrate the validity of its assertions by the following,

- (1) It argued that the ATEA had unfairly incorporated the total capital and launch costs of the 2nd generation satellite in the last three years of its 1st generation model, resulting in their study exhibiting large annual deficits from 1989-92.
- (2) That the ATEA had assumed that the second generation satellites would be launched in 1992 when their study implied that the peak demand for Aussat could be met in a more effective manner by deploying the third on ground spare.
- (3) That the ATEA's study overstated interest charges, based on an incorrect high level of debt.<sup>4</sup>
- (4) That the ATEA's projected level of transponder take-up was pessimistic and inconsistent with the reality of demonstrated market place requirement.<sup>5</sup>

By the 10th August, Merryn Davies had prepared DOC's own appraisal of Aussat's

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<sup>1</sup>.Payne, E.E. Ibid. The Deputy Secretary's comment is written on the Gosewinckel "Letter to R.B. Lansdown".

<sup>2</sup>.Kane, V.J. "Aussat:ATEA Study", DOC Minute Paper, to Dr Cain, 5 August 1983.

<sup>3</sup>.Aussat, "An Appraisal of the ATEA's Study on the National Satellite System", July 1983. p 1

<sup>4</sup>.Aussat also claimed that the ATEA had overstated interest charges by some \$15 million due to an arithmetical error. They do not however point out the error and despite concerted efforts neither DOC or Morgan could ever find the error.

<sup>5</sup>.Ibid.

paper on the ATEA study.<sup>1</sup> After summarizing Aussat's critique, Davies made a number of pertinent comments regarding the competing claims of Aussat and the ATEA. She noted that they differed on whether the costs of the second generation should be included in models up to 1992. Morgan argued that if the system went ahead Aussat needed to launch second generation satellites in 1992 to ensure continuity. For him the question was whether they would be paid for by new borrowings or whether Aussat would have earned enough revenue to pay for the new satellites without taking on more debt. Based on the Canadian experience Morgan believed Aussat would not have generated sufficient revenue to pay for replacement satellites and would therefore need further loans. Aussat contended that it would be unfair to incorporate the cost of replacement satellites in their first generation models. They argued,

No business could justify such an action which would mean the users of the first generation would pay for both the first and second generation thus providing new customers in the second generation with a "free ride".<sup>2</sup>

Aussat's case rested on what they purported to be 'valid cash flow analysis' and 'fundamental accounting relationships', while Morgan's was premised on what he held to be the 'hard economic realities'. Davies remarked,

ATEA makes no provision for depreciation costs in its financial modelling. Aussat's figures for depreciation equate with the ATEA's cost of the second generation satellite and the figuring basically breaks even (this assertion was checked with and confirmed by Ms Maguire after our receipt of the ATEA paper last month). In this case Aussat's criticism may stem from misreading or overlooking notes to Table 5 on Satellite Revenues and Costs to 1992 (4.14(c)) which explains that instead of charging as an operating cost the depreciation of the first generation satellites, the costs of the second generation have been used as they are of similar magnitude to depreciation costs. If the capital costs of the second generation were taken out of the ATEA model and proper provision were made for depreciation as an operating cost the net result would be the same.<sup>3</sup>

As to Aussat's assertion that the ATEA's study was inconsistent because it included the costs of replacement satellites, in its modelling but implied that they would be underutilized and therefore Aussat could continue service in a more cost effective manner e.g. through later use of the third on-ground spare, Davies responded,

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<sup>1</sup>.Davies, Merryn. "Aussat's Paper on the ATEA Study", Minute Paper to Dr E.N. Cain (Assistant Secretary, Telecommunications Inquiry Branch),DOC, 10 August 1983.

<sup>2</sup>.Aussat "An Appraisal of the ATEA's Study on the National Satellite System", Op.Cit. p 2

<sup>3</sup>.Davies, Op.Cit. p 1

On one level, the criticism is a valid one. Nevertheless the question of protective tariffs and protection of capacity could be raised. Any systems failure on the first or second satellites, even if not fully utilised, could force the call-up of a third satellite within the life of the first generation.<sup>1</sup>

Regarding Aussat's third criticism of the ATEA's study, that interest charges were overstated based on an incorrect high level of debt, Davies argued,

The difference here is not one of accountancy but of assertion - that is, ATEA's interest charges have been set in conformity with projected loading levels. Interest liabilities are a function of the ATEA's pessimistic demand levels and are therefore consistent within the model.<sup>2</sup>

On Aussat's fourth point, that the ATEA underestimated transponder demand, Davies commented,

One would assume that Aussat knows its market and that there are sound bases for these claims. The ATEA is not privy to Aussat's confidential commercial information and, as its paper points out, has based its demand postulates on current government policy, known commitments and publicly stated intentions by potential users.<sup>3</sup>

The other area of disagreement which Davies analysed was Aussat and the ATEA's claims for the cost of the satellite project. Aussat's appraisal of the ATEA's study, reported the figure of \$650 million was 'repeatedly quoted' as the cost to the public purse. Aussat was highly critical of the use of this figure during 1982/83 after it appeared on a front page article in the *Financial Review*.<sup>4</sup> In April 1982 Stan Owens wrote to Sinclair on two occasions to claim that the figure was 'misleading' and stated that if the Department of Finance was providing this information it was both 'dishonest and unprofessional'.<sup>5</sup> A week after the second letter, Aussat and the Department were dismayed when Sinclair, in a radio interview, stated the 'all up' cost of the satellite would be \$650 million.

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<sup>1</sup> *Ibid.* p 2

<sup>2</sup> *Ibid.*

<sup>3</sup> *Ibid.*

<sup>4</sup> Snow, Deborah. "Last Minute Doubts on Satellite", *Australian Financial Review*, 23 April 1982. p 1

<sup>5</sup> Owens, Stan. "Letter to Ian Sinclair, Minister for Communications", Office of Chairman, Aussat, 23 April 1982 and 30 April 1982.

The figure of \$650 million was made up of the costs Aussat envisaged that it would bare in the period to 1986:

Capital Costs	\$270M
Interest charges	\$115M
Operating costs	\$35M
Contingency	<u>\$15M</u>
Total	\$435M

and the costs of other major public sector users,

Transport (to 87/88)	\$66M
ABC	\$68M
Telecom	<u>\$83M</u>
Total (plus \$435M).....	\$652M

From the point view of Aussat's proponents, it was politically disadvantageous for the all up cost to gain widespread currency as Cabinet considered final approval for the contracts. Arriving at the satellite system's 'total' cost always depended on the respective actor's definition of what should be included and over what time period. Aussat preferred to emphasize the initial capital cost rather than interest and operating costs, and was loath to use the 'all up' figure.

The \$650 million figure itself became an anathema to both Aussat and the Department, because they believed it was being misrepresented as the capital cost alone. Thus, by using the figure in the context of critiquing the ATEA study, Aussat could have expected that the DOC would concur. Instead, Davies wrote,

The figure has become more and more of a red herring in debate. Both DOC and AUSSAT appear to have been sidetracked by the use of the figure in early media coverage of the debate, and have spent much time trying to account for the sum. In fact the ATEA study does not even mention the figure (let alone 'repeatedly quote' it) except in the papers introduction where Mr Sinclair, then Minister for Communications, is quoted as setting 'all up' capital and public sector user costs as \$650m (p 13) and in Mr Mansfield's introductory statement (pii). The ATEA's 'double counting' referred to by AUSSAT cannot be isolated. The ATEA study does not juxtapose basic capital costs of the satellite system and public sector user costs to produce a \$650m total as asserted in the AUSSAT appraisal.<sup>1</sup>

Davies' account was an impartial analysis of the two documents. It was not however a reading senior officials in the Department, planning to use the Aussat appraisal for

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<sup>1</sup>.Davies, *Op.Cit.* p 2-3

political advantage against the ATEA, would have wished. If Davies' assessment of Aussat's appraisal was attached to the document it would have rendered it politically impotent and even conferred a degree of legitimation on the ATEA study. Davies herself concluded,

Both the ATEA paper and the Aussat critique illustrate the problems encountered in attempting a debate on costs when key variables are either unknown or in contention. Mr Kane has suggested that Aussat's critique may usefully be used in a number of ways - e.g. distribution to Caucus Committee, circulated to other Departments, summarised version to be attached to ministerials. As the ATEA document did not receive wide circulation (apparently 800 copies were printed but most were retained by the association for internal distribution) it is doubtful whether this critique would add greatly to most correspondents' appreciation of the issues. I suspect the Minister would anyway be wary of endorsing wholesale public distribution of a paper attacking the efforts of a major communications union.<sup>1</sup>

While those in DOC who felt the Aussat critique was of dubious worth, would have preferred to see it buried along with Davies' assessment, this was not to be the case. In response to a letter by Mansfield dated 20th June 1983, enquiring about Aussat's funding arrangements Duffy, (perhaps in response to Kane's earlier suggestion) surprised DOC by sending a copy of Aussat's appraisal to the ATEA in September 1983. Mansfield immediately consulted Morgan for his reaction to the appraisal. Morgan replied to the points made by Aussat and later recorded that Mansfield seemed satisfied with his rebuttal.<sup>2</sup> After reading the Aussat appraisal and Davies' paper, Morgan concluded in 1985,

The assumptions over loadings are the only point at which Aussat really disagreed with my study. My estimates were entirely consistent within known facts and government policy at the time...Subsequently the Government in bending over backwards to accommodate Packer and Murdoch have forsaken long standing ALP policy on media ownership and allowed networking (or strictly will allow networking) and this has eased Aussat's financial difficulties and let them sell capacity more readily.<sup>3</sup>

For Mansfield, most of this was now immaterial given the Government's decision to proceed on 13th July 1983, and the ATEA shifted their attention to fighting for Telecom control of the satellite system.

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<sup>1</sup>.Ibid. p 4

<sup>2</sup>.Morgan, "In an About the Preparation of the Report", Op.Cit. p 8

<sup>3</sup>.Ibid.

## The Question of Ownership

As was recorded in the previous chapters Telecom had never been enthusiastic about the establishment of domestic satellite system. It was their view that the cost of the system could not be justified by its utility. They did, however, usually add that the project could be sustainable if the Government provided the funds. Jack Curtis made Telecom's position clear at the 1979 Canadian Workshop when he stated,

...it is fairly expensive and of course it can be financed, and if the Government wanted to finance it and saw it as a high priority, no doubt they would provide a lot of money especially for it. As long as it's not all mine - that's all.<sup>1</sup>

In 1983, the change of government gave the national carrier possibly its first opportunity to control the satellite project, since Curtis had shocked the assembled bureaucrats at the Canadian Workshop. With the reaction to Telecom's position under Curtis vivid in their minds, Telecom officials adopted a peculiar stance towards the satellite in July 1983, at a conference organized by the Northern Territory Government.

The conference was held on 16th July 1983. Its original theme was to be that the satellite project should proceed, but in light of the Government's decision to go ahead on 13 July, attention was turned to the question of ownership. Kevin Morgan who attended the conference as an adviser to Mansfield and Cooper later recalled,

The Conference, held on 16 July 1983, turned into a Telecom and union bashing exercise, with Aussat making a direct plea to their bush allies for the system to remain separate from Telecom. Although the ATEA, represented by Bill Mansfield, entered into a strong defence of Telecom and argued the merits of Telecom ownership, this line found little support. Only Clive Quatermaine, a Telecom Commissioner, and ALP backbencher Graham Campbell, the member for Kalgoorlie, rallied to Telecom's defence. The performance from Telecom's senior officers, who were present, was at best less than enthusiastic for Telecom ownership. Indeed it suggested a certain ambivalence toward the satellite. From Telecom's view full ownership of the system would not be welcome unless the government was prepared to provide the subsidies that would be needed to make good the expected losses. But as long as another body bore the losses and transponder capacity would be available to Telecom at the same discounted rate as to other users, then Telecom would be happy to use the system.<sup>2</sup>

Telecom's indifference towards taking over the satellite could have been the result of several reasons. By this stage Telecom was careful not to publicly criticize the project as

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<sup>1</sup>.Curtis, "Communications Satellite Workshop:Canadian Experience and Australian Planning", Op.Cit. pp 48-9

<sup>2</sup>.Morgan, "Aussat:The Background to the Decision", Op.Cit. p 15

had been the case under Curtis. Those in the national carrier who favoured incorporation of a potential competitor, had maintained that Telecom should not comment on matters raised by the ATEA campaign lest it should prejudice their taking over of Aussat. While other speakers including Graham Gosewinckel, Ian Tuxworth and G.M. McMahon, rallied against Telecom control, Roger Banks, Telecom's speaker, did not mention the subject in his address. Nor were the Telecom representatives recorded as abstaining from the motion passed by the conference that "...the control of the satellite should be vested in Aussat which should continue as a relatively small, independent and effective organization."<sup>1</sup>

Telecom's private position was little different from its public air of indifference. Unlike its campaign against the Davidson threat, when Telecom withheld from a public defence but privately lobbied Canberra power brokers, on this occasion not even the latter action was taken. When Duffy finally coaxed a reluctant DOC to seek Telecom's view on the ownership question on 19th August 1983 (months after his original request) their reply was much as Vin Kane had foreshadowed. Telecom merely indicated that they would be willing to take over Aussat and outlined an option of making the latter into a subsidiary so that its losses could be readily identified. There was no detailed submission aimed at dissuading the Minister from following Aussat's line. While Duffy, who was primarily concerned with the fact that consultation was seen to be done, was not entirely pleased with Aussat's early advice on why it should remain independent, it was at least positive towards the system. Had Telecom presented a more propitious submission there is evidence that Duffy may have given them his support. In a meeting with Aussat's Deputy Chairman, in late June 1983, Duffy indicated his support for Aussat being absorbed by Telecom.<sup>2</sup> Duffy's acknowledgement that he favoured this course quickly jolted Aussat

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<sup>1</sup> "National Satellite Communications Project", Conference Proceedings, Alice Springs, 16 July 1983. p 113

<sup>2</sup> Brown, D.D. "Letter to The Hon M.J. Duffy MP, Minister for Communications", Aussat, Office of the Chairman, 27 June 1983. It is debatable what Duffy really believed. In May he told Vin Kane he had no preferred option on the ownership question, in June he told Aussat he advocated Telecom control and in November he voted against Saunderson's proposal to that effect in Caucus. Politically Duffy often opted for the expedient course such as calling Rupert Murdoch an 'Australian' even though he was a US citizen. Refer Bowman, Op.Cit.



into action. On 27th June they sent Duffy a long list of reasons why they should retain independence. The Aussat submission concluded,

The suggested absorption of Aussat into Telecom could place the national satellite in the hands of an organisation which has been unenthusiastic about its advantages and a union which has repeatedly advocated scrapping of the project. Such absorption would destroy a small and effective organisation which is working well and would put at serious risk the many benefits the satellite will bring to Australia.<sup>1</sup>

The points Aussat chose to highlight in their conclusion accurately reflected the general thrust of the document. The case for Aussat control was largely cast not around the benefits this would bring but in terms of the alleged disadvantages Telecom ownership would entail. The Aussat document even contained a veiled threat for the Government.

Of very considerable concern to the majority of users of telecommunications is the prospect of control of the whole telecommunications system by a single organisation. With the satellite and the terrestrial systems under different organisations, the problems of one system, including industrial disputes, need not necessarily flow to the other. Aussat's advice is that major commercial customers for the transponders would not be keen to commit funds to transponder leases if Aussat were owned by Telecom. In other words the viability of the satellite project would be clouded under Telecom ownership because of marketability doubts of transponders.<sup>2</sup>

The implication being put to the Government was clear. If it gave control of the satellite system to Telecom it faced a 'strike' by major business users. On 30th June, Kerry Packer sought a meeting with Hawke Keating and Duffy to put his views on satellite arrangements.<sup>3</sup> AAP a staunch Aussat ally was also lobbying on the satellite authority's behalf. Corporate Australia wanted an alternative to Telecom which would lessen the ATEA's ability to bring the network to a standstill as they had done in 1981. This dispute revolved around the Fraser Government's refusal to ratify a pay settlement negotiated between Telecom and the ATEA.<sup>4</sup> When the ATEA responded by cutting off communications to Government Departments in Canberra, senior bureaucrats in DOC held a series of 'crisis' meetings. In the 'communications siege', the Prime Minister was angry enough to want to call out the Australian military, until the logistics of such an operation and its limited chances of success were explained. This episode steeled the

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<sup>1</sup>.Aussat, "Why Aussat Should not be Absorbed into Telecom", Statement accompanying letter from D.D. Brown, *Ibid.* 27 June 1983.

<sup>2</sup>.*Ibid.* pp 2-3

<sup>3</sup>.ATEA. "Telecom and Aussat - Government Position and Actions", Melbourne (Unpublished) August 1983. p 3

<sup>4</sup>.Reinecke and Schultz, *Op.Cit.* p 50

Government's desire to acquire a satellite despite last minute financial doubts.<sup>1</sup>

Yet, in contrast to other groups, Telecom did not even lobby members of Caucus to seek control.<sup>2</sup> Graham Gosewinckel, who would later describe his own lobbying efforts as desperate, had no such reticence. Gosewinckel was supported in these efforts by allies such as Brian Perkins, of the Herald and Weekly Times Ltd, who presented a paper to the Caucus Infrastructure Committee on 30th June 1980, arguing that Aussat should not be subsumed by Telecom.<sup>3</sup> Aussat also had the advantage of the Democrat's support in the Senate which guaranteed a hostile reception for any move against its independence. The leader of the Democrats Senator Don Chipp outlined in a Melbourne radio interview in March 1984 the basis of their position. Chipp stated that Telecom should not be given control because,

...we just believe that to have something as important as that, to all Australians, virtually in the hands of one trade union, which could then hold a whole nation to ransom, would be terrible.<sup>4</sup>

Democrat intransigence was a fact that Duffy was able to exploit when the vote came before Caucus, because he could maintain that the Senate would reject legislation aimed at incorporating Aussat into Telecom.

While Gosewinckel was rallying support for Aussat's independence, John Saunderson a former ATEA official, marshalled those sympathetic to Telecom ownership within Caucus. Duffy's proposal was that Aussat remain a separate entity but wholly Commonwealth owned. As a member of the Victorian independents, who survive by wheeling and dealing between that state's centre unity and socialist left factions, Duffy was skilled in the art of political compromise. Kevin Morgan later noted,

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<sup>1</sup>.Snow, "Last Minute Doubts on Satellite", Op.Cit. p 1

<sup>2</sup>.It is possible that some of Telecom's senior management would not have been unhappy to see the satellite system remain out of the national carrier's control for reasons stemming from their own dissatisfaction with the ATEA. Reinecke and Schultz, Op.Cit. p 50 have documented the fact that some of Telecom's senior managers blamed the ATEA rather than the Government for Curtis's departure. However, if this affected their enthusiasm for owning the system, it would have been a reversal of the position Rollo Brett put to the Task Force. Brett stated he was upset by submissions to the Inquiry that argued Telecom should not be given control because of the potential for industrial action to disrupt services. Refer National Satellite Task Force Conference, APTU/ATEA, Tape 3, Op.Cit. pp 16-17

<sup>3</sup>.Perkins, Brian. "Statement on the National Satellite System", Presented to Caucus Infrastructure Committee, 30 June 1983.

<sup>4</sup>.Chipp, Don. "The 12.30 Report"(Interviewer Mike Edmonds) Radio 3AW Public Affairs, Melbourne, 5 March 1984.

When the vote came in Caucus it was close with Saunderson's pro-Telecom motion losing by only two votes. The key to that loss in early November 1983, was the change in position by Victorian member David Charles and the member for the Northern Territory John Reeves. Both had voted for Telecom ownership as members of the Communications sub committee of Caucus. But both had succumbed to the factional whip as Hawke and Keating gathered the numbers to keep Aussat out of Telecom's and the ATEA's hands. The concession wrought from the Right in the ownership debate was that the sale of 49% to the private sector would not proceed and that Telecom would hold a 25% share in Aussat.<sup>1</sup>

When Saunderson moved an amendment to the Minister's proposal to the effect that Aussat should become a wholly owned subsidiary of Telecom he was opposed by Duffy, Keating, Dawkins and Charles the head of the Caucus communications committee.<sup>2</sup> When the vote was put only 83 of the 105 strong Caucus took part.

### The Trial

On the 17th November 1983, the *Financial Review*, printed an editorial in support of the Government continuing the project. The editorial, written by P.P. McGuinness, was to initiate the final twist in the campaign against the satellite.<sup>3</sup> In the editorial McGuinness wrote,

Not surprisingly, the arguments of the Telecom Unions have had a strong influence in the council's of government. They have been willing to produce totally phoney estimates of costs and usage of the new satellites, employing supposedly reputable and independent commentators.<sup>4</sup>

When the editorial appeared, Kevin Morgan took it to be a direct attack on his personal credibility, and as a result sued John Fairfax & Sons Limited, the proprietors of the *Financial Review* for libel.<sup>5</sup> The contentious or 'phoney' figure, was the \$650 million all

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<sup>1</sup>.Morgan, "Aussat: Background to the Decision", *Op.Cit.* p 16 The move to sell 25% to Telecom was as much a budgetary move as a concession on the part of the Right.

<sup>2</sup>.Keating and Dawkins had been part of the Cabinet's Expenditure Review Committee which recommended selling 49% of Aussat in May 1983. The other members of the committee were Ralph Willis (Industrial Relations Minister) and Senator Peter Walsh (Resources and Energy Minister). The latter privately conceded that Aussat was a 'financial lemon' on several occasions in 1983 to Kevin Morgan. Morgan, "In an About the Preparation of the Report", *Op.Cit.* p 2

<sup>3</sup>.While it is true that the ABC Staff association took industrial action over the satellite in 1985, it was not primarily action against the project but in support of their claim that the Government had not sufficiently funded the national broadcaster.

<sup>4</sup>.McGuinness, P.P. "Editorial", *Australian Financial Review*, 17 November 1983.

<sup>5</sup>. Supreme Court of New South Wales, "Morgan v. John Fairfax & Sons Limited", No 17196 of 1983, February 1986.

up cost estimate, for the satellite system. In defence of the editorial during cross examination, McGuinness claimed Peter Gurry had told him over a 'convivial lunch' that the ATEA had made up the \$650 million figure 'in a pub'.<sup>1</sup> When pressed by Clive Evatt, representing the plaintiff, McGuinness agreed that he was 'shocked' by the revelation, and had written the editorial with Gurry's claim in mind. The weakness in the Defence's case, however, was that the figure had originated with Ian Sinclair, Minister for Communications, and been used extensively by the *Financial Review* (while McGuinness was Editor), before the ATEA's campaign against the satellite commenced.<sup>2</sup> The case remains unresolved at the time of thesis submission.

### Chapter Conclusion

Although Morgan was primarily concerned to protect his professional reputation, the trial can be interpreted as the final act of the campaign against the satellite system. The press coverage accorded to the proceedings ensured that the question of Aussat's financial viability, remained for a time, within the public purview. While the ATEA had been moderately successful in drawing the debate over the financial viability of Aussat into the public arena, it had not achieved its objective of stopping the project. The reasons for its failure were three fold. Firstly, key proponents of a domestic satellite system had not made the decision to proceed based on the financial viability of the satellite system. Thus although the ATEA had targeted an obvious weakness, it was an argument which carried little persuasive power with decision makers. Secondly, the desire to break Telecom's monopoly, and consequently weaken the ATEA's capacity to take industrial action, was clearly a factor in the decision to proceed. Proponents were obviously aware that 'benefits' such as this, were not economically quantifiable. The third reason the campaign failed was that the Unions opposing the satellite had lost the support of the ALP. Labor reversed its position on the satellite because of its timidity in the face of the charge of

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<sup>1</sup> NSW Supreme Court Transcript of Days Proceedings, *Ibid.* p 378

<sup>2</sup> *Ibid.* p 381

being 'Luddites', and because it saw television networking as being in the Party's long term interest. Given the promise of political advantage for the ALP and the 'sunk costs' outlined in Chapter Three, the ATEA's protestations about the satellite's viability were not enough to make Labor reverse the decision to proceed.

## Chapter 5 (Part 1)

### Planning the First Generation

The ABC has a long history of involvement with the satellite project. It is a little known fact that early in 1976 Talbot Duckmanton and W.J.B. Pollock, the Chief General Manager of Telecom, agreed to establish a joint study group on domestic satellites.<sup>1</sup> Telecom at that stage had a task group studying the feasibility of a domestic satellite for Australia. Telecom's internal group had in an interim report stated that future growth of public telecommunications was not sufficient to warrant the introduction of a satellite.

The report added however that any expanded broadcasting use of a satellite might change that situation. Thus in March 1976, Telecom allowed its group to "...extend its studies beyond areas of existing public uses, to consider new public services and specialized (non-public) services to complete the evaluation of a National Satellite System which would be integrated with the terrestrial bearer system."<sup>2</sup> The agreement to form a joint study group was as a result of Telecom's desire to discuss with the ABC, their prospective broadcasting requirements.<sup>3</sup> This evaluation process was overtaken in 1977/78 by events documented in earlier chapters.

The ABC made a formal submission to the Commonwealth Government Task Force on the NCSS on 17th February 1978 and representatives of the ABC attended a public hearing on

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<sup>1</sup>. Duckmanton, T.S. "General Manager's Report: Domestic Satellites", ABC, 29 March 1976.

<sup>2</sup>. Ibid.

<sup>3</sup>. The ABC's representation on the study group comprised: Mr John Hartley, Director of Corporate Planning and Research; Mr Colin Dean, Federal Director Television Transmissions; and Mr Carl Wilhelm, Assistant Controller of Technical Services.

the submission on 7th March 1978.<sup>1</sup> Immediately after the hearing, Harold White approached John Hartley, the ABC's Director of Corporate Affairs and principal spokesperson, to ask if he could expand on his remarks with further documentation. Hartley replied that he would undertake to do that but emphasized that the ABC's use of such a system would be dependent on likely costs which were not as yet known.<sup>2</sup> The supplementary submission produced by Hartley became the basis of the ABC's position on a domestic satellite between 1978-1981. It supported the introduction of a satellite subject to proper feasibility studies being carried out and sufficient allocations being made to cover the ABC's cost. As the ABC did not know what the costs would be and therefore could not comment on the economic viability the organization stated that its views should not be represented as a commitment.

Technically the idea of a satellite appealed to ABC boffins. Despite having reached 96% of the population, ABC engineers felt "...that the terrestrial bearer system had reached the end of its main potential as far as broadcasting was concerned and was now obsolescent. A satellite system could open up a new environment and could create greater potential for future development of broadcasting."<sup>3</sup> The ABC saw that the Government would be unlikely to fund new services outside the context of a domestic satellite service. Richard Harding, an ABC commissioner claimed that in the period 1975 - 1978, the ABC's appropriation had been cut in real terms by 28%.<sup>4</sup> Examples of extended services proposed for consideration by the ABC included teletext and a second national network.<sup>5</sup> With the possibility of these services not being seriously entertained by the Government outside the satellite planning process remote, the ABC deigned to support the acquisition of a satellite system.<sup>6</sup> Yet ABC

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<sup>1</sup>.ABC, "Supplementary Submission to Commonwealth Government National Communication Satellite System", April 1978. p 1

<sup>2</sup>.Ibid.

<sup>3</sup>.Hartley, John "Satellites: The Australian Position", ABC, 8 August 1978. p 8

<sup>4</sup>.Brown, Alan. Op.Cit. p 16

<sup>5</sup>.Ibid.

<sup>6</sup>.It has been suggested to the Author that ABC Radio saw the satellite as a chance to secure a second national network, and to that extent they didn't care if it inflicted a cost penalty on ABC Television.

officers such as Hartley always added that their support was conditional on proper analysis of the costs and benefits.

Hartley's early work on the economics of a domestic satellite was propitious. Working with figures costing transponders at \$1 million per annum, and assuming six would suffice for ABC needs, Hartley calculated that given current expenditure of \$6.9 million per annum on terrestrial bearers, a domestic satellite might even save the organization money.<sup>1</sup> Hartley cautioned that this was entirely dependent on transponder rates which were still undetermined, but added,

Assuming that appropriate provisions are made in any satellite system to meet the ABC's broadcasting requirements, it is envisaged that such a system would provide a new and expanded operational environment for ABC Radio and Television services.<sup>2</sup>

Duckmanton echoed Hartley's position in a letter to Lansdown on 10th December 1979,

The ABC has consistently maintained that it supports the introduction of a domestic satellite system subject to proper cost/benefit analysis being carried out and Government approval for the necessary funds being forthcoming.<sup>3</sup>

In early 1980 a working group was established to determine the financial impact on the ABC of a National Satellite system. The Inter-Departmental/ABC Working Group comprised representatives from P&T, Prime Minister & Cabinet, the Department of Finance and was chaired by the ABC. The initial meeting of this group was held on 27th March 1980.

When the ABC sat down for the first time to seriously address the costs of using a domestic satellite, it recognized it had to define the uses to which the system would be put. There was by no means uniform agreement within the Television and Radio industry on what the satellite should be designed to accomplish in the areas of distribution and broadcasting. The Federation of Australian Commercial Television Stations (FACTS) or at least the majority of its members had consistently rejected the idea of incorporating direct broadcasting based on its belief that this would lead to the demise of the structure of local metropolitan and regional

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<sup>1</sup>.ABC, "Supplementary Submission to Commonwealth Government National Communication Satellite System", *Op.Cit.* p 6

<sup>2</sup>.*Ibid.*

<sup>3</sup>.Duckmanton, T.S. "Letter to R.B.Lansdown", 10 December 1979. p 1



television stations. FACTS did however support the introduction of a relay satellite provided it was more economic and flexible than the current Telecom terrestrial system.<sup>1</sup>

As broadcasting to the outback was one of the Government's strongest selling points there was little chance that the system would be confined to distribution role. The ABC's position was,

The ABC would be greatly concerned if the satellite were to be regarded only as a distribution service to the detriment of improved program output. On a cost/ benefit assessment such an attitude might diminish the value of a satellite for broadcasting to the point where its viability could be questioned.<sup>2</sup>

About the same time the Inter-Departmental/ABC Working Group sat down to consider the financial impact of the system on the ABC, the Government gave approval for a remote area television service (RATS) using Intelsat. This system, which had been largely devised and planned by the ABC utilized Intelsat's Pacific satellite. This satellite had a 'spot beam' which instead of covering an area equal to a third of the world's surface was concentrated to cover Australia. This made reception possible with dishes between 6.5 - 7.5 metres in diameter.<sup>3</sup> In 1980 the Government also approved the provision of 50 earth stations over the subsequent two years to receive this signal. At that stage Hartley estimated terrestrial and Intelsat costs amounted to about \$10.5 million.<sup>4</sup> He added that cost of using the satellite system would be in the order of \$12 million.<sup>5</sup>

At the first meeting of the Inter-Departmental/ABC Working Group, Hartley opened the meeting by explaining that although the Commission had declared itself as in favour of a domestic satellite that support was subject to a cost/benefit analysis. He made clear that the Government should not only be made aware of the cost of the satellite itself but also of the

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<sup>1</sup>.The Federation of Australian Radio Broadcasters, representing commercial radio stations, was opposed to any course which might affect localism in commercial radio broadcasting and felt a satellite would have little application.

<sup>2</sup>.ABC Financial Analysis Working Group, "ABC's Use of a Domestic Satellite", Working Document, 1980. p 1

<sup>3</sup>.Hartley, John. "Satellites and the ABC", ABC, 1980. pp 3-4

<sup>4</sup>.Hartley, John. "Satellites in Broadcasting - Seminar", Hartley gave this information in reply to a question from Professor Busch, as to the cost of the satellite compared to the terrestrial system. Transcript, 1980

<sup>5</sup>.Ibid.

on-going costs such as use by the ABC.<sup>1</sup> For the ABC

...the operation of the satellite system was not merely a matter of transferring existing terrestrial operations to the satellite. Adjustments and improvements to the present ABC operations would be an essential part of operating the satellite system if there were to be appropriate benefits to justify costs.<sup>2</sup>

Hartley reported back from the meeting that,

The financial representative of the P&T Department was arguing that the only costs to be presented to Cabinet should be those directly attributable to the satellite itself.<sup>3</sup>

P&T were reluctant to include this cost because they wanted to contain the figure going to Cabinet. The representative Hartley referred to was Dr Les Witchard who argued that although "...service extensions may be logical or desirable but that they should not be linked with essential satellite costs."<sup>4</sup> The matter was resolved by the ABC representatives suggesting that "...two sets of figures should go to Cabinet, including those directly attributable to the satellite and those discretionary costs relating to the completion of the ABC's distribution network to enable the regional areas to receive two mono radio services and the FM stereo service."<sup>5</sup> This plan received the endorsement of the Satellite Portfolio Committee on 28th April 1980, and this decision was reflected in the Inter-Departmental/ABC Working Group's final report.<sup>6</sup>

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<sup>1</sup>Inter Departmental/ABC Working Group "Minutes of Meeting", 27 March 1980. p 1 The Group's terms of reference were: (1) To consider the cost/benefits of a domestic satellite in so far as use by ABC is concerned. (2) On the advice of the Satellite Systems Management Unit of the Satellite Project Office to describe the satellite system and options with respect to ABC usage; and to produce an estimate of costs to public funds which is as precise as possible within the available timeframe. (3) To consider and take account of any reduction in costs of existing, planned or future services. This will include costs of existing approved extensions to, and planned expansion of, terrestrial broadband bearers and lines which may become redundant within the satellite system.

<sup>2</sup>Hartley, John. "Domestic Satellite: Financial Analysis of the ABC Costs", ABC, 7 May 1980. p 1

<sup>3</sup>Ibid.

<sup>4</sup>Inter-Departmental/ABC Working Group on Financial Implications of Domestic Satellite., "Minutes of Meeting", 1 May 1980. p 2

<sup>5</sup>Hartley, "Domestic Satellite: Financial Analysis of ABC Costs", Op.Cit. p 4

<sup>6</sup>Inter-Departmental/ABC Working Group, "Domestic Satellite: Funding Implications for ABC", Report of the Inter-Departmental Working Group, May 1980.

Under the first category 'Direct Satellite Costs' the group calculated that operational costs totaling \$12-14 million would be made up as follows:

Leasing of transponders	\$12-14.25 millions
Leasing of studio co-axial tails (TV)	\$ 0.275 "
Maintenance changes @ 5% of capital	\$ 1.36 "
Program costs: Radio	\$ 0.6 "
TV	<u>\$ 0.25 "</u>
Total	<u>\$ 14.485- 16.735 M</u>

The transponder leasing costs comprised:

<u>Service</u>	<u>No. Of Transponders</u>	<u>Cost per Annum</u>
HACBSS	5	\$7.5M
TV Production/Distribution	1.5 or 3	\$2.25 or \$4.5M
Radio Exchange/Production	1	\$1.5M
<u>Radio Australia Distribution</u>	<u>5</u>	<u>\$0.75M</u>
<u>Totals</u>	<u>8 or 9.5</u>	<u>\$12.0 or 14.25M.</u>

The Report's capital costings varied according to different proposals, but including earth stations, at Capital Cities, Regional Sites and Conversion of Intelsat remote area TV earth stations approximated to \$27.1 million.<sup>1</sup>

Set against these direct costs were purported offsets for the most expensive and inexpensive capital cost options:

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<sup>1</sup>Ibid. p 3

Offsets (1980 prices) (Approx. only)

	<u>Option A</u>	<u>Option E</u>
Intelsat transponder costs		
Remote Area TV	2M	2M
TV Bearers no longer required	3.85M	3.3M
Itinerant Program Bearer Usage	0.3M	0.3M
Radio : MF Service	0.35M	0.35M
FM Service	<u>1.0M</u>	<u>1.0M</u>
Sub-Total	7.5M	6.95M
NBS line costs paid by P&T including regional studio to MF transmitters	<u>0.5M</u>	<u>0.5M</u>
Sub-Total	8.0M	7.45M
Transportation of Video Tapes	<u>0.1M</u>	<u>0.1M</u>
Total	<u>8.1M</u>	<u>7.5M</u>

Under the second category of 'Discretionary Costs' the report stated,

The discretionary costs for providing transmission facilities for a second regional radio network, and for extension of the FM service to the regions over and above the extensions already contained in the NB&TS 3 year installation program total some \$11.5 million of capital, with concomitant capital costs of about \$4 million required for associated regional studios.<sup>1</sup>

By 1981 these estimates had been revised include capital expenditures on HACBSS, programme distribution, programme contribution/exchange and Radio Australia at \$24.9 million and recurrent expenditure of \$19.6 million per annum. The cost of HACBSS was put at \$8 million per annum.<sup>2</sup> The 'discretionary costs' had been revised to approximately \$20 million. The cost offsets was now put at \$10.3 million.

In mid 1983 the ABC produced the following table with its projected operational costs up to 1989-90 without the initial capital cost of the ABC establishing its own major city earth stations but with rental costs<sup>3</sup>:

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<sup>1</sup>.Ibid, p 8

<sup>2</sup>.ABC Corporate Affairs Dept. "HACBSS/State Distribution", 14 April 1981. p 2

<sup>3</sup>.Muldoon, John. "Development of Satellite Related Elements of the ABC National Network : An Indicative plan 1982-1992', DOC, 1983.

Total Operational Costs

	1984-85	85-86	86-87	87-88	88-89	89-90(and thereafter)
	\$M	\$M	\$M	\$M	\$M	\$M
Transponder Rentals:						
HACBSS		11.230	14.970	14.970	14.970	14.970
Other		8.270	11.030	11.030	11.030	11.030
Hire Major City Earth Stations		3.750	5.000	5.000	5.000	5.000
New terrestrial Lines - 2nd Radio Network			0.300	0.300	0.300	0.300
Program making costs		1.200	1.200	1.200	1.200	1.200
Earth Station Maintenance and Administration cost	0.121	0.030	0.109	0.153	0.135	0.116
Less Savings:						
Remote Area TV Service		1.200-	2.400-	2.400-	2.400-	2.400-
Terrestrial Lines					2.250-	4.500-
Net \$M	0.121	23.280	30.209	30.253	27.985	25.716

In September 1985 the ABC again revised its forward estimates in the following table<sup>1</sup>:

Transmission Costs Operations (\$M)

	85/86	86/87	87/88
AUSSAT HACBSS	13,891,008	24,200,000	26,620,000
Aussat TV Inter	1,301,415	5,280,000	5,808,000
Aussat Radio Inter	<u>1,401,821</u>	<u>2,785,200</u>	<u>3,063,720</u>
Total Aussat	16,594,244	32,265,200	35,491,720
Total Non Aussat	2,544,000	1,235,000	698,500
<b>Total Satellite Operations</b>	<b>19,138,244</b>	<b>33,500,200</b>	<b>36,190,220</b>

Offsets terrestrials = 10,440,000 86/87  
= 15,660,000 87/88

Throughout this process of revision of forward estimates the ABC repeatedly pointed out that appropriate funding would need to be allocated by the Government to cover the cost of using the satellite. Early on, after Hartley's initial optimism, it became clear that as a distributive system the satellite was going to be more expensive terrestrial technology and it was always self evident that HACBSS would be an additional cost. During the decision making process leading to the acquisition of a domestic satellite system the ABC was reassured by successive Governments and the bureaucracy that appropriate funding would be extended. Without such reassurances it is doubtful that the National Broadcaster would have given its support. In the initial planning stages Jack Curtis briefed the ABC's Chairman on what he thought the satellite would mean for the ABC. After outlining what the ABC presently spent with Telecom which he noted was less than \$8 million and noting that on any estimate costs would increase if the satellite was used, Curtis inquired as to whether the ABC thought it would be crippled by the project. He was greatly surprised when the reply came that the ABC received funds for capital development and operating money. In the Chairman's view the two were never linked. Curtis recognized the naivety of this position but could do little to see his caution heeded.

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<sup>1</sup>McGarrity, Ian. "Forward estimates 86/87, 87/88 - Satellite", ABC, 5 September 1985.

A withdrawal by the ABC from the negotiation process would however have severely jeopardized the entire project, so the polite fiction that there was a distinction between capital and operating appropriations was maintained.

One such reassurance occurred on 26th March 1984 when in a meeting with the Departments of Communications and Finance the ABC was told that the Government accepted responsibility for the satellite costs of the HACBSS remote area service less the element of offsetting the ABC would gain by use of the satellite for programme distribution.<sup>1</sup> The Department of Finance added,

...any further use the ABC would wish to make of the satellite for distribution and exchange purposes should be offset by reductions in expenditure on terrestrial circuits. It stated further that any 'enhancements' that the ABC would wish to make to program production and transmission through using the satellite should either be offset by terrestrial circuit savings or be the subject of New Policy approvals. In short, once allowance for HACBSS had been made, the ABC was expected to 'live within' its current circuit budget allocations.<sup>2</sup>

While the Government was indicating to the ABC that it would fund the additional costs incurred, the national broadcaster was beginning to come to terms with the actual costs of satellite technology through early negotiations with Aussat. In the opening negotiations Aussat told the ABC that they along with Telecom and the Department of Aviation would be 'preferred customers', and that they would be charged a premium for the priority they received on the satellite system. The ABC realized that without Government support it would end up paying for a system it was bound by legislation to use. Aussat's pricing policy moved one senior ABC engineer to record in a memo "It sounds like robbing to me because obviously 'preferred' means 'captive'".<sup>3</sup> He continued,

It is fair enough to pay more for a 30W than for a 12W transponder, as it represents a greater slice of the resource, but one should not have to pay more for the spot beam - this is a ploy so that the government (through us) subsidises the commercial stations.<sup>4</sup>

The ABC's role was made clear to its Managing Director in 1984, when the Chairman of the

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<sup>1</sup>.Nesom, John. "Satellite Policy 7 ; Forthcoming Negotiations and Cost/Benefit Studies", ABC, 27 March 1984. p 1

<sup>2</sup>.Ibid.

<sup>3</sup>.Warren, Eric. "Comments on John Muldoon's Report on Aussat/ABC Discussions on 20/1/84.", ABC, 1984.

<sup>4</sup>.Ibid.

Broadcasting Tribunal commented, "You're Locked in Mr Whitehead - the satellites might crash otherwise."<sup>1</sup>

The negotiation process with Aussat had a sobering affect on the ABC. One of the initial advantages the ABC saw in supporting the satellite system was that there might be advantages stemming from competition between Telecom and Aussat. While the ABC stated it wished to retain Telecom lines where they were more economical, in reality its operations were to be substantially transferred to Aussat. It had exchanged one monopoly provider for another, and had to rely on Government's assurances that the additional costs would be met. Whereas the commercial broadcasters could voluntarily decide whether or not to use the system, the ABC was not in this position.

This inevitably affected the way Aussat would treat its 'captive' customer over the following years. The first indication the ABC had of the real costs of satellite use and the differences with the way Aussat treated it in comparison with its commercial clients was in June 1984. When the ABC sat down with Aussat to negotiate contractual agreements, Graham Gosewinckel stated the satellite company had already incurred debts of \$400,000,000 and was paying \$1,000,000 per week in interest.<sup>2</sup> Gosewinckel added that Aussat wanted the ABC to commence HACBSS 1 operations on the first satellite as soon as possible. He proposed that the second satellite would be used for Satellite Programme Services (SPS) using the 30 watt transponders in national beams. As has been discussed in an earlier chapter the ABC opposed having its HACBSS signal beamed from one satellite with the commercials on the other. Alan Bateman of the ABC is recorded as responding,

...that the ABC understood Aussat's need for revenue and the commercial basis for its decisions. However, we [ABC] could not accept the proposal. For one thing 30 watt transponders are not necessary for SPS purposes. For another, the ABC is not interested in using only one satellite for HACBSS...<sup>3</sup>

and adding

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<sup>1</sup>Fell, Liz. "Impacts of AUSSAT", Media Information Australia, No 38, November 1985. p 110

<sup>2</sup>"Meeting: Aussat/ABC", ABC, 4 June 1984.

<sup>3</sup>Ibid.



...that the Aussat proposal looked after Commercial TV interests - and Aussat - as well. However it is a disservice both to the ABC and to the consumer.<sup>1</sup>

Thus in 1984 the ABC came to realize that for all intents it would be paying for the satellite. Partly this also stemmed from the Governments decision not to let the ABC own its own major city earth stations thus guaranteeing an area of revenue generation for Aussat. Ownership of earth stations was a contentious issue during the satellite acquisition process. DOC's view was that allowing the ABC to build its own MCES would be a wasteful duplication of the facilities Aussat proposed to construct. Alternatively the ABC and the Department of Finance believed that Aussat would be able to hold the broadcaster 'hostage' with regard to charges.<sup>2</sup>

The question now was whether the Government would increase the ABC budget. On 20th August 1985 the ABC's appropriation was set at \$395M, an increase of \$48 million when the Budget was handed down as foreshadowed in the May economic statement but short of forward estimate of \$411 million.<sup>3</sup> Although this was an increase in money terms the Media and Communications Council argued it represented a real decline of 3.32% in on-going funding.<sup>4</sup> This announcement prompted the ABC Staff Union to impose bans on all work connected with Aussat as a result of the Government's failure to allocate a further \$20 million it had deemed necessary to pay for satellite use and avoid staff cuts. According to the Staff Union the ABC had an operating deficit of \$10.9 million primarily comprising unfunded Aussat costs.<sup>5</sup> This all occurred at a time when the devaluation of the Australian dollar added about \$10 million to the cost of purchasing foreign equipment and

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<sup>1</sup> Ibid.

<sup>2</sup> Gosewinckel, Graham. "Letter to E.E. Payne", OTC, 28 September, 1981. p 1 Finance later backed away from this position after DOC convinced it that their officer was 'making a fool of himself' backing the ABC. Payne, Personal Interview with Author, Op.Cit. The question ABC ownership of earth stations continued to through into the new Labor Government in 1983. Refer Stuart Revill (A/Managing Director ABC), "Ownership of Earth Stations", Letter to Michael Duffy, 21 November 1983.

<sup>3</sup> Duffy, Michael., "Letter to Geoffrey Whitehead", 22 August 1985. p 1 and Tony Harris (Ed) "Media Briefs", Media Information Australia, Number 38, November 1985. p 145

<sup>4</sup> "ABC Cuts: Threat to Independence", Communications Update, The Newsletter of the Media and Communications Council, No 4 June 1985. p 1

<sup>5</sup> Beale, Bob and Marian Theobald, "ABC staff threaten work bans on Aussat", Sydney Morning Herald, Parliamentary Library Newspaper Cutting, 20 August 1985.

programmes.<sup>1</sup>

The Staff Association claimed the only way the ABC could pay for use of the satellite was to add to the 300 voluntary redundancies further forced redundancies. In 1985 the ABC had already made two announcements of staff cuts. On 12th February the Board announced it would "reduce the January 85 staff establishment of 6680 and the staff hired on artists' agreements by 5% by 1987/88," and on 29th May stated, "As a consequence of the significant cut in the ABC 1985/86 budget, the Board...has decided to reduce its staff numbers by at least 5% (Between 350 and 450 jobs) before the 30th June 1986."<sup>2</sup> The budget also forced the Board to make cuts to programme purchases and production. It announced that over 200 hours of foreign programmes would not be bought and 140 hours of Australian production axed.<sup>3</sup> It was scenario Canadian researcher Peter Anderson had cautioned the Federal Secretary of the ABC Staff Association about in 1979 when he advised,

While our own systems are no doubt overcoming earlier problems of serving pockets of population over large distances, in terms of social and cultural costs, many of us feel we are paying dearly for satellite services. To connect the various regions of the country, we have now made a commitment to become dependent upon the use of extraterrestrial facilities in exchange for ground distribution services such as microwave land lines, etc. However because of the enormous costs involved, our government has tended to concentrate its efforts almost exclusively on the technical matters and has paid little attention to matters of content and meeting identifiable social needs within various regions of the country.<sup>4</sup>

The ABC now felt the same pressures of increasing capital costs and reduced funding for public broadcasting that Anderson had described occurring in Canada.

In response to the staff action ABC management applied on 22nd August to the Conciliation and Arbitration Commission for it to direct the Union to lift bans on the utilization of Aussat.<sup>5</sup> Michael Duffy wrote to the Managing Director of the ABC, Geoffrey Whitehead to

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<sup>1</sup>.Ibid.

<sup>2</sup>. "ABC Cuts: Threat to Independence", Op.Cit.

<sup>3</sup>.Ibid.

<sup>4</sup>. Anderson, Peter.S. "Letter to Sid Bowers, Federal Secretary of the ABC Staff Association", Telecommunications Research Group, Simon Fraser University, British Columbia, 6 June 1979. p 1

<sup>5</sup>. Duffy, Michael. "Letter to Geoffrey Whitehead", Op.Cit. p 1

make clear that,

The Government strongly supports this application and asks that you make the Government's unambiguous position known to the commission.<sup>1</sup>

In his letter Duffy added,

The Government is totally satisfied that a reasonable ap[p]ropriation has been made to the ABC and affirms that this appropriation as announced in the May Economic Statement, will not be reviewed. The May Economic Statement provides total funding to the ABC of \$395m in 1985/86. this appropriation must be seen in the context of the Government's decision to significantly lower the deficit by \$1.8 billion, to \$4.9 billion. The appropriation represents an increase of some 14% over the previous year and includes a substantial sum specifically - I repeat specifically - allocated for the ABC to fund the introduction of the satellite system. That sum is in addition to the ABC's appropriation for its traditional programming and distribution activities. If the satellite allocation is not used by the ABC for this purpose, the ABC runs the risk of a reduction in its budget allocation.<sup>2</sup> (Underlined in Original)

Duffy's strongly worded letter was a clear warning to the ABC that they would face retribution in the form of funding cuts if it did not spend the money, he claimed had been specifically allocated for the satellite project for that purpose either by predisposition to prop up alternative areas or because of Staff Association pressure.

The Staff Association probably did not realize what a tender nerve they had touched upon and soon came under extreme pressure from the Government. Duffy made clear to Whitehead,

The Government finds it totally unacceptable that actions of a limited number of staff will jeopardize a national project...I would like to point out that, as Minister for Communications, I am not prepared to even consider approaching the Treasurer or the Minister for Finance for a review of the current situation.<sup>3</sup>

The same day that ABC staff voted to lift work bans if the Government agreed to a joint working party being established to review funding, the ABC's chances of gaining an increased allowance were summed up by Paul Keating's reported response to a question on the Government's position, which was "They won't get an extra zac out of us."<sup>4</sup> The proposal to lift work bans in return for a joint working party had been worked out at a

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<sup>1</sup>.Ibid.

<sup>2</sup>.Ibid.

<sup>3</sup>.Ibid.

<sup>4</sup>.Harris, Op.Cit. p 146

meeting between the ABC Staff Union, the ACTU and other communications unions.<sup>1</sup> In most respects the proposal represented a face saving/last resort move by the Union. The Government made patently clear its determination not to review funding for the ABC and in the face of a request to the Arbitration Commission for stand-down powers of staff enforcing bans by management, the normally conservative Association was under extreme pressure. The only concessions made to the Staff Union was an offer by Duffy to hold regular meetings with it on all aspects of the ABC<sup>2</sup>, and management withdrawing their application for stand-down powers.<sup>3</sup>

A final 'reassurance' that the ABC's satellite costs would continue to be met, was delivered by Michael Duffy in October 1985. In a letter to Ken Myer giving permission for the ABC to commence using Aussat, he stated,

With regard to your concern about future appropriations, I am sure you will appreciate that the budget for the ABC is determined annually having regard to factors relevant at the time. However, the HACBSS service is integral to the Government's broadcasting policy and I am confident that the Government will take into account your commitment to this service in the context of future budget decisions. I can assure you of my support in this matter.<sup>4</sup>

Armed with this reassurance the ABC commenced using Aussat.

### Counting the Cost

The ABC's experience with the first two years of operation need to be recounted to compare such things as, forward estimates with actual expenditure; projected usage with actual usage by remote residents; and how working with the satellite shaped the Corporation's attitude to a second generation.

In early 1986 the ABC estimated satellite costs for 1986/87 would be \$46.533 million made

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<sup>1</sup>."ABC staff to vote on Aussat ban deal", The Age, Parliamentary Library Newspaper Cutting , 29 August 1985.

<sup>2</sup>."ABC staff lift bans on Aussat", The Canberra Times, Parliamentary Library Newspaper Cutting, 30 August 1985.

<sup>3</sup>."ABC withdraws application", The Australian, Parliamentary Library Newspaper Cutting, 9 September 1985.

<sup>4</sup>.Duffy, Michael. "Letter to K.B.Myer AC DSC., Chairman - ABC", 24 October 1985.

up of \$34.087 million (Total Satellite Operating Costs) and Capital Costs of \$12.446 million.<sup>1</sup> Of the Total Satellite operating Costs figure, the Corporation estimated it would be paying Aussat \$32.852 million.<sup>2</sup> ABC Officers reported to the Corporation's Board on 29 April 1987 that the gross cost of Aussat charges for 1986/87 was \$32.705 million. Set out in a table the costs of the system were as follows<sup>3</sup>:

Gross Cost(Aussat Charges):	\$32.705m	
Non-Aussat costs:	<u>\$ 1.235m</u>	
Total Costs:	<u>\$ 33.940m</u>	Depreciation at 15%on \$12.23m
Capital expenditure:	<u>\$1.85m</u>	
Direct Cost :	<u>\$35.79m</u>	

Against these were placed purported offsets:

(i) Program interchange, in terms of terrestrial facilities displaced: TV: \$4.706  
Radio: \$0.335

(ii) Offsets, obtained by using the HACBSS to distribute programs which would otherwise be distributed terrestrially:

Radio \$1.1m  
TV: \$9.53m  
Total: \$10.63m

(iii) Syndication elimination, or the use of satellite facilities to distribute product which would formerly have been distributed by copying and freighting...estimates provided are:

Radio: \$110,000  
TV. \$495,000  
Total \$605,000

(iv) Sub-leasing of spare capacity on one of the TV interchange transponders has to date yielded \$20,000.<sup>4</sup>

Thus by subtracting the cost of offsets from the direct operating cost it is possible to arrive at an annual figure for the cost of HACBSS, which is \$19.5 million. Working with this figure, it was reported to the Corporation's Board,

It is enormously costly, on a per capita basis, to broadcast by the HACBSS to the 300,000 people in remote areas. For transmission costs alone, spreading over 300,000 people, the

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<sup>1</sup>.Moriarty, G.E. "Letter to Roger Smith Acting First Assistant Secretary Broadcasting Policy division, DOC", ABC, 28 February, 1986.

<sup>2</sup>.Ibid.

<sup>3</sup>.Evans, G. "The ABC & The Satellite; Costs, benefits and Issues", Information Paper for ABC Board, 29 April 1987.

<sup>4</sup>.Ibid. p 2

cost per head is about \$60. The penetration of B-MAC sets into the remote community, according to Plessey Australia is between 4,000 and 4,500. On that basis the cost is over \$4,000 per installation. By comparison, the transmission plus program cost for the rest of Australia, is about \$25 per head for all ABC services. The annual cost of distribution and transmission of programs nationwide, other than HACBSS, is less than \$5 per head...the distribution cost is at least 12 times the cost of broadcasting to the rest of the population and...a heavy 'cross subsidy' is involved, which detracts from funds which would otherwise go to program making and general activity for all Australia.<sup>1</sup>

The report also stated that it was arguable whether the ABC had been adequately compensated for the additional costs, for although there had been an increase in their 85/86 appropriation, a satellite component could not be separately identified.<sup>2</sup>

There are several aspects of this report that deserve comment. Firstly, the number of remote residents who had chosen to install a dish was clearly a disappointment to the Corporation. During 1980 ABC officers argued that the potential existed for provision of close to one hundred thousand earth stations.<sup>3</sup> Even the confidential Carver Committee had stated the system needed over 20,000 HACBSS receivers to make its implementation viable.<sup>4</sup> Clearly the number of installations has not reached either of these two projections. In 1986 Plessey the company which makes and markets dishes was pleading with the Government for assistance, including unencoding SPS signals.<sup>5</sup> In a minute to Duffy in July 1986, Cameron Hazlehurst noted,

The B-MAC receiver market is agreed by both Plessey and its distributors to be dead at present. Sales appear to have dropped off substantially since March 1986. It is estimated that approximately 2000 receivers have been sold of which, according to Plessey, some 600 have been shipped to Papua New Guinea. Plessey executives advise that there are 600 unsold units with distributors.<sup>6</sup>

A survey by the Western Australian Office of Communications on the remote broadcasting reported in December 1986, that the potential market was much lower than forecast.<sup>7</sup> The

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<sup>1</sup>. Ibid. p 3

<sup>2</sup>. Ibid.

<sup>3</sup>. Inter-Departmental/ABC Working Group, "Minutes of Meeting: Financial Implications of the Satellite System", 27 March 1980. p 6

<sup>4</sup>. Carver, Op.Cit.

<sup>5</sup>. Smith, R.N. FAS, Broadcasting and Planning Division, "B-MAC Implementation Issues", Minute to Cameron Hazlehurst, DOC, 1 July 1986.

<sup>6</sup>. Hazlehurst, Cameron. First Assistant Secretary Communications Strategy Division, "B-MAC Implementation", Minute Paper, DOC, 2 July 1987.

<sup>7</sup>. Graham, D.E. State Broadcasting Engineer, "Letter to V Kane, FAS, Space, Telecommunications and Postal Policy Division", DOC, Perth, 10 December 1986. p 1

reasons for the lack of demand vary but include,

(a) The reason the ABC prefers which is as a service tailored for a specific audience and intended to be complemented by commercial services, people are not interested in receiving their signal alone. Therefore as HACBSS had commercial equivalents only in the central and western footprints up until 1987 the market was limited. In 1988 the footprint predominantly covering Queensland started transmission. This service was made possible when the Queensland State Government decided to subsidize the licence holder as the W.A. Government does with Golden West and the Federal Government with Imparja. These services will remain as long as State and Federal governments are prepared to pay over two million dollars per annum for each area.

(b) The cost of the dishes (\$3000 with installation) deters many in a depressed rural economy, and must come as a great disappointment after promises of \$400-\$1000 receivers being available. Mr Jim Lawrence the Shire President of Ravensthorpe, a remote town in Western Australia, recalls politicians promising dishes at a cost of between \$800 to \$1,000, with the emphasis on the lower figure.<sup>1</sup> He is now adamant that the cost of dishes makes the totally out of the question for most residents.

Tony Staley now claims the difference between the \$1,000 dollar dish and the actual cost today is due to the incorporation of B-Mac, however this must be offset against the removal of sales tax by the Federal Government. While it is undoubtedly true that the B-Mac decision increased the price, it should also be noted that it was Staley's decision in January 1980 to include radio which further boosted the cost. One ABC engineer at the meeting in which the Minister made his desire for the inclusion of radio known later stated "He did not appear alarmed that we would have to break new ground and as a result the cost of receivers would be higher".<sup>2</sup>

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<sup>1</sup>.Goldfinch, Malcolm. "Aussat nearly comes to Ravenshorpe", Electronics Today International, July 1985. p 127

<sup>2</sup>.Carl Wilhelm, "Broadcasting and the National Satellite System", Op.Cit. p 1 Even some critics of the satellite accepted the \$1,000 figure such as Bill Bonney, "Meanwhile in outerspace...Satellite Key to Democratic Control", New Journalist, No 40, May 1983. p 23

(c) What was continually revealed in surveys but planners of Aussat always overlooked that many outback residents just did not place a high priority on television.<sup>1</sup> Despite the outpourings of Staley and self appointed experts such as Max Walsh that they knew what people really wanted, this has not been borne out by experience.<sup>2</sup> Walsh claimed that surveys which showed people in remote areas assigned a higher priority to modern telephone services were 'phoney' without providing anything in support of this claim. It is also questionable as to whether HACBSS and the commercial services are providing programming appropriate to the needs of outback Australians. In 1988 the Australian Broadcasting Tribunal found the Queensland commercial service to be 'patronizing' and 'cavalier' with regard to programming for Aboriginal communities.<sup>3</sup>

Yet whatever the reason for the small number of installations, the cost to the ABC of \$4,000 per annum just to provide a signal, is out of all proportion with figures formerly used to justify extending services. In 1978, when Hartley noted in his supplementary submission to the White Task Force,

Recurring annual program circuit costs of \$7-10 per head of population occur in some outlying areas (\$1 per head is the rural average - 15 cents the city average), the highest known example being in Tennant Creek with a figure of some \$50 per head<sup>4</sup>.

He could hardly have imagined the actual costs of HACBSS per head.

The cost of HACBSS is clearly a great deal more than originally expected, yet this is an ABC rather than Aussat headache. However it would be a problem for Aussat if HACBSS or RCTS collapsed, because it would remove an important justification for the system. While taking television to the outback was important in the satellite debate and of genuine concern to some in the policy process it was not what had precipitated the acquisition. This was clearly the work of the media moguls. John Maclean makes the telling comment,

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<sup>1</sup>.Telecom Australia, Remote Area Telecommunications Study. National Report, Policy research Branch Planning Directorate, Melbourne August 1980. p 12

<sup>2</sup>.Walsh, Max. "Satellite television: Well, yes Minister...and no", Sydney Morning Herald, 15 July 1985.

<sup>3</sup>.Saville, Margot. "Bond 'threatened to expose' AMP", The Australian, 28 October 1988. p 3

<sup>4</sup>.Hartley, "Supplementary Submission to Commonwealth Government National Communication satellite System, Op.Cit. p 21



The big political selling point was the little dish debate where all these outback people were going to plunk up a dish and get these services...That's what the public face of the debate was, but that didn't really amount to a hill of beans. The real thing was being able to network. We had all these things with Aboriginal communities, people in remote homesteads, and Duffy handing dishes over ... and if you thought about it, now and even then you could have given them all a VCR and six years supply of tapes and you would be so far ahead it wouldn't be funny...<sup>1</sup>

### Chapter Conclusion (Part 1)

In 1988 Australia had a satellite system subsidized by the ABC. Whereas Canada chose for many years to cross subsidize Telesat through terrestrial communications carriers, Australia has used public broadcasting and direct payments to commercial operators. In 1986/87 the ABC was providing over 40% (\$32.705 million) of Aussat's revenue of \$76,682 million. Between 1985-1988 there was a 10.2% staff reduction (708 positions), while expenditure on capital items crept from 4% in 1981 to 13% in 1988.<sup>2</sup> How had the ABC allowed itself to become the 'fall guy', squeezed from two directions by increased cost associated with using Aussat and in real terms declining budgets?

Firstly it is apparent from the ABC's early estimates of satellite costs that they did not understand the economics of using the technology. Even at the discounted rate they receive from Aussat the costs of transponders represent astronomical rises from early estimates. ABC engineers were enthusiastic about using the technology to break out of the decades old equipment they were using and give them advantage of networking over commercial rivals, despite the fact that terrestrial distribution was less expensive. During the planning process they disregarded Telecom's advice that satellites would be more expensive preferring to accept government assurances that they would be appropriately compensated for satellite developments.

The question for the ABC must soon address, which will be taken up later in Chapter Seven on the implications of the second generation, is that with the onset of fibre optics, the balance

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<sup>1</sup>.Maclean, Personal Interview with Author, Op.Cit.

<sup>2</sup>.Somervaille, Robert. "Issues Confronting the ABC", More & Lewis, Op.Cit. p 94

in favour of terrestrial distribution will shift even further away from satellites. The industry direction is clear from the equalisation process occurring in regional Australia, in which country television stations are opting for terrestrial rather than satellite distribution. There is little doubt that the amount the ABC spends on the satellite would be vastly different if they were an arm's length user. The problem the ABC faces is that as long as the government prescribes it must broadcast HACBSS it is locked into satellite distribution because it will have unused capacity on expensive high powered transponders.

## Chapter 5 (Part 2)

### Aussat and Technological Dependency

In December 1986 the Government agreed to allow Aussat to proceed with the planning of its second generation of satellites, based on a strategy of procuring replacement domestic satellites rather than using an off-shore satellite system. Approval for the Request For Tender (RFT) being issued was withheld pending the final system design and Aussat providing information on its financial outlook. Given the fact that the decision to proceed in acquiring replacement satellites will involve expenditures in the order of \$590-660 million it would seem timely to review Australian industry's participation in the manufacture of the first generation technology and explore the potential for future involvement. This process takes on an added dimension of interest in light of the mid 1985 release of the Academy of Technological Sciences report entitled "A Space Policy for Australia", generally known as the Madigan Report,<sup>1</sup> and a related development the proposed Cape York Spaceport.

The procurement of a satellite system has increased our dependency on foreign goods and services. What planners of the satellite system did not take into account was that they had located Australia within an international technological loop over which we have little control.<sup>2</sup> As a small player in the space industry Australia has a negligible influence over the development of technological systems and must rely on the policies of foreign governments.

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<sup>1</sup>.Australian Academy of Technological Sciences, A Space Policy for Australia (Madigan Report), June 1985. Refer also D. Kennedy, "An Overview of Australia's Space Program", Current Issues Paper, No 9, 1987-88, Legislative Research Service, Department of the Parliamentary Library, 1987.

<sup>2</sup>.Madrid, Op.Cit. p 426, makes a similar argument in relation to Mexico's Morelos satellite system.

The trouble with identifying the satellite as domestic was that it obscured the extent to which the system would erode rather than build technological sovereignty.

### The Madigan Report

After the ritual exchange of pleasantries which accompany the delivery of any such report, it was to be over a year before the Government announced its response to the Madigan committee's findings. Privately the Government and importantly Senator Button's office were not enthusiastic about the potential for a space industry in Australia. Button's policy adviser on aerospace Denise North suggested that the report was 'emotive and nationalistic', and that "There are limits to how much vision Governments are allowed to have."<sup>1</sup> Madigan recommended that the Government establish a NASA type body with \$100 million to assist Australian companies to fill domestic contracts. The Government's token response involved the establishment of a space board to administer the \$5.25 million to be committed in the first year.<sup>2</sup> Most of the latter figure was made up of funding from existing commitments and there was barely \$60,000 for new projects.

In the wake of perceived Government inaction on Madigan's recommendations, proponents of an Australian space industry focussed on Aussat's replacement programme. This was even acceptable to the more skeptical DITAC. If the money was going to be spent purchasing a second generation of satellites anyway, it saw no reason not to use this to placate Madigan supporters, albeit with the proviso that it didn't cost any more. DITAC's chosen instrument was the Australian Government's offsets policy.<sup>3</sup> Government interest in offsets had been

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<sup>1</sup>Frail, Rod. "Why our space industry may be left on the launching pad", Sydney Morning Herald, 11 October 1986.

<sup>2</sup>Smith, Deborah. "No Starry Eyes for Space Chief", National Times, 5th October 1986. & "National Space Policy Announced at Last", Scitech, October 1986.

<sup>3</sup> Department of Industry Technology and Commerce & The Department of Defence, Australian Government Offsets Program: Guidelines for Participants, AGPS, Canberra, 1984.

renewed by the release of the Inglis report on offsets.<sup>1</sup> To examine the potential success of this strategy we need to refer to the procurement of the first generation of satellites.

### Aussat's First Generation : Projected Industry Involvement.

In planning the first generation of Aussat satellites, Aussat's system builders were acutely aware that domestic manufacturing industry was potentially an influential ally. In early 1980 when the Government was preparing to debate Staley's announcement of the 'in principle decision' to go ahead with the satellite system, Hugh Payne suggested a delay. His reason was that the Department was preparing for a meeting with industry in April of that year. Payne suggested to Staley that it might be advantageous to wait, because,

Our thinking is that you might be able to add to the other reasons for the satellite decision, the reaction from industry, particularly local industry, to participating in the manufacture and supply of some parts of the proposed satellite system.<sup>2</sup>

When in 1982 the then Minister for Communications Ian Sinclair announced the Government's intention to proceed in acquiring a domestic satellite system, he proclaimed,

Orders worth more than \$40 million could flow to Australian firms from the space segment alone while there are excellent prospects for large-scale participation in the earth segment, with resultant job expectations. It is estimated that Australian industry could benefit by up to \$80 million worth of orders resulting from earth station equipment contracts.<sup>3</sup>

and

The Government has declared several times that Australian involvement in all stages of the Satellite System will be maximized. Our preference and offsets policies have been clearly stated and are directed at creating opportunities for Australian industry in terms of transferring technology to Australian firms, developing new techniques and processes, and thus enhancing job opportunities in these areas.<sup>4</sup>

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<sup>1</sup> Inglis, *et al.* "Report of the Committee of Review on Offsets", AGPS, Canberra 1984.

<sup>2</sup> Payne, E.E. "Possible Parliamentary Debate on the Satellite Statement", Minute to Minister, P&T, 20 February 1980.

<sup>3</sup> Sinclair, The Rt. Hon. Ian. Minister for Communications "National Communications Satellite System", Ministerial Statement, May 1982. p 10

<sup>4</sup> Ibid. p 11

Sinclair's press release which accompanied this speech averred the possibility of \$120 million in orders flowing to Australian industry as a result of space and earth segment contracts.<sup>1</sup>

Arguments forwarding the advantages of Australian industry involvement were also used to dissuade the the Hawke Government from canceling the project after its election in 1983, despite a concerted campaign by the ATEA and strong opposition from the Treasury & Finance Departments. Aussat contended cancellation would result in lost opportunities for substantial Australian participation and transfer of high technology. As noted earlier these efforts were rewarded with a decision to proceed.

### Aussat First Generation : Actual Industry Involvement

Although promoted as one of the main benefits of our decision to acquire a domestic satellite system, Australian industry involvement in providing the necessary hardware for both the terrestrial and space segments has been negligible. Michael Duffy the then Minister for Communications stated at an industry briefing in February 1987, that the "...domestic satellite system has not yet had a significant impact on the development of the Australian space and communications industry" and "...there has been no development of industry capability leading to significant export of high technology goods or services."<sup>2</sup> Duffy concluded that Aussat had generated little in the way of industry development.

Even though Aussat maintains it has the following goal, "To foster technology transfer to Australia, to develop the ability of Australian industry to contribute to the supply and manufacture of satellite related equipment and the development of relevant skills in Australia",<sup>3</sup> there is little evidence that this is the case from first generation purchases. The total value of the Australian content in the space segment of the existing series of satellites,

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<sup>1</sup>."Government Gives Go-Ahead on Satellite Project", Ministerial Press Release, DOC, 6 May 1982. p 4

<sup>2</sup>.Duffy, The Hon Michael. J. Minister for Communications,"Opening Speech to Aussat's Second Generation (Space Segment) Briefing for Industry", Sydney, 9 Feb 1987.

<sup>3</sup>.Astley-Boden, Christine. "Australia focuses on space technology", Satellite & Space Technology, February 1986. p 13

which cost roughly two hundred million dollars, amounted to just five million dollars.<sup>1</sup> This consisted of wiring harness for two satellites, provided by STC, and elements of the satellite control system provided by AWA.

Aussat's support for the manufacture of Australian terrestrial technology needed for the system has been just as poor. Ken McCracken noted that although in excess of 100 antennas were purchased for the Aussat system virtually none were Australian made, despite the fact that "...the design skills existed in academia and the fabrication and management skills in industry...".<sup>2</sup> The Madigan report noted,

All contracts for the supply of Aussat system major equipments have gone to overseas companies and nearly all work associated with the government orders for ground equipment...has gone to foreign owned firms which have responded through Australian subsidiaries.<sup>3</sup>

Madigan published the following table to support the point.

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<sup>1</sup>.The space segment comprises three spacecraft (\$157 million)and two Tracking, Telemetry Command and Monitoring stations(\$28 million), and a Satellite Control and Operations Centre. This cost should not be confused with the overall project cost, estimates for which range from \$435-\$650 million depending on what is included. Aussat expected its cumulative capital expenditure to peak at \$462.7 million in 1987-88. Gareth Evans, "Aussat: Discussion Paper by Senator Gareth Evans, Minister for Transport and Communications, GBE Caucus Discussion Paper No.7, February 1988. p 8 On the \$5 million figure refer Graham Gosewinckel "Present and Future Opportunities for Australian Industry in Space Communication Manufacture", National Space Symposium Proceedings Sydney 22-23 March 1984, Canberra Publishing and Printing Society, 1984.

<sup>2</sup>.McCracken, Ken. "Australian Aerospace - A Case History of the Commercialization of Australian R&D." Search, Vol 17, No 3-4, March-April 1986. p 76 refer also Ken McCracken "W(h)ither Australian Physics?" Search Vol 14, No 7-8, August/September 1983. p 203

<sup>3</sup>.Madigan, Op.Cit.

Category	User	No	Type	Supplier	Contract Value\$
Small earth stations	Telecom	65	RTSS (1) 3.7-4.6m	NEC (A)	7.5m
	Aviation	200	3.7-4.5m	NEC (A) Andrews	12m
	ABC	41(2)	3.6-6.0m		20m
Domestic receivers	Communi- cations	134	0.9-3.3m	NEC(A)	(44)0.470m
				Codan	(44) total
				Plessey(A)	(17)
				National-	
				Panasonic(A)	(7)
				Magna-	
				Techtronics(A)	(1)
				Thompson-CSF(A)	(10)
				Toshiba(A)	(7)
				Hitachi(A)	(4)

(1)Remote telephony satellite service plus one gateway (Bendigo).

(2)Rough estimate only.

Source: Table 2, Appendix 5, proceedings of the National Space Symposium, March 1984. Cited in the Madigan Report p 131.

The same report also concluded that the market for large earth stations was dominated by overseas firms and extremely limited.<sup>1</sup> The Aussat system instead of generating involvement by Australian owned industry, has in fact increased our dependence of foreign technology & expertise and created a market for overseas goods.

Although Australian subsidiaries have been awarded contracts it is unlikely that this will lead to a new export market. One foreign subsidiary Plessey actually has a monopoly on B-MAC decoders under licence from Scientific Atlanta in Georgia. These decoders are needed to receive the scrambled HACBSS signal. These licence constraints make it extremely difficult for other companies to compete.<sup>2</sup> Self evidently as Aussat is the only satellite system in the world using B-MAC there is little incentive to develop the technology for export. Nor has the

<sup>1</sup>.*Ibid.* p 30

<sup>2</sup>.Fraser, *Op.Cit.* p 10



high cost tempted many in a troubled rural economy to purchase receivers, thus depressing the domestic market.

### Aussat & Offsets

As has been pointed out by the Inglis Committee, Australia has a lamentable record in securing and monitoring offsets. In the fourteen years after its inception in 1970 the offsets programme was only able to deliver \$554 million in work out of commitments worth \$1,508 million.<sup>1</sup> Much of this was due to Government neglect but also because there were and indeed still are no effective penalties for foreign firms failing to meet their commitments. In some cases although foreign suppliers may have assured Australia they will meet offset obligations, they are not contractually bound to that commitment.

In this context it is perhaps not remarkable that the administration of offsets in the procurement of Aussat's satellites and ground stations has been just as poor. As was noted above in Ian Sinclair's statement and in Aussat's case against cancellation in 1983, offsets were forwarded as one of main benefits for Australian industry. As it eventuated Sinclair's '\$40 million flow' of orders to Australian firms turned out to be a token \$5 million in Australian content and the purported '\$80 million' in orders related to ground station equipment was grossly exaggerated in terms of contracts to Australian firms. The largest single expenditure which was largely Australian in content was the construction of earth station buildings and support equipment contracts for auxiliary power, air-conditioning etc which was worth in the order of \$30 million.<sup>2</sup> This one off expenditure has hardly been a catalyst for the introduction of high technology or new industrial capacity. The \$5 million Australian content in the space segment as mentioned above was made up of wiring harness

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<sup>1</sup>.Inglis *et al.* Op.Cit. pp 40-41 & Peter Ewer *et al.* Unions and the Future of Australian Manufacturing, Allen & Unwin, Sydney, 1987. p 89

<sup>2</sup>.Gosewinckel, Graham. "Australian on the Threshold of New Opportunities in Space", Second National Space Engineering Symposium, Sydney March 25th-27th, 1986.

supplied by STC and elements of the satellite control system from AWA. The wiring harness was worth just half a million dollars and was a foreign design. In the industry jargon the work undertaken by STC for Hughes was 'build to print work' which has hardly increased design skills within Australia. This was part of Hughes Aerospace's offsets obligation which was to be in the order of \$60 million over ten years.

What planners failed to realize was that Australian companies were reluctant to tool up for a single job<sup>1</sup>, which they realized was an exercise in symbolic politics. Why, they reasoned, would large aerospace firms dependent on their own government's strategic industrial policies turn to them, Australian subsidiaries of their international competitors, as a source for components made on build to print orders? The approach taken in this context was characterized by weaknesses of a planned/market orientated economic approach to the development of a space industry. From the point of planned intervention the government indicated that Australian industry should be involved and nominated offsets as an appropriate mechanism through which public expenditure could be directed towards industry development. However once that decision was taken the government abrogated its role in favour of the market. It was the market, or in reality Hughes, which actually made decisions affecting Australia's industrial development. If, despite their best endeavours, Hughes was unable to convince Australian firms to tool up for a one off job, it was hardly a situation which was going to unduly concern company management. The problem with the semi planned/market approach taken by Australia is that the space industry has never operated along commercial lines.<sup>2</sup> Nations which have built space industries have done so according to specific industrial strategies rather than relying on multinational corporations to make beneficial decisions.

The length of time given to Hughes means that any assessment of their efforts to meet offset obligations will not be possible before 1992 if it is carried out at all, making assessment

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<sup>1</sup>.Payne, Personal interview with Author, Op.Cit.

<sup>2</sup>.Hertzfeld, Henry R. "Rebuilding US Launch Capacity", Space Policy, May 1987. p 100

impossible before the contracts for the second generation were signed in 1988. Even if Hughes meets its obligation the devaluation of the Australian dollar and inflation will ensure that the real value to Australian industry is negligible.

As far as can be determined Hughes has only met \$15 million of their commitment made up of the \$5 million Australian content on the Aussat satellites and \$10 million in later wiring harness contracts to STC for the Hughes HS376 and HS393 satellites. Graham Gosewinckel Aussat's General Manager (Later Managing Director and Chief Executive), announced at the Second National Space Engineering Symposium in March 1986 that Hughes had met half of its stated offsets obligations but did not nominate where Hughes had directed the other \$15 million necessary to substantiate his claim. Possibly a minor part of this involved the much vaunted transfer of technical expertise which the project has supposedly facilitated. Gosewinckel related at the above mentioned conference that,

Aussat was committed to providing, to the maximum extent possible, technology transfer of the skills and knowledge gained in developing the first generation system. To this end the Company placed a team of some twenty specialists, in-house at the Hughes plant in Los Angeles...As a result Aussat finds itself totally self-sufficient for the design, specification and tender evaluation for the next generation of satellites.<sup>1</sup>

The claimed achievement of design self-sufficiency for the second generation must have seemed quite remarkable to those in attendance, but what has actually been achieved is Aussat being able to draw up an RFT without consultants such as Comsat & Telesat used for the existing satellites. Bringing 'in-house' representatives of customers has been a regular practice for Hughes. When the first contract for a Canadian commercial satellite (ANIK-A) was awarded to Hughes in 1970, SPAR Aerospace Ltd was allowed to place twelve engineers in the Hughes plant.<sup>2</sup> No doubt this transfer of technical expertise assisted SPAR to eventually become a prime contractor in its own right. In 1979 SPAR was awarded the ANIK-D contract as prime contractor and in 1982 won the contract to supply the Brazilian

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<sup>1</sup>.Gosewinckel,"Australia on the Threshold of New Opportunities in Space", Op.Cit. & L.G.Farrel "Aussat and the Lost Perspective:Technological Transfer", Media Information Australia, N 38, November 1985. pp 120-121

<sup>2</sup>.Mansell, Robin E. "Contradictions in National Communication/Information Policies:The Canadian Experience", Media, Culture & Society, Vol 7, 1985. p 344

Government with its domestic satellite system. Yet as Robin Mansell has pointed out, to fulfil the latter contract SPAR used the Hughes HS376 design and most of the components were under licence from that company. In fact Mansell adds,

Where it has been possible for a Canadian firm to achieve prime contractor status, it has been on the basis of licensing agreements to produce US-designed technology.<sup>1</sup>

If SPAR Aerospace, which is a satellite manufacturer rather than an administering authority such as Telesat, can not achieve design independence from Hughes, it can only be concluded that Aussat's claims to an independent design capability are exaggerated. The Mexican experience with the Hughes made Morelos satellite system, has been that although an initial group of thirty-six technicians received training in the United States, it did not facilitate design independence. Fernandez Christlieb asserted in relation to Morelos,

...there is no well-founded project for the development of human resources either in the short or long term. More than this, the technicians who are being trained at Hughes and who now work at the Satellite Tracking Centre in Ixtapalapa are merely button pushes. That is to say we know that we cannot depend on the know-how of space technology needed in general, and needed in particular for the manufacture of satellites. The Mexican technicians spoken of in the news, to be truthful, are only sorcerers' apprentices.<sup>2</sup>

This raises several questions about the purported transfer of technical expertise to Aussat's specialists, not least of which is how much it tied in the second generation RFT to Hughes technology.

Now that attention has shifted to the procurement of the second generation hardly anyone appears interested in critically examining the precise industry benefits in terms of technology transfer or in pursuing existing offset obligations. According to the Madigan report NASA still has \$10 million in outstanding obligations and there has not been a review to determine achievement levels of the \$16 million Australian content promised by Mitsubishi, the supplier of the Major City Earth Stations.<sup>3</sup>

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<sup>1</sup> *Ibid.* p 345

<sup>2</sup> Fernandez Christlieb, F. "Nuevas tecnologías de informacion en Mexico", III, CONEICC, Guadalajara, Jalisco, 1984. Translation cited in Madrid, *Op.Cit.* p 432

<sup>3</sup> Madigan, *Op.Cit.* p 130

The one exception to this analytic vacuum has been the Western Australian Government commissioning Brian O'Brien to assess 'the technological and industrial significance of Aussat for that state. O'Brien concluded,

The onset of Aussat has had a negligible impact on Western Australian high-tech capability or employment to date.<sup>1</sup>

O'Brien calculated that less than a dozen people had been employed because of Aussat developments in spite of the expenditure the location of equipment for earth stations worth \$50 million.<sup>2</sup>

There is an obvious disparity between Tony Staley's reported assertion, to a satellite conference at the University of Western Australia in 1979, that thousands of jobs would be created by the advent of a satellite system.<sup>3</sup> Staley told the conference,

We are going to be domestic about this. We are going to want jobs in Australia. We do not believe, on any basis of common sense, that we would in this country be in any position to manufacture the satellite. But we do believe we can play a very major part in the development of earth stations.<sup>4</sup>

The only spin off for Western Australian industry turned out to be pouring the cement for ground station foundations as essentially none of their component parts were made in that State.<sup>5</sup>

### Offsets and Overseas Experience

If successive Government's commitment to the project benefiting Australian industry had gone beyond rhetoric they would not have missed the chance to procure and monitor offsets from the money directed overseas. The argument has been made that nations which manufacture and launch satellites use that fact to obtain political, financial and industrial

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<sup>1</sup>.O'Brien, Brian. "Technological and Industrial Significance to W.A. of the First Generation Aussat Satellite Programme", A Briefing Paper for the WA Office of Communications, January 1986. p 11

<sup>2</sup>.Ibid.

<sup>3</sup>."Staley: Jobs for thousands seen", The Western Australian, 5 December 1979. p 21

<sup>4</sup>.Ibid.

<sup>5</sup>.O'Brien, Op.Cit. p 1

concessions from those which purchase the technology.<sup>1</sup> Christine Astley-Boden essentially repeats this argument by maintaining that the inability of Australia to achieve a larger share of the total expenditure on Aussat for local manufacturers, reflects our position "as a user/purchaser rather than a supplier of space systems."<sup>2</sup> In relation to offsets the argument does not stand up to scrutiny. The case of Brazil acquiring a domestic satellite, which was mentioned above provides ample evidence that a user/purchaser can strike deals extremely favourable to themselves. When Brazil decided to acquire a domestic satellite system in 1981 it came down to a choice between buying from Ford-Aerospatiale which had the backing of the French Government and a Hughes satellite from a consortium led by Spar Aerospace of Canada.<sup>3</sup> The French led consortium actually offered to buy Brazilian goods worth twice the US\$147.5 million cost of their satellites, or three times the value of the combined satellite and launch contracts if both went to France. The Canadians offered to buy US\$200 million worth of Brazilian goods, 60% in raw materials, 20% in semi-finished and 20% in finished products. The Canadian consortium eventually won out and according to Spar's Vice President J Ron McCullough,

Spar has six people currently working with a Brazilian trading company seeking out opportunities for exports and any ways in which Canada or Spar can broker the goods.<sup>4</sup>

The Canadians even lent Brazil US\$120 million to buy the three satellites at between 9-12% over 14 years with a four year grace period. The extent to which both the French and Canadian consortiums were willing to go would be comical, if Australia had not paid out hundreds of millions of dollars to these same companies without significant offsets.

### Offsets and the Second Generation

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<sup>1</sup>Luyken, Georg-Michael, "Direct Broadcasting Satellites : A Concept for the Future", Media Culture & Society, Vol 8, 1986. pp 183-197

<sup>2</sup>Astley-Boden, Op.Cit. p 13

<sup>3</sup>Turner, Rik. "Brazil - In the Club", Satellite Technology, June 1985. p 15 Refer also Madrid, Op.Cit. p 425

<sup>4</sup>Turner, Op.Cit.

The question of Australian industry involvement is again on the political agenda both because the present government requires offsets to be more rigorously pursued on major purchases of foreign technology and because of its recent initiative in setting up a space board to foster an indigenous industry.<sup>1</sup> Aussat is publicly projecting the notion that there will be greater involvement of Australian industry in the supply of replacement satellites. This may indeed be as a result of a genuine desire to fulfil the goal stated above but it is also very much a political necessity that Aussat be seen to be supporting Australian involvement given the significant contribution it is making to our external debt.<sup>2</sup> At its most extreme the idea is propounded by Aussat that approval to proceed with the second generation will result in the establishment of a new Australian industry.<sup>3</sup> The reality is that the Australian content is likely to be little more than the required four per cent. Thus the maximum amount of Australian content in the B1 and B2 satellite, if offsets are strictly policed, will be \$20 to \$30 million from expenditures approaching half a billion dollars. The enforcement of the prime contractor's offsets commitment will be the responsibility of Department of Industry Trade and Commerce(DITAC). The commitment to offsets won't actually be made in the contract with Aussat for the supply of the satellites, but in a separate agreement with DITAC.<sup>4</sup> There is no onus on Aussat to ensure that promised offsets are delivered.

It is also worth noting that STC, which provided the 'Australian content' in the space segment for the first generation, is actually a subsidiary of Alcatel and therefore could be considered Australian in name only. Australian industry does not have the technical expertise to play a major role in the construction of the second generation. The next generation of satellites will be twice the weight & size of the first generation and have far more powerful

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<sup>1</sup>.On the Space Board refer R.D. Somerville AM, "Australia's Space Policy", Speech by the Chairman of the Australian Space Board to the Bicentennial Congress of ANZAAS, Sydney, 16 May 1988.

<sup>2</sup>.Aussat believes they would be open to criticism if they were not seen to be supporting Australian Government initiatives to form a space industry. One critic has been Peter Quiddington in "NSW Industry and Aussat", Advance, April 1987. p 2

<sup>3</sup>.Nowland,Wayne. "Aussat's 2nd Generation System" Aussat 86 - New Horizons Conference Papers, Sydney 1986. p 344

<sup>4</sup>.Hoare, David.(Chairman of Aussat) "Letter to Michael Duffy", 4 February 1987.

transponders. If the current design is implemented the satellite will carry at least one high powered (150 watt) transponder for mobile communications. This technology has much larger risk attached and is very much at the edge of the industry's present technological capability. This design will make it even harder to include Australian content, especially when it is remembered that no part of the first generation space segment was of Australian design.<sup>1</sup> Other nations have, of course, used the construction of commercial satellites as an instrument for developing space based industries. The Japanese launched their first commercial satellite in 1983. They preferred to build their own satellite at a cost three times greater than they could have purchased a technically superior satellite from the US.<sup>2</sup> This was despite US pressure to redress trade imbalances. The Japanese Government also prohibits the sale of foreign satellites to its own agencies.<sup>3</sup> This is obviously an option which would be prohibitively expensive for the Australian Government, but it gives some indication of the enormous amounts of money required to establish a competitive space industry. Four per cent of the cost of replacement satellites fed back into local industry is little more than a token gesture.

### The State of the World Satellite Industry and Aussat's Second Generation

When Ian Sinclair announced to Australia the intention to proceed with Aussat, he argued,

...satellite communications is a growth area around the world and there is a very real prospect of expansion in Australia, and for export. I should emphasize that what I am announcing today is only the first generation of the Satellite System. Our satellites have been designed to operate for at least seven years and during this period more employment opportunities should open up as planning proceeds on second and later generations of satellites.<sup>4</sup>

Five years on the world satellite industry is in a far from healthy position, and much of the industry finds itself in dire financial straits. The problems discussed in Chapter One have

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<sup>1</sup>.Beatty, Bob. "Space's orbit must widen" Business Daily, 10 July, 1987. p 32

<sup>2</sup>.Johnson, Chalmers. "MITI, MPT and the Telecom Wars: How Japan Makes Policy for High Technology", Unpublished, Dept of Political Science, University of California, 1986. p 68

<sup>3</sup>.Hills, Op.Cit. p 148

<sup>4</sup>.Sinclair, "National Communications Satellite System", Op.Cit.



combined to produce a situation where only two civilian communications satellites have been ordered in the first six months of 1987.<sup>1</sup> The current state of the industry not only raises questions as to whether Australia should form an expensive space industry but it also indicates the need for a review of Aussat's future viability before a commitment of another half a billion dollars to the system was made. At a time when Comsat and Telesat, two of the companies used by Aussat as consultants for their first generation, are reassessing their commitment to satellites, no such critical review is taking place in Australia. Comsat has recently diversified its interests into fibre optics while Telesat, is reducing the capacity of the next Anik generation.

Remarkably the potential for Australian involvement in the replacement series of satellites may be even smaller than the first. The following points would seem to support this argument:

- (a) Much of the terrestrial hardware has been established and the areas where Australian industry was most involved i.e., in the construction of ground station buildings and support facilities which are now in place.
- (b) The B-series of satellites will be employing technology which is very much state of the art and as such it would be extremely difficult to use local suppliers without a prohibitive escalation of costs.
- (c) Some of the areas of industry involvement suggested by Aussat are dubious. For instance Aussat has suggested to local insurers that they be involved in launch insurance.<sup>2</sup> Some idea of the risks involved to underwriters of such an operation can be gaged from the fact that a major airline can insure its entire fleet for a year for approximately \$10 million, whereas one satellite can cost upwards of \$30 million if you can obtain insurance at all.<sup>3</sup> As noted in

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<sup>1</sup>. "Severe Drop in Satellite Orders Follows 1986 Launch Failures", Op.Cit.

<sup>2</sup>. Nowland, "Aussat Second Generation", Op.Cit. p 344

<sup>3</sup>. Hodgson, Godfrey. Lloyd's of London, Allen Lane, London, 1984. p 136

Chapter One during 1984-85 satellite insurers paid out US\$600 million in claims while taking only US\$250 million in premiums.<sup>1</sup>

On the surface the embarrassing lack of Australian industry involvement in the first, and in all probability the second, generation would seem to place Aussat in a precarious position. Yet the organization has been able to exploit the argument of projected domestic industry benefits at crucial stages in the political decision making process. The two most important points in this process have been the period immediately after the election of the Hawke Government when Aussat perceived that the project was in jeopardy, and during the later round of negotiations to secure approval to forge on with a second generation.<sup>2</sup> One of the main arguments against OTC's proposal to use Intelsat to provide domestic capacity, was that it would preclude Australian industry involvement in constructing a second generation. Unfortunately like the averred advantages in distance education which were supposed to have been brought by the satellite system, industry benefits have sunk from sight. The case of distance education is, however, instructive of how Aussat was able to exploit metropolitan sympathy for isolated children within a political discourse and bring onside the various lobby groups representing outback Australians. As will be shown in part three of this chapter, now that the Aussat is in operation the harsh economic realities of using the system for remote education has dawned on prospective users.

The Canadian experience is being repeated in Australia. Aussat proponents have used arguments forwarding the benefits of Australian industry involvement and tele-education to justify on-going Government support at crucial points in the decision making process. The implementation of such programmes, however, has fallen far short of the rhetoric. Yet the level of debate on Communications Policy in Australia remains insulated from the trends which are overtaking the satellite industry around the world. Perhaps this is no where better illustrated than by the inane Senate discussion which occurred as Aussat's 1986 *Annual*

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<sup>1</sup>. Satellite Communications, "Satellite Losses: Chain Reaction", November 1985. p 9

<sup>2</sup>. Evans, "Aussat: Discussion Paper", Op.Cit. p 12 In this paper Evans speaks of supposed technology transfer but does not elaborate.

*Report* was tabled. Various Senators complimented Aussat on the quality of its presentation and commended it to their colleagues for perusal. Unfortunately there was not one iconoclastic Senator to point to the \$42 million dollar loss of public money in 1986 alone.<sup>1</sup> At a more serious level the reluctance of Australian policy makers to consider the 'real world' of our limited aerospace industry, is reflected in the request that Madigan not consider the military's role.<sup>2</sup>

Even though Aussat's contribution to Australian industry has been minimal, and eroded our technological sovereignty, it is a curious irony that this has given enthusiasts of a space industry a powerful argument with which to lobby government. While an ardent supporter of Australian utilization of space technology, Ken MacCracken has nevertheless been able to point to the cost of Aussat and its ineffectiveness in securing industrial development, as an argument for increased government support for a domestic industry. MacCracken, a true believer, does not question the utility of satellites but concentrates his argument for government involvement around the fact that we are spending hundreds of millions of dollars on space without significant industrial development. In McCracken and Astley Boden's view,

By 1985, Australia will have spent \$500 million on purchasing 'turn key' systems to use in space. It has only a minor contemporary investment in developing space technology. The purchase of 'turn key' systems provides few gateways into new technologies and no 'demand pull' for other developing technologies. There is consequently a nil return on our space expenditure apart from that calculated in user terms.<sup>3</sup>

While McCracken's assessment of Aussat's value to Australian industry as 'nil' is hard to fault the problem is that he turns this into a justification for further expenditure on space. Inherent in this is the assumption that Aussat, while not supporting industrial development, is justified on other grounds. The logical, if heretical, alternative that the expenditure itself be

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<sup>1</sup>."AUSSAT PTY LTD: Annual report 1985-86", Senate Hansard, 11 November 1986. p 2172 Aussat figure from their 1986 Annual Report.

<sup>2</sup>James, Mathew L. "Australian Space and Scitech Policy and Society", Published by the American Institute of Aeronautics and Astronautics, Inc 1987.

<sup>3</sup>.McCracken, K.G. & C.E. Astley-Boden, CSIRO Space Science and Technology Study Group, "Report of the Fact Finding Mission", Vol 3, September 1984. p 77

reviewed is not considered. Thus, ironically, Aussat's failure becomes the justification for other space related developments.

### Cape York Spaceport

The spaceport has received virtually no critical attention since the idea was first suggested to the Queensland Government by Stan Schaetzel of Hawker De Havilland in 1986.<sup>1</sup> Although the financial feasibility studies are still being carried out on the proposed Cape York Spaceport there has been a distinct shift in the terms of debate. It is now generally acknowledged, even by ardent proponents, that a spaceport could not be commercially viable.<sup>2</sup> Attention is now being shifted to the project's potential to act as a catalyst for an Australian space industry. The same rhetoric used to justify the acquisition of a satellite system, when a commercial case could not be made, has been dusted off to urge Government support. We are told that this is Australia's last threshold of opportunity to join the space age; that space technology is a boon to such a large continent; that by the mid 1990's Australia will be spending \$500 million annually on foreign space technology; and even emotively that a spaceport would 'reverse the trend towards our countrymen being relegated to hewers of wood and carriers of water for the industrial nations of the world.'<sup>3</sup>

The reality of what a spaceport would do for Australian industry is quite different. Although advocates of the space port make the unsupported claim that it would place us at the 'forefront of the space age', a pursuit in which the the US annually spends \$26 billion, it could only increase our dependency on foreign technology.

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<sup>1</sup> Paltridge, Sam. "Crucial Issues in Spaceport Plan Ignored", The Australian, 23 May 1988. p 23

<sup>2</sup> Spiers, John. "Commercial hopes for Cape York questioned", The Australian, 5 July 1988. p 52 and Mark T Rigby "Launch Site Under the Southern Cross, Space World, June 1988. pp 14-17 and Peter Quiddington, "Cape York points to the sky for spaceport hopefuls", Sydney Morning Herald, 27 August 1988 pp 8-9

<sup>3</sup> Shirley, W.A. "Spaceport Market Factors", Letter to the AFR by the Executive Director of the Cape York Space Agency, Australian Financial Review, 4 July 1988. p 15 Refer also P.P. McGuinness "It makes good sense for Australia to go into satellite launching business", Australian Financial Review, 17 September 1987; and "Last chance for Aust space boom", Australian Financial Review, 8 July 1988. p 12

Australia would be the only nation in the world to have a launch pad without a launch vehicle. The costs of developing and maintaining such a capacity, which run into billions of dollars, are entirely prohibitive for Australia. Nations such as the US, France, Japan and India spend between 30%-50% of their annual space budgets on launch vehicles and facilities. Without an Australian launcher, Cape York would further erode our technological sovereignty. What sort of commercial deal could Cape York strike with governments or corporations owning launch vehicles and spaceports?

The way Australia's approach to space has increased our technological dependency has been graphically illustrated by the controversy over Aussat's proposal to launch its second generation of Hughes satellites on the Chinese Long March Rocket.<sup>1</sup> It should also have been enough to show the absurdity of forging ahead with the Cape York proposal. By way of background, Aussat was fortunate to be able to launch its first two satellites at a time when agencies were offering introductory prices. Until recently governments have been willing to provide unlimited subsidies to the satellite industry through minimal launch fees. As these agencies came under pressure to show a return on the billions invested from the public purse they have brought launch fees closer to their actual cost. This has sent companies like Aussat scrambling to find others willing to offer introductory prices despite the added risk. In the United States this has occurred at a time when the government has been trying to encourage private companies to enter the launch industry. These same companies see allowing companies like Aussat to launch American made satellites on Chinese rockets as being contradictory to these efforts, and in 1988 lobbied Congress to ban Aussat's use of the Long March. This provides a clear example of the erosion of our technological sovereignty. In this case decisions about the future of Australian communications were being made by the US Congress and CoCom. The entire Aussat planning process was carried out oblivious to the long term ramifications for technological sovereignty. The United States goal of fostering

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<sup>1</sup>Neales, Sue. "Australia faces US ire on China rocket plan", Australian Financial Review, 15 June 1988. p 1

foreign dependency on their launch service, candidly admitted by Hughes<sup>1</sup>, did not receive the careful scrutiny it warranted.

Aussat's experience should have also sunk Cape York. With two commercial launch centres being planned for the United States in Florida and Hawaii it is not hard to foresee pressure being applied to Congress and the Whitehouse to ensure that domestic facilities are favoured over Cape York.

Yet the main instrument for selling the project to the Australian government will be promises of what the Cape York facility will do for Australian industry. The fact that the acquisition of Aussat, a 'turn key system' as the space lobby continually points out, has done virtually nothing for Australian industry will not deter proponents of a spaceport. Ironically Aussat's cost, the largest item in the projected annual expenditure of \$500 million, is being used to justify further Government involvement on the basis that we need to generate an export industry to offset its cost.

Without government support there is little chance the spaceport would proceed. Spaceports around the world simply do not operate along commercial lines. Although there is a launch pad being constructed by McDonnell Douglas, as part of a contract to develop a new medium launch vehicle, it is being paid for by the US Airforce. An added advantage of this arrangement is that the Airforce will be a guaranteed customer, something which sets it apart from Cape York.

If the government does decide to financially support Cape York, it should be cognizant of the fact that this will be far from a one-off expense. This has recently been brought home to the Thatcher Government through its membership of the European Space Agency (ESA). In a recent reassessment of priorities the British Government decided it could not afford to finance a share of the US\$4 billion it will cost the ESA to develop Ariane 5. In making this decision Mr Kenneth Clark, Britain's Trade & Industry Minister, described the ESA as "a

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<sup>1</sup>.Hughes Communications, "The Post Challenger Dilemma", Op.Cit.

highly expensive club with over ambitious goals."<sup>1</sup> Yet without Government involvement British companies will not be able to receive contracts. Under ESA industrial policies members receive contracts proportional to their contributions. This is the sort of ongoing expense necessary to remain at the 'forefront of the space age'. The possibility is that Cape York will launch Australia into a financial black hole. Government will have to maintain support for an Australian spaceport in order for it to compete in the most distorted market in the world.

Despite the bravado of the Cape York Space Agency in arguing that this is a purely commercial operation which can not be compared to Government owned spaceports, there are many aspects of the launch business which suggest a need for caution. One is that it is an industry of high risk (though not of returns) which does not easily rest with real world commercial pressures. For instance, one of the reasons forwarded by the Rogers Commission for the Challenger disaster was NASA's declaration of the Shuttle as 'operational' after only five flights when it was still very much in the research and development stage.<sup>2</sup> NASA had sold the concept of a shuttle to Congress on the basis of reducing launch costs and selling services to commercial customers. An 'operational' launch system meant that NASA had to try to dramatically escalate the number of launches in an effort to keep pace with an 'operational' manifest. This led to such unorthodox practices as cannibalizing parts from other shuttles for impending launches. These types of risk can not be rendered obsolete merely on the basis of private ownership, and may be accentuated. Cape York would have to maintain a heady launch rate just to meet the interest bill on its capital costs.

Commercial pressures might also induce undesirable launch paths. One of the main advantages suggested for the Cape York site is its proximity to the equator. The closer a

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<sup>1</sup>Marsh, Peter. "Calling mission cash control:Europes space industry, Financial Times, 4 November 1987. Also refer to "British Nearing Deadline on Ariane Funding Decision", Aviation Week and Space Technology, 27 June, 1988. p 39

<sup>2</sup>Zirkle, Robert. Returning to Space: Priorities and Choices in U.S. Launch Policy, A Report by the Union of Concerned Scientists, Cambridge MA, 1986. p 49

launch site is to the equator the less fuel is expended manoeuvring a satellite into position or the greater the weight that can be placed in orbit. It has been suggested that this advantage might induce companies to favour Cape York in spite of the higher 'commercial rates' that would be charged. The question must then be asked as to where the proposed flight paths pass over Australia and our region. Spaceports around the world are optimally located on the coast, such as Kennedy and Vandenberg in the United States, so that aborted missions do not endanger major population centres. In the case of Cape York for a launch into equatorial orbit the safest location would be on the east coast so that debris from an aborted mission would fall into the Pacific. However, Weipa, on the west coast is favoured, at least by the Australian Spaceport Group (ASG), because of Comalco's (one of its corporate members) relationship to the town. Although equatorial launches close to the Weipa site would not pass over major population centres, an aborted mission could obviously affect the Cape York environment.

Whatever flight paths are taken the Australian Government should be prepared for an inevitable approach by a successful consortium to shoulder the burden of insurance. A purely commercial operation could not hope to meet the astronomical insurance costs the industry generates. In the United States a bill was proposed to the Senate in May 1988, limiting the liability of private launch suppliers to US\$500 million for third-party damage and US\$100 million for damage to government property.<sup>1</sup> At the moment an insurance market for third-party liability and government property damages from launch accidents does not exist in the United States let alone Australia. To create such a market the same insurers who have already lost US\$350-500 million in launch failures during the mid eighties, would have to provide an estimated US\$640 million cover per launch.<sup>2</sup>

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<sup>1</sup>Foley, Theresa M. "ELV Launch Liability Limited Under House, Senate Bills", Aviation Week and Space Technology, 30 May 1988. p 109

<sup>2</sup>In early 1989 the US Transportation Department ordered Martin Marietta and MacDonnel Douglas to buy \$80 million worth of insurance for each commercial launch of Titan and Delta vehicles in addition to third party liability insurance. Refer Edward H. Kolcum, "US Sets Insurance Minimums for Commercial Space Launches", Aviation Week & Space Technology, 30 January 1989. p 69



Even if insurers could be found, a Cape York private enterprise consortium could not hope to pay the figures required to secure insurance without charging uncompetitive launch fees. The only alternative would be to approach the Commonwealth to take on the risk. The Chinese and Soviet Governments assume total liability, while Ariane requires customers to purchase \$70 million in third party liability, with the French government assuming the additional risk. John Yardley, President of McDonnell Douglas Astronautics, stated recently that government/industry risk-sharing provisions were essential. He stated in 1988,

Without some relief...our fledgling U.S. commercial launch industry would have to continue to assume virtually all significant risks of loss or injury associated with a launch...This burden quite likely would force us to consider carefully the practicality of continuing in the commercial launch business.<sup>1</sup>

Yet even if Australia adopted a policy of capping third-party liability, someone would still have to insure the spaceport complex itself. This is why the U.S. Senate bill also capped at \$100 million the level of compensation for government owned property (i.e. in the case of the US the various spaceports). The proposed ceiling has not pleased the US Airforce which owns the Vandenberg launch centre. Its own studies have shown that the maximum risk to government property from a Titan launch was US\$300 million. The question which remains to be answered is whether a private Cape York consortium could bear that sort of risk?

### Aussat and Cape York

As Australia's major user of space technology, Aussat's backing for the project has been seen by the two consortiums carrying out feasibility studies as an important asset. In 1988 Aussat joined its largest private customer, Bond Corporation, in the ASG. This led to protests by the rival Cape York Space Agency who argued a government owned company should not be taking sides. Aussat's value to the rival consortiums is in providing their working knowledge of the space industry rather than capital. Privately the satellite authority regards the project as

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<sup>1</sup>.Foley, Op.Cit.

'line ball' at best. However given its poor record of industry development it recognizes it must be seen to be supportive.

The best scenarios concede that revenue from launches will not meet the costs of developing and operating a spaceport. Aussat, which has acted as a consultant on the commercial opportunities of the spaceport, estimated that there would be an average of between 19 and 32 commercial launches world-wide per year to the end of the century.<sup>1</sup> Assuming, that the Cape York facility attracted 25 percent of these launches at current prices of around \$5 million per launch, the satellite authority put the anticipated revenue between US\$28.5 and US\$160 million dollars.

As the capital costs of establishing the facility have been recently put at \$1.5 billion to get to the operational stage and \$6 billion to be fully developed the projected revenue would not come close to meeting half the interest bill of the money borrowed to get it operational.<sup>2</sup> Yet the actual number of launches is likely to fall short of Aussat's figure because it rests on a great number of uncertainties.

Aussat's estimate of the average number of commercial launches, does not for instance take into account the disastrous records of the West's main space agencies, Ariane and NASA, or the Indian space programme over the last few years. The assumption in Aussat's analysis is that no launch vehicles will be lost or be out of action for significant lengths of time. Such failures can be extremely expensive for spaceport owners, as the launch pad is at risk when a rocket fails. The explosion of the Titan 34D rocket at Vandenberg Air Force Base in April 1986 caused about US\$75 million damage to the pad.<sup>3</sup> Such a failure at Cape York would be disastrous in financial terms.

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<sup>1</sup>."Cape York Spaceport: The 'Scoping Studies'", COSSA Space Industry News, No 16, March 1988. p 4

<sup>2</sup>.Gilson, Charles. "Australia revives interest in space", Space Markets Autumn 1987.p 136 and "Business Roundtable Meetings on Space Transport and Related Industries", COSSA Space Industry News, Number 16, March 1988. p 2

<sup>3</sup>."Insurance Companies Defend Higher Pricing Policy", Aviation Week & Space Technology, 7 September, 1987. p 61

The Aussat figures do not realistically assess the possibility that demand for commercial launches (which are largely comprised of communications satellites) will decline. Recently a NASA panel of US scientists and space authorities concluded the longer term demand for commercial launches of satellites was weak at best.<sup>1</sup>

In fact as noted earlier the future of the communications satellite is looking decidedly shaky in the face of the rapidly developing fibre optics technology. Nor can Cape York's owners expect to launch many civilian observational satellites because they are not commercially viable. As noted earlier, the Landsat remote sensing programme is in serious financial trouble after a failed privatization.

Another factor affecting the spaceport's viability is the fact that the space industry around the world has never been governed by normal commercial principles. As Aussat recognized in its report, the \$5 million fee to the spaceport owner is heavily subsidized by governments so that a totally commercial facility would have to charge significantly more for launches.

The possibility is immediately raised that the Australian tax-payer would have to make good the difference if the Cape York facility was to be internationally competitive. In addition all the nations which have operational launch vehicles have their own launch facilities. Thus a Cape York spaceport could expect little business from the European Space Agency. France, the nation which provides roughly a quarter of the ESA budget has its own facility at Kourou. France's reasons for backing a space industry are strategic rather than commercial. Cape York would have to contend with the fact that foreign governments would use their own facilities regardless of commercial realities.<sup>2</sup>

A Cape York spaceport has longer term policy problems for the Australian Government. Would the Australian Government limit a privately owned launch facility to civilian payloads?

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<sup>1</sup>."Space Shuttle flight rates and utilization", Space Policy February 1987. p 7

<sup>2</sup>.Hertzfeld, Op.Cit. Hertzfeld notes "...that competition in the free market sense does really not exist in the space industry. Launch vehicles are the domain of governments. And governments do not base their policies and plans on market and price criteria as does private industry. p 100

As the spaceport would not be economically viable on this basis its owners would inevitably look to launch military cargo.<sup>1</sup>

As the percentage of 'civilian' expenditure on space rapidly declines relative to military spending the pressure to launch military payloads might become irresistible.

The studies on Cape York have so far failed to identify any 'serious environmental impediments'. They have noted that the proposed site for the spaceport lies in an area 'already assigned as being for mining purposes' which enhances the chances of those sites proving acceptable from an environmental impact perspective.<sup>2</sup>

One matter which was not addressed by these studies was the possibility that nuclear powered satellites might be launched from Cape York. It is not well known that the next shuttle programmed for launch after the Challenger failure was due to carry a nuclear powered probe. NASA had scheduled two shuttle flights after Challenger, the Galileo and Ulysses scientific missions, which were to include plutonium generators, or radioisotope thermoelectric generators (RTG's).<sup>3</sup>

RTG's are not nuclear reactors but packages of slowly decaying plutonium-238 that emit heat as they decay and are reportedly fairly weak.<sup>4</sup> Yet a study by the US Energy Department requested by Congressman Edward Markey after Challenger's failure suggested an accident involving radioactive releases from plutonium powered satellites could cause 202 cancer cases and contaminate 367 square miles (954 square kilometres) around the launch site.

If a future US administration found it politically unacceptable to launch such payloads from domestic bases it is possible the Australian Government would offer to undertake the task. As the future of the launch industry is tied to the military exploitation of space the pressure on the Australian Government to allow such use to recoup outlays would be great.

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<sup>1</sup>. *Ibid.* Hertzfeld adds "...a launch vehicle business which excludes military sales would not be profitable...[as] ...the total worldwide demand for commercial launch vehicles is relatively small." p 101

<sup>2</sup>. "Cape York Spaceport: The 'Scoping Studies'", *Op.Cit.* p 5

<sup>3</sup>. "Markey Letter Demands NASA Information on Shuttle Loss/Risk", *Satellite News*, Vol 9, No 7, February 1986. p 3

<sup>4</sup>. Marshall, Eliot. "DOE's Way-Out Reactors", *Science*, 21 March 1986. p 1357

A further dilemma for Australia would be whether or not to launch SDI payloads. If the 'Star Wars' programme proceeds it is planned to power the technology with radioactive devices. Eliot Marshall has reported,

The driving force behind this effort is the realization that space weapons will need a power source unlike any that has been launched before. By conservative estimate, military platforms will require generators that produce at least several hundred kilowatts of power each (a kilowatt being a thousand watts) just for 'housekeeping' chores. In a crisis, space weapons will need 100 to 300 megawatts (300 million watts), far more capacity than is envisioned for any radioactive system now in reach.<sup>1</sup>

The RTG's which would have been used to power the probes that were planned to be launched on shuttles after Challenger could only put out a maximum of 300 watts. The ones proposed for SDI would need huge amounts of plutonium, raising serious questions about the risks of launching such payloads. Past launches of 'hot' loads have had a failure rate of nearly 1 in 10.<sup>2</sup> Yet even without the risks of such dangerous payloads launch failures imperil people in the area. The Titan failure mentioned above "...generated a large propellant cloud that affected about 100 people and caused concern in the neighbouring town of Lompoc, Calif."<sup>3</sup>

### Chapter Conclusion

These are the types of policy uncertainty Aussat and proponents of a space industry have brought to Australia. Predicated on the myth of the 'Woomera Golden Age' Australia is being sold a space industry it neither needs or can afford.<sup>4</sup> The reality is that there is no commercial pay-off from any space activities outside the military ambit. Far from increasing our technological independence Aussat is locked into a technological loop which it can not

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<sup>1</sup>. Ibid.

<sup>2</sup>. Ibid.

<sup>3</sup>. "Insurance Companies Defend Higher Pricing Policy", Op.Cit.

<sup>4</sup>. 'Local Space Industry vital to future', The Australian, 18 July 1988. p 18 refer also Peter Morton, Fire Across the Desert (Forthcoming) mentioned in his article "Woomera Dreams to Dust", The Advertiser, 24 December 1988.

control. This is best illustrated in the case of launching satellites but is true of the construction of the actual satellite hardware. While sleight of hands tricks such as taking delivery of satellites in orbit can be manufactured to deal with domestic concerns, in the end the cost is still added to Hughes' bill. The question never asked is what the expenditure of hundreds of millions of dollars would have done for Australian industry if it had been spent directly on development? Former Aussat Board member, Professor M.W. Gunn, of the Electrical Engineering Department of the University of Queensland has written a paper purporting to describe the advantages of Aussat for Australian engineering.<sup>1</sup> Apart from repeating the old myths about Arthur C. Clarke originating the idea of communications satellites, chronological errors, and wildly exaggerated market forecasts for Television Receive Only Earth Stations (TVRO's) in Australia, Gunn spends four fifths of the paper describing Aussat and its development, rather than engineering benefits. On the last two pages we are told how Inmarsat and Canada are progressing with satellites albeit the relevance of this to Australian engineering is not made clear. We are also told of OTC's important contribution to Australian engineering but again it is not clear what relevance this has for the thesis that Aussat has benefited Australian engineering. Gunn posits that the offset contracts received by STC and AWA are advantages but either through ignorance or the fact that it contradicts his argument does not mention that this work was 'build to print' without design development. It is not until the last paragraphs that Gunn first forwards a supposed 'benefit', which is that Aussat contracted the Microwave Technology Development Centre (MITEC) in Gunn's department to produce microwave designs for ground stations. In this context it is hardly surprising that Gunn, who does not mention his former directorship, finds merit in Aussat for Australian engineering.

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<sup>1</sup>Gunn, M.W. "Aussat: The Program and its Benefits to Australian Engineering", IREE Monitor, April 1987.

## Chapter 5 (Part 3)

### The ICPA, Aussat and Distance Education

It is undeniable that the provision of improved educational services to remote areas was effectively used as one means to justify the acquisition of a domestic satellite system. The idea that a satellite would 'solve' the problems of distance education was repeatedly asserted by satellite proponents during the decision making process. This had the effect of enrolling as allies, certain remote area lobby groups and securing more general support from urban Australians sympathetic to the plight of children using HF radio for School of the Air.

The support of remote area lobby groups such as the Isolated Childrens Parents' Association (ICPA) was particularly important. Although, by itself, the ICPA could probably not have set in motion the process leading to the establishment of Aussat,<sup>1</sup> their endorsement of the acquisition and preferred design of the first generation allowed DOC and Aussat to assert that opponents such as the ATEA or the Department of Finance (both of whom opposed the acquisition of a satellite system) and Publishing & Broadcasting Limited (which supported a different design) were insensitive to the needs of outback children.

The ICPA seems genuinely to have believed the satellite would provide 'a full range of educational services to rural schools as well as remote and isolated homesteads' and that 'it would be cost effective and flexible'.<sup>2</sup> This enthusiasm was encouraged by Aussat's

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<sup>1</sup>.Coleman,"Community Pressure: Is it a spontaneous, effective force in policy development", Op.Cit. Guster and Coleman stated in interviews with the Author, Op.Cit. that the ICPA played a role totally out of proportion to their size, and that they were seen by 'vested interests' as useful allies.

<sup>2</sup>.Treweeke, R. "Address by National President of the Isolated Children's Parents' Association", National Satellite Communications Project Conference, Alice Springs, 16 July 1983. pp 62-63

publicity. Typical of the claims made by Aussat during the early eighties was one by Graham Gosewinckel on *Four Corners* when he affirmed the satellite would provide distance education for the School of the Air.<sup>1</sup> When asked by the ABC interviewer Jim Downes,

How realistic do you think are the expectations of people in the outback for what the satellite will lead to?

Gosewinckel replied,

I believe they are quite realistic and I've encouraged people to be enthusiastic.

Downes continued,

Have you been too encouraging? I mean have you caused expectations which just simply cannot be met?

Gosewinckel averred,

I don't believe so at all.<sup>2</sup>

Yet more than a decade after the *Bond Report* raised the possibility of using a satellite for distance education, it is arguable that remote residents have received any benefit. Certainly this is the perception of Lloyd Lacey, Project Officer with the Satellite Trial Implementation Committee (Queensland Department of Education), who commented after the Mt Isa trial,

The Federal Government raised the expectations of rural communities very high and its now turned to dust in their mouths. Staley sold Aussat by saying it would bring School of the Air into a new age...rural communities have in fact got nothing.<sup>3</sup>

As critics have consistently maintained, the utilization of satellite technology is too expensive for effective distance education.<sup>4</sup>

Brian O'Brien commented in a report for the Western Australian Government,

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<sup>1</sup>Gosewinckel, Graham. General Manager of Aussat Pty Ltd on the ABC television programme *Four Corners*, Op.Cit. 10 September 1983.

<sup>2</sup>Ibid.

<sup>3</sup>Lacey was interviewed by ABC Radio Journalist Kirsten Garret for the programme Background Briefing in October 1987.

<sup>4</sup>The Mt Isa Trial halved the number of students originally intended to participate, because of the expense of providing additional channels. Lloyd Lacey, "Distance Education By Satellite", Aussat 86 New Horizons Conference, Sydney 5-6th November 1986. p 207 In addition it is worth noting that seven of the eight students were connected to mains power. Had this not been the case additional expenses would have been incurred modifying equipment. This means that there would be an even greater cost to remote families with stand alone power supplies in any extended programme.



Potential educational users include the School of the Air, long led to believe that Aussat would bring an economical end to their isolation, but who in practice will require ground stations costing more than \$60,000 for two-way voice and one-way (from teacher to students) video links. The trial with eight students in Queensland will cost about \$1.5 million for 90 minutes per day for one way video by Aussat and two way audio by Aussat and Telecom.<sup>1</sup>

The Australian experience has mirrored the outcome of overseas experiments. Canadian Professor William Melody stated that in a trial with satellites and distance education which took place in his home province of British Columbia, it would have been less expensive to provide each student with a personal professor for their entire career.<sup>2</sup>

Although both the White Inquiry and Working Group were enthusiastic about educational experiments being carried out overseas, they did not address the economics of these projects.<sup>3</sup> When Tony Staley returned from Canada brimming with enthusiasm for a satellite system, as noted before Jack Curtis, Managing Director of Telecom, quipped that the Minister had met 'a very good salesman'.<sup>4</sup> The Curtis observation was perceptive. The Canadians have been experimenting with satellite broadcasting, tele-medicine, tele-education, and data communication since 1976. Robin Mansell reported,

These experiments demonstrated the technical feasibility of using medium-powered satellites for direct-to-home broadcasting and the demand for television services such as tele-education in remote areas. The existence of hardware and the success of experiments has been regarded by observers of Canadian communication/information policy as indicative of successful policy implementation. But the commercial phase of service implementation generally is overlooked. Many of the experimental successes have not been implemented. Typically, the time frame for introducing new, widely accessible, communication services has been delayed, often indefinitely. But the 'social' experiments have served a useful purpose. In marketing Canadian satellite technology abroad, both public and private Canadian representatives have been able to use experimental projects as a means of interesting foreign governments in Canadian Hardware.<sup>5</sup>

The experience is being repeated in Australia, as experiments such as the Mt Isa trial are being used to justify Australian communications policy. The realities of implementing such a system with interactive earth stations costing around US\$50,000 are far too

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<sup>1</sup>.O'Brien, "Technological and Industrial Significance to W.A. of the First Generation Aussat Satellite Programme", Op.Cit. p 4

<sup>2</sup>.Author's personal interview with Professor William Melody, University of Wollongong, October 1987.

<sup>3</sup>.Commonwealth Government Task Force, *National Communications Satellite System Report*, Op.Cit. pp 63-65 and Working Group Report, *National Communications Satellite System*, Op.Cit. pp 42-46

<sup>4</sup>.Staley, Anthony. A. "Reflections of the genesis of AUSSAT", Media Information Australia, No 38, November 1985. p 11

<sup>5</sup>.Mansell, Robin. "Contradictions in national communication/information policies: the Canadian experience", Media Culture and Society, Vol 7, 1985. p 347

expensive to be cost effective.<sup>1</sup>

In addition, Aussat's financial position will not allow it to continue to subsidize social experiments. Aussat's contribution to the Mt Isa trial was worth well in excess of half a million dollars at a time when (before tax credits) the organization has experienced losses approaching \$100 million in its first three years of operation.<sup>2</sup>

Had Staley and the other planners who engaged in study tours of Canada in 1979, looked beyond attempts to sell us Spar Aerospace technology, they would have noticed a distinct shift in communications policy. From 1976 until 1979, educational institutions were able to use the Hermes satellite free of charge. Yet from the commencement of the Anik B programme, the emphasis shifted to making users pay. Where the Canadian Government was prepared to pay, some satellite experiments continued and were called 'pre-operational'. Where this was not the case, experiments were discontinued, or in the case of two Canadian universities, they transferred "... their experiences from the satellite experiments to operational programs using terrestrial networks, one a dedicated system, the other the existing telephone system."<sup>3</sup> One of the reasons for this transferral was that the technology tested in experimental projects was only available for operational systems at exorbitant prices.<sup>4</sup>

This has certainly been the experience of experiments carried out in developing nations. The University of the South Pacific was originally able to use the ATS satellite, and more recently under Intelsat's Project Share, a circuit free of charge. However they now face the prospect of negotiating tariffs if the programme is to continue. In Indonesia use of the Palapa satellite for education has been funded by aid.<sup>5</sup> Anna Stahmer reported the network costs have been a significant source of concern for long term viability. In Peru,

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<sup>1</sup>.Stahmer, Anna. "Distance Education in Canada: A Review with emphasis on the Use of Media", Paper submitted to The Economic Development Institute of the World Bank, April 1988.

<sup>2</sup>.Aussat, 1987 Annual Report, Sydney 1987.

<sup>3</sup>.Casey-Stahmer, Anna. "The Era of Experimental Satellites: Where to Go from Here", Journal of Communication, Autumn 1979.

<sup>4</sup>.Stahmer, "Distance Education In Canada", Op.Cit.

<sup>5</sup>.Australian academics have often been taken in by the illusion of 'progress' when observing these systems. Refer for instance to Chris Duke, The Impact of Modern Communication Technology in Australia, Centre for Continuing Education ANU, Canberra 1979. Duke argued Indonesia's 'lead' over Australia in using satellites had allowed a 'leap frogging' over us with 'state of the art technology'. p 12

use of an audio-conferencing network via satellite had been free of charge, but is now under review. In the Middle East, ARABSAT was only used by educators during an initial free of charge trial.

In Australia other groups apart from Aussat, should also shoulder the responsibility for building unrealistic expectations. These include politicians from both major parties and academics specializing in distance education.<sup>1</sup> The case of Tony Staley using the figure of \$1,000 for television receive only earth stations (TVRO's) and on one occasion a figure of \$400 in outback Western Australia, has become so widely known that one was produced 'Staley's Law'. This being that there was an inverse relationship between the cost of earth stations and the Minister's proximity to Canberra. What has gone unnoticed was that ALP politicians continued to use the \$1,000 figure after the election of the Hawke Government. Graham Campbell, MHR for Kalgoorlie, in a speech to the ICPA in June 1983 used the \$1,000 figure.<sup>2</sup> While Campbell told the ICPA he intended to 'cut a swathe through a lot of misinformation that has been promulgated by both sides', he then proceeded to tell his audience that interactive earth stations would cost as low as \$10,000.<sup>3</sup> In one of the most contradictory press releases of the entire satellite acquisition process Michael Duffy stated he was concerned that,

...because of some degree of 'overselling' of the domestic satellite in recent years, many people living in remote areas Australia had unrealistic expectations about the provision of non-broadcasting services via the satellite.<sup>4</sup>

Duffy then went on to state that dishes would cost between \$10,000 and \$15,000. This was at a time Telecom was advising that interactive earth stations would cost in the order of \$60,000. While politicians used totally unrealistic figures for earth stations for electoral advantage, specialist academics served up the same fare.

One of the problems with academics writing papers on the potential for Aussat to offer educational services is that their enthusiasm for satellite technology is rarely tempered by

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<sup>1</sup>The list could also include OTC which advised Sir Charles Court, Premier of Western Australia, that a school of the air service could be provided with \$15,000 dishes. A.F. Guster "Briefing Material for Prime Minister's Meeting with Sir Charles Court", Minute to Ms Barclay, DOC, 1 December 1981. p 2

<sup>2</sup>Campbell, Graham. "Speech to the ICPA Southern Gascoyne Branch", 25 June 1983.

<sup>3</sup>*Ibid.*

<sup>4</sup>Duffy, Michael. "Minister Expresses Concern Over Unrealistic Expectations on Satellite", 12 October 1983. p 3

practical cost considerations. For instance, academics writing on distance education continually quote figures for interactive earth stations that are totally unrealistic.<sup>1</sup> Part of the reason for this is that many distance educators accept industry hyperbole at face value, especially the argument that although at present the technology is expensive it is on a descending cost price curve. For instance a very widely cited Canadian study by Ruggles *et al* stated,

The success of the Shuttle means that a new generation of larger, heavier and more sophisticated satellites can be placed in orbit, also the growing use of the Space Shuttle should decrease the cost of launching and repairing satellites. Combined with the increased transmission capacity of the satellites themselves, the 1980's will witness a dramatic increase in the use of satellites for communication services. One benefit from this will be increased opportunities for those learning at a distance.<sup>2</sup>

and

In 1981, Telesat predicted that the cost of launching the Anik C satellite will be between \$27 and \$31 million (US) if it is sent up by a Delta rocket, but between \$9 and \$10 million (US) if space is shared in the cargo bay of the Shuttle. It is obvious from these figures that satellite communication services will become increasingly more economical through the use of the Space Shuttle.<sup>3</sup>

Yet, as eminent space historian Professor Alex Rowland has argued, the Shuttle has proved to be prohibitively expensive and unreliable. As noted before the NASA, despite

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<sup>1</sup>. See for instance Peter Long "Australian Satellite Education: Pie in the Sky?", Australian Journal of Adult Education, Vol 25 No 1, who quotes interactive earth stations at between \$14-25,000 and G. Nichols "Satellite network for the Royal Flying Doctor Service", Sydney Nichols and Associates, 1-20, 1983, cited in Peter Hosie "Realistic uses of Aussat for distance education in Western Australian primary and secondary schools", Distance Education, Vol 9, No 1, 1988. Nichols quotes a figure between \$14,000 and \$40,000 for interactive earth stations. Yet industry expert Brian O'Brien quotes \$60,000 and Anna Stahmer of the Ryerson International Development Centre in Toronto quotes a figure of US\$50,000. Roger Banks, Director of Business Development for Telecom Australia also puts the price at \$60,000 in "Information, telecommunications and distance education", Open Campus, Deakin University, March 1985. Nichols figure for the RFDS may well take into consideration discounts for a bulk order but overall the discrepancies between the costs quoted by academics pushing the education barrow and industry experts is staggering. The lower figures are probably derived from a report prepared by N.G. Davies and J.A. Gillam for the Commonwealth/State Advisory Committee on the Educational Use of Communications Technology on Potential Use of the Australian Satellite Communications System for School of the Air and Enhanced Educational Services, DOC Canberra 1983. At a time when Aussat was paying \$50,000 for minor earth stations Davies and Gillam argued there were confident predictions of the cost being reduced to \$25,000 in orders of 100 and perhaps a further reduction to \$10,000-\$15,000. While these estimates have proved wildly unrealistic it must be remembered that this report was brought out immediately after the election of the Hawke Government. In this context the political intent of the report (to justify existing policy) should be taken into account. For instance Davies and Gillam used the figure of \$1,000 as the cost of a dish to receive television at a time when senior DOC officers doubted this could be achieved. Quoting realistic costs would have undermined the report's value for lobbying the new Government.

<sup>2</sup>. Ruggles, Robin H. *et al.* Learning at a Distance and the New Technology, Educational Research Institute of British Columbia, Vancouver 1982. p 33

<sup>3</sup>. Ibid.

spending billions of dollars has not been able to reduce launch costs.<sup>1</sup>

It would be easy to list faults in the analysis of Ruggles *et al* of the future costs of distance education via satellite, based on their acceptance of the case made by those trying to 'sell' the technology.<sup>2</sup> Despite growing competition the cost of launching satellites has dramatically escalated during the 1980's, a cost which has to be passed on to users. Albert Wheelon sees launch costs as one of the major handicaps satellites owners face over terrestrial operators.<sup>3</sup>

The rise in launch costs has occurred for several reasons. Firstly, prices at around \$10 million for Shuttle launches did not reflect the real cost to NASA. In the jargon of the industry, they were introductory prices designed to 'hook' customers into an increasingly expensive technological system. Now that NASA and Ariane are bringing the price of launches closer to their cost, satellite authorities such as Aussat are scrambling to find new entrants willing to offer 'introductory prices'. The reported difference between the Aussat's second generation project cost if launched in the West is \$160 million for two satellites.<sup>4</sup>

The second reason that launch costs have jumped is because of the disastrous series of launch failures over recent years. These failures not only increase the cost of future launches, as agencies strive to recoup losses, they also add up to huge losses for those companies willing to insure satellites. These costs eventually are passed onto users.

One industry response to the collapse of space insurance has been for companies such as Aussat to call for tenders on the understanding that they will only accept delivery in orbit so that the manufacturers supposedly bear the risk. This is, however, no more than sleight of hand, in that manufacturers inevitably incorporate this cost in their price. This cost is then passed back to companies like Aussat and in turn to users such as distance educators.

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<sup>1</sup>.Rowland, Alex. *Op.Cit.* p 107

<sup>2</sup>.The Shuttle, for instance, could only retrieve satellites in low-Earth orbit rather than geo-synchronous orbit in which civilian communications satellites used for distance education are located.

<sup>3</sup>.Wheelon, *Op.Cit.* p 132

<sup>4</sup>.Neales, Sue and Anne Davies. "Hughes wins Aussat contract but delay over launcher angers losers", *Financial Review*, Friday 17 June, 1988. p 3 and Helen Meredith, "Aussat risks boycott over Chinese option", *The Australian*, Monday June 20 1988. p 17

The Mt Isa trial in Australia, has many similarities with United States distance education projects in the 1970's. The Rocky Mountain, Alaskan and Appalachian ATS (Applications Technology Satellite) all set out to demonstrate 'the unique capabilities of satellites'.<sup>1</sup> Dave Berkman, the project officer responsible for the start up phases of the ATS project, argues that these social experiments were an attempt to justify past expenditure on space by trying to give the technology a social relevance. Berkman recalls that although no one ever defined what the 'unique capabilities of satellites' were for distance education, he was allowed to waste \$US20 million over a year endeavouring to demonstrate them. Berkman claimed, "...it was a classic case of the Emperor's New Clothes phenomenon: everyone was afraid to admit not knowing what those obvious, though never specified 'unique capabilities of the satellite' really were."<sup>2</sup> Berkman came to realize that the Rockies project cost \$US3,000 per isolated learner, assuming all took advantage by making 150 mile round trips twice a week to watch programmes, at a time when the programme was being promoted as a 'low cost delivery system'.<sup>3</sup> In effect, this distance education experiment like those, such as Mt Isa, which have followed have done little else but show it is possible to broadcast television via satellites.<sup>4</sup> Berkman concluded,

I still find it hard to believe how the hype concerning what had to be one of the biggest federal boondoggles of all time has been so uncritically accepted.<sup>5</sup>

In addition, distance educators appear to be masters of self deception when it comes to the subject of Aussat's wider commercial success. Peter Long, for instance, noted that commentators such as Snow (1980) and Breen (1980) had argued that education would be lost as commercial interests fought to secure transponders. Long agreed arguing,

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<sup>1</sup>.Berkman, Dave. "Confessions of an Ex-Bureaucrat", Public Telecommunications Review, Vol 8 (6) 1980. Refer also to Bert Cowlan's reservations about projects he in which was involved, in John A. Curtis and Joseph M. Biedenbach (Eds) Educational Telecommunications Delivery Systems, Washington, DC: The American Society for Engineering Education, 1979. p 151. Cited in Lloyd Lacey "Blue Skies, Grey Clouds, or False Dawn: Educational Applications of Communications Satellites and the Prospects for Distance Education in Australia", Department of Education Queensland, 1984.

<sup>2</sup>.Berkman, Op.Cit. p 12

<sup>3</sup>.It was this message of 'low cost delivery' that the PBAA carried back to the Task Force after a study tour in 1978.

<sup>4</sup>.Ibid. p 13

<sup>5</sup>.Ibid. 6

The satellite program will be a commercial success. Its ability to support education, however will be limited...commercial interests have been far better organised and have captured the lion's share of transponder usage.<sup>1</sup>

In reality it is the public sector which has leased the majority of Aussat's transponders, with the ABC providing over 40 per cent of the company's revenue.

Nor are Aussat's financial problems compatible with Long's claim that it will be a commercial success. The failure of Aussat to substantially improve distance education is not the result of commercial interests leasing the available transponders. Aussat would readily lease capacity to any educational institution willing to pay. What educators have failed to understand about satellite technology is that the norm is for a glut of underutilized capacity because of a lack of demand from commercial interests.

It is precisely this excess capacity amongst satellite authorities and users that has allowed social experiments to be undertaken. In Canada, Melody claims that Department of Communications overcame,

...the embarrassment of having a technologically advanced, but mostly unused satellite system by subsidizing Telesat with many millions and allocating the excess capacity for experimental use...Permanent experimentation is needed for the satellite system to justify itself.<sup>2</sup>

In Australia, the defunct Club Superstation allowed NSW TAFE to deliver hospitality courses via its network into NSW registered clubs.<sup>3</sup> Club Superstation offered two hours to TAFE for Bar courses, but indicated that the distance educators would have to pay if they wanted additional time for other courses. That both parties considered this proposition shows they exhibited a lack of knowledge about the *Satellite Communications Act (1984)* which prohibits carriage of third party telecommunications by non designated carriers.<sup>4</sup> In 1987 the question became academic as Robert Holmes a Court who owned Club Superstation sold it to Alan Bond's Sky Channel at a considerable loss. Sky Channel discontinued the Superstation's free offer. However,

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<sup>1</sup>.Long, *Op.Cit.* p 14

<sup>2</sup>.Melody, William. "Are Satellites the Pyramids of the 20th Century", *In Search*, Vol VI, No 2, 1979. p 6

<sup>3</sup>.NSW Department of Technical and Further Education, Submission to the House Of Representatives Standing Committee on Employment, Education and Training Inquiry into New Technology in Education, 23 September 1988. pp 2-3

<sup>4</sup>.*Satellite Communications Act* 1984. For a discussion refer Australian Broadcasting Tribunal, *Remote Commercial Television Services*, First Report, Canberra 1985. p 116

enthused by their early involvement, TAFE (NSW) seem determined to repeat the costly experiments which have been repeatedly undertaken overseas. Perhaps the most dubious proposal in current TAFE planning is to have a UHF bandwidth allocated for education in remote areas allowing them to rebroadcast programmes to students that they receive off the satellite. The most elementary economic assessment would show that the cost of a second generation transponder, at \$6 million per annum, makes it prohibitively expensive compared to other mediums.

Telesat was able to sponsor distance education because government regulations ensured it was cross subsidized. As was documented earlier this is no longer the case.<sup>1</sup> To make up for the loss of transfer payments Telesat will have to turn to broadcasters who provide 70% of its total space segment revenues. Indeed rate increases of 5.5% have already been approved through to 1990, leading Andre Bureau to suggest that satellite distribution costs, which are already expensive, could become prohibitive.

Aussat also derives most of its revenue (75%) from broadcasting, and similarly is overwhelmingly subsidized from the public purse. Apart from the ABC which contributes \$32.705 million to Aussat annually, the Federal Government provides a \$2 million subsidy for Imparja operating in the central beam.<sup>2</sup> In addition, the Western Australian and Queensland Governments each provide over \$2 million a year subsidies to the operators of RCTS licenses in their states. It could be argued that this expenditure already represents a substantial contribution to distance education in that both HACBSS and RCTS provide educational broadcasts. Arrayed against this is the fact that faced with the increased broadcast and distribution expenses, the ABC has been forced to cut back on production of educational programmes. After the 1985 budget it was projected that TV Education was likely to lose up to 27% of its funding.<sup>3</sup>

What should also be noted is the small number of remote residents who have actually

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<sup>1</sup>.Bureau, Op.Cit. p 6

<sup>2</sup>.When Staley announced the Government's 'in principle' intention to proceed with the satellite he told Parliament that the additional cost to the ABC of operating HACBSS would average \$3 million a year over the period 1985-1992. It actually costs the ABC approximately \$20 million per year over and above what it would have spent without the satellite.

<sup>3</sup>.Media and Communications Council "ABC Cuts: Threat to Independence" Op.Cit.



purchased receivers. When Tony Staley announced the Government's 'in principle decision' to proceed with the acquisition of a satellite system, he told Parliament, "I would expect that the demand will spread like wildfire throughout the country and there will be hundreds of thousands of these in demand".<sup>1</sup> During 1980, ABC officers in support of a satellite system, argued that the potential market existed for the provision of close to 100,000 earth stations.<sup>2</sup> The Carver Committee stated the system needed over 20,000 HACBSS receivers to make implementation viable.<sup>3</sup> Plessey Australia, which hoped to sell 50,000 dishes between 1986-1989,<sup>4</sup> has put the actual number of installations at between 4,000 and 5,000.<sup>5</sup>

Added to this the cost must be measured against the small numbers of School of the Air Students. In Western Australia they represent only one fifth of one percent (232 students) of the total state primary school population of 148,069.<sup>6</sup> Educational broadcasts to these students will only continue as long as government is prepared to subsidize the ABC for HACBSS and the RCTS operators. In Canada, some provinces have found it necessary to provide financial support schemes for institutions so they use TVROs for distance education.<sup>7</sup>

On its own it is difficult to envisage any educational institution in Australia leasing a transponder for distance education.<sup>8</sup> This situation will not change with the introduction

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<sup>1</sup>.Staley, "Speech by the Minister for Post and Telecommunications on National Communications Satellite Task Force", Parliamentary Debates, 18 October 1979. Op.Cit.

<sup>2</sup>.Inter-Departmental/ABC Working group, "Minutes of Meeting: Financial Implications of the Satellite System", 27 March 1980. p 6

<sup>3</sup>.Carver, J.H.(chairman)"Report of the Satellite Committee of Review", Op.Cit. The Department of Communications suggested there would be a demand for 23,700 individual receive only earth stations. Refer Communications Development Division, "National Communications Satellite System - Policy and Cost Implications of HACBSS 1 Reception", 1982. p 2

<sup>4</sup>.Plessey Australia Pty Ltd. "A submission urgently seeking Government Assistance to enable the Marketing of HACBSS Satellite earth Stations", July 1985. p 11

<sup>5</sup>.Evans, G. "The ABC & The Satellite; Costs, Benefits and Issues", Op.Cit.

<sup>6</sup>.Hosie, Op.Cit.

<sup>7</sup>.Stahmer, "Distance Education in Canada", Op.Cit. p 6

<sup>8</sup>.Not many educational institutions that use satellites actually lease full-time transponders. In the United States about 30 organizations and institutions use domestic satellites for education, but only a few have a full-time transponder. Most organizations only use satellites on an occasional basis. In Canada six organizations lease full-time transponders for regularly scheduled TV distance education to TVROs. These include the ACCESS Network (Alberta), Radio Quebec (Quebec), Knowledge Network, (British Columbia) and TV Ontario. Another organization DUET (Distance University Education via Satellite), Nova Scotia, shares a transponder with commercial broadcasters. Refer Anna Stahmer and Mark Lopianowski, "Satellite Service and Education: Where do hopes and reality meet", The Canadian Satellite Users Conference, 1987. pp 2-3

of the second generation of satellites. Aussat's 50 watt transponders will cost in the order of \$6 million per annum. Educators such as Peter Shippington have expressed hopes for the 150 watt L band transponders which are to be incorporated for mobile services.<sup>1</sup> In 1988 the House of Representatives Standing Committee on New Technology and Education was advised that the cost of earth stations might be reduced to around \$6,000. Yet this estimate relies on the success of R&D being carried out by the University of New South Wales at a cost of \$70,000.<sup>2</sup> What this research hopes to accomplish is to reduce the current cost of mobile terminals from over \$50,000 to \$5,000. Yet it may take years before this or alternative systems, are reduced to a price affordable to distance educators.<sup>3</sup> The cost of incorporating the mobile package has been put at \$60 million which means that it will be expensive to lease capacity. Apart from the cost, this technology is still experimental and higher powered transponders have a greater risk of catastrophic failure. The risk of relying on satellite technology should not be underestimated.

It is also difficult to envisage any educational application for Aussat's services (1st or 2nd generation) in metropolitan areas. Both the White Inquiry and the Working Group recognized that the only place satellites would not duplicate services which could be offered by terrestrial means would be in remote areas.<sup>4</sup> A decade later, the economics have shifted further in favour of terrestrial technology and away from satellites. With the implementation of fibre optics in Australia, it would be difficult to make a case for the introduction of any educational services via satellite to metropolitan areas.

At a time when Intelsat's Joseph Pelton argues that to be competitive with fibre optics, satellite companies would have to deliver transponders in orbit at US\$50,000, the cost of Aussat's second generation transponders will be in the order of \$6 million per annum. Even though higher powered transponders reduce the size of dishes needed to receive Aussat signals and therefore presumably their cost, educators should be wary of the Very Small Aperture Terminal (VSAT) publicity. The take up of this technology has been very

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<sup>1</sup>.Shippington, Peter. "Summary Mt Isa Satellite Trial 1986", *Pedals*, No 23, April 1987.

<sup>2</sup>.Telizen, Rowland. "Aussat's L-Band tests under way", *The Australian*, 24 October 1988. p 20

<sup>3</sup>.This is not apparent from Aussat's publicity releases. Refer Leighton Farrell (Aussat Group Manager, Corporate Relations), "AUSSAT - Current and Future Perspectives", More & Lewis, *Op.Cit.* p 83

<sup>4</sup>.Task Force Report *Op.Cit.* p 64 and Working Group Report *Op.Cit.* p 42

slow overseas, making it far from the industry saviour some have portrayed.<sup>1</sup> The utilization of VSAT technology will be discussed more fully in the following chapter, however, educators should take note of the poor commercial experience with VSAT networks such as the Federal Express 'Zap Mail' system.<sup>2</sup>

Similarly they should be made aware of the negligible use of teleconferencing via satellite. Developed by IBM as a sales gimmick for SBS, video conferencing via satellite has never taken off overseas. And where companies such as US Sprint have a choice, they are converting their activities to fibre optics. Comsat, for instance, scrapped Intelmet in 1985, a subsidiary it formed with Intercontinental Hotels Corporation, to provide a video conferencing service to an international market.<sup>3</sup> If Comsat could not make a New York to London link viable, it suggests Australian educators should not be optimistic about its application here.

Once the satellite industry rhetoric is cast aside, one can begin to make a realistic assessment of its utility. The trouble is that distance educators and bureaucrats rarely adopt this course.<sup>4</sup> It is a process well described in Jacques Vallee's book *Confessions of a Computer Scientist*, when he states,

When you mention teleconferencing to people in Washington their eyes light up. They think SATELLITES! Big Bucks! I get to spend some real big money now they think...Then they realize... When you use a network for communication, you don't need a satellite: all you need is a telephone, an electric plug in the wall and a smallish computer somewhere.<sup>5</sup>

Lesley Albertson reported that a six year programme of research by the Communications Studies Group at London University revealed few differences between the effectiveness of audio-video and audio only learning.<sup>6</sup>

A recent Canadian survey of technologies used by Distance Educators underlined that "...print materials are the most common learning/teaching tools in distance education carrying the most course content, including for courses which use communications

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<sup>1</sup> "For Satellite Industry, No Place Left But Up", *Communications Week*, 12 January 1987. p C3

<sup>2</sup> Kerver & Bennett, *Op.Cit.* p 15

<sup>3</sup> Comsat, *1985 Annual Report*, 1985. p 22

<sup>4</sup> Berkman, *Op.Cit.* p 10

<sup>5</sup> Vallee, Jacques. *Confessions of a Computer Scientist*, And/Or press Inc, California, 1982. p 195

<sup>6</sup> Albertson, Lesley. "A Bird for the Bush", *Metro: Media and Education Magazine*, No 63, 1984. p 18

technologies."<sup>1</sup> Pens and paper might not have a 'high tech' glamour but they are the least expensive and most useful technology available.

### Chapter Conclusion (Part 3)

The overwhelming experience of distance education via satellite is that it is too expensive. Governments around the world are content to fund social experiments to give the impression they are improving educational services to remote areas. The stark reality is that providing a trial for eight primary school children in Queensland has done little for the eight hundred School of the Air students in that state. For governments these may be useful exercises in terms of industrial strategies, that is to say, assisting the marketing of satellite technology, or in terms of winning electoral support, powerful in symbolic terms. However, it ignores the fact that the implementation stage of these programmes never comes to fruition.<sup>2</sup> Academics continue to write up social experiments as successes without informing the reader that they were discontinued when the projects funding ended, or without once mentioning the costs.<sup>3</sup> This is precisely what has happened in the case of the Mt Isa Trial. Distance educators and policy makers need to 'objectively' appraise the utility of satellite technology. It is clearly not a panacea for the problems associated with distance education.<sup>4</sup> Satellite proponents continue to ask for more time

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<sup>1</sup>Stahmer, Anna. "Satellite Technologies and Services: Implications for International Distance Education" Op.Cit.

<sup>2</sup>Dr Peter White of La Trobe University has made the point that funding for distance education projects should be contingent upon continued financial support for those projects being available when Commonwealth support ceased. ABT "RCTS, First Report", Op.Cit. p 58

<sup>3</sup>Fowler, Brian. "Aussat and all that: Reaching the Australian outback", Educational Technology, Vol 3 (2) 1987 and Geoff Lacey "Q-NET: Queensland puts education via satellite on trial", Airdoctor, No 187, June 1987. Aussat also claims the trial will lead to a 'better deal' for outback' people, but omits to mention that there implementation programme following the Mt Isa exercise. Farrell, Op.Cit.

<sup>4</sup>Bigum, Chris. "Tertiary Distance Education and Information technology: Fantasy, Foolishness and Fact", Educational Computing Research Group, School of Education, Deakin University, 1987. Bigum argues the application of computing and telecommunications technologies to distance teaching is restricted by an understanding of the problems of distance education as being largely technical. He concludes the widespread use of computing and telecommunications technologies to tertiary distance education in Australia appears unlikely in the short term. See also William Melody "Learning from the Experience of Others: Lessons from Social Experiments in Information Technology in North America." A paper presented by the Director of the Programme on Information and Communication Technologies, Economic and Social Research Council, London to the International Conference on Social Experiments with Information Technologies, Odense University, Denmark, 13-15 January 1986.

and money to develop the technology's potential for distance education, all the while promising that the costs are coming down, yet never stopping to ask what else could have been done to improve distance education with the same funds. The focus should instead be on improving distance education to remote areas with terrestrial technologies such as Telecom's Digital Radio Concentrator Service and in metropolitan areas through fibre optics. The Canadian experience after years of satellite trials tells us that,

Audio conferencing is the least expensive, most flexible, most readily implemented telecommunications technology for distance education (Ellis 1981), (Jeffrey 1983), Shobe(1983). In its simplest form it can use standard telephone equipment and existing telephone conferencing facilities to link an instructor with a small number of widely scattered students. As the number of locations, the number of participants, and the frequency of teleconferences increase, specially designed station and bridging equipment must be employed, but the telephone remains the basic communication channel.<sup>1</sup>

In conclusion, policy makers should note a submission by Anna Stahmer to the Canadian Satellite Users Conference last year, in which she stated,

Satellite services have not yet fulfilled the expectations placed in them to become key instruments in education and development. Even where suitable satellite technologies are available, relatively little use is happening...In the 70's a commonly held belief was that once suitable satellite systems were available, such services would blossom. In 1986, even in regions where suitable satellite systems are available, the dream images are not reality.<sup>2</sup>

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<sup>1</sup>.Shobe, Charles R. "Telecommunication technologies and distance education: a report on recent Canadian initiatives", Open Campus, Deakin University, 1983. p 9

<sup>2</sup>.Stahmer, Anna (Ryerson International Development Centre) & N. Mark Lopianowski, (Teleconsult Ltd.) "Satellite Services and Education; Where do Hopes and Reality Meet?", The Canadian Satellite Users Conference, 1987.

## Chapter 6

### Initiation of Second Generation Planning Process

The Department of Communications moved to initiate planning for the second generation of Aussat well before the launch of the first two satellites. Following an executive discussion on DOC's role, Bob Lansdown wrote to Graham Gosewinckel in November 1984, to suggest a meeting to discuss a planning framework. Lansdown's initiative recognized that a planning structure needed to be reconstituted if the second generation was to proceed. Yet unlike the situation in 1979-1981 there was now a specific authority responsible for administering Australia's satellite system and although at that stage Aussat still did not have a satellite in orbit or signed a customer, its very existence represented a major consideration for any new planning structure.

Given this change DOC and Aussat were faced with the task of defining their areas of responsibility in respect to second generation planning and of securing the other's assent to their favoured arrangements. This produced a situation in which both actors became extremely circumspect towards each others organizational proposals. Lansdown's initial letter stated,

I think that you and I should meet as soon as convenient to talk about how we are going to handle ourselves in this connection. I have no wish, nor does the department, to cut across your own market orientated discussions with people in both the public and private sector, but we do want to make sure that the ultimate outcome is facilitated and, to the extent that Government is involved, it becomes easy for favourable decisions to be made.<sup>1</sup>

Implicit in Lansdown's wording was the recognition of a new relationship between DOC and Aussat because of the latter's commercial responsibilities. Yet at the same time the

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<sup>1</sup>Lansdown, R.B. "Letter to W.G.Gosewinckel", 9 November 1984. p 1

Secretary went on to indicate the Government's interest in the planning process, adding,

The broadcasting matter is an obvious example. You don't need me to say that to get a Government's policy decision is one thing but to restructure the industry is quite another. Another example is the South Pacific...My concern is that the Australian Government might be asked to foot the bill not only for satellite space, but also for educational back-up and training facilities for ground staff involved. In other words there is a web of interests in which it is necessary that we each involve ourselves.<sup>1</sup>

In this letter Lansdown anticipated what was to become Aussat's major objection to DOC attempts to involve itself in the planning process. Aussat's response to what it regarded as unwarranted interference by DOC was to claim that such activity impinged on its relationship with clients and necessitated it making available 'commercial in confidence' information.<sup>2</sup> Lansdown acknowledged this but argued that DOC involvement was necessary because of the broader national interest.

Aussat's attitude towards DOC overtures on second generation planning was also shaped by the state of the world civilian satellite industry and its own initial operating experience. John Maclean describes the second generation planning as more of a 'political clash' in which Aussat tried 'to keep the Department out of it.'<sup>3</sup> Maclean, who did the Department's financial modelling on the project, believes,

They [Aussat] would have been able to see that they were on a slippery financial path at that stage. I wouldn't be investing in Aussat now and I would not have been investing then...Aussat must have been able to see that it was going to be difficult to get through. Satellite costs had gone through the roof. Their first generation results were going to be poor, considerably lower than what was expected. There was a lot of costs which kept creeping in that they always managed to hide under the carpet. The cost of this and that which were never modeled. Basically all the cost side went up and none of the demand side met. So the project went from marginally economic to more than marginally non economic.<sup>4</sup>

Maclean adds,

I don't know what the long term outlook for satellites is but once you had those couple of spectacular launch failures; you had spectacular cost increases in insurance and demand did not generate...Telecom and OTC got onto, unfortunately for Aussat, fibre optics ... Suddenly the economics of satellites swung dramatically just because of the technology.

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<sup>1</sup>.Ibid.

<sup>2</sup>.Aussat's attitude was reminiscent of Telecom's contempt for the 'meddling of the bureaucracy', which is documented by Reinecke and Schultz, Op.Cit. p 54 Several of the key actors interviewed stated that Graham Gosewinckel 'hates Canberra'. Yet from a different perspective Hugh Payne says, of Telecom in particular, that they never appreciated the battles the Department waged to stop successive governments draining even more money from the national carrier. Payne, Personal Interview with Author, Op.Cit.

<sup>3</sup>.Maclean, Personal Interview with Author, Op.Cit.

<sup>4</sup>.Ibid.

So in some ways you've got a bit of a steam train organization still running.<sup>1</sup>

During 1984 the cost of Aussat's capital works programme rose substantially. When Hugh Payne attended a board meeting in October 1984, he carried with him Maclean's analysis of Aussat's 1984/85 Budget, which indicated a likely increase in costs of at least \$84 million.<sup>2</sup> To this could be added, subject to approval, the costs associated with the launch of a third and the procurement fourth satellite (the latter being a long lead time on ground spare). After Payne discussed the cost increases with Don Cocks at the Aussat Board meeting, he returned to the Department and requested Maclean to provide an analysis of Aussat's explanation. Maclean noted that a four satellite configuration increased the 1983/84 mid year review costs by around \$152 million.<sup>3</sup> This had increased the total projected capital expenditure from \$373.126 million, to a total projected capital expenditure of \$525.134 million.<sup>4</sup> Maclean added that this figure could well increase because of rising launch and insurance costs, as indeed occurred due to the series of launch failures documented in Chapter One.<sup>5</sup> With this background in mind it is not difficult to understand why Aussat wanted to keep as much of the planning as possible in its own hands.

As with the earlier planning structures of the SPO, Gosewinckel realized that control of the technical design of the satellite system was critical to Aussat management deciding the future direction of the company. Prompted by Lansdown's initial foray, the General Manager of Aussat immediately established an internal planning group headed by Wayne Nowland to "...address the many commercial, technical and system considerations and liaise with external organizations."<sup>6</sup> The creation of this group within Aussat was clearly a move to keep planning for the second generation 'in house' as much as possible. It also

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<sup>1</sup>. Ibid.

<sup>2</sup>. Payne, Hugh. "Aussat Meeting of Directors - Wednesday 24 October 1984", Minute to Vin Kane, DOC, 26 October 1984.

<sup>3</sup>. Maclean, J.D. "Aussat's Capital Works in Progress Budget", Minute to Hugh Payne, DOC, 1 November 1984.

<sup>4</sup>. Ibid. Table B

<sup>5</sup>. Refer also to a letter from David Hoare, Chairman of Aussat, to Michael Duffy, "Launch Failure and Risk Management", Aussat, 16 January 1985, which sought approval for substantial insurance increases and a spare on ground satellite.

<sup>6</sup>. Mere, R.P. "Seminar on Planning for the Second Generation Satellite System", Communications Development Division, DOC, 22 March 1985. p 1



allowed Nowland's team to brief the Department's own planning group, on Aussat's existing programme, rather than allowing DOC to implement a joint initiative.

Aussat's lack of enthusiasm for Canberra's involvement was to some extent mirrored in the DOC Communications Strategy Division's (CSD) intentions towards consulting the satellite company in areas it regarded as Departmental responsibilities. This aspect of CSD's initial planning concerned John Maclean, then Acting First Assistant Secretary of Space, Telecommunications & Postal Policy Division. Maclean believed the Department appeared to be 'going it alone' on second generation planning. He argued in a letter to Rein Mere, head of the newly established Communications Development Division (CDD) project team, that it seemed counter productive to leave Aussat out of a forthcoming Departmental seminar as the satellite authority should be fully involved with all aspects of the planning process. Maclean continued,

It should be borne in mind that Aussat's Memorandum, and the Satellite Communications Act, do not in any way limit Aussat's powers, duties and responsibilities in respect to the provision of a satellite telecommunications system to the first generation. Aussat is in essence required by its Memorandum, supported by the act, to undertake planning for the second (and all successive) generations of satellites.<sup>1</sup>

Maclean's comments were in response to a paper prepared by Cameron Hazlehurst, detailing the course of CDD planning for the second generation. Hazlehurst's document placed the CDD project team, comprising Mere, Peter Jackson and Chris Deacon, at the centre of the planning process. Hazlehurst proposed the project team's task would comprise six basic dimensions : social; economic; technological; political and institutional; and extra-communications interests. The two areas which were to become the most contentious over the next year were the economic and technological. Hazlehurst described the team's considerations under these categories as:

#### Economic

Economic considerations are pervasive. They extend from the overall cost of the second generation system and the attendant financial implications, through likely traffic (and therefore revenue) projections, to the relative cost effectiveness of particular proposals for use of the satellites. The economic effects of potential structural changes to the communications industry also need to be considered particularly in the light of pressures for the establishment of a space industry in Australia. Second order economic issues also need to be addressed such as the ability of the national telecommunications network as a

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<sup>1</sup> Maclean, J.D. "Planning for the Second Generation Satellite System", Memo to Rein Mere, 16 May 1985. p 1

whole to meet business, governmental, and social needs, and the opportunity for Australian industry participation in the supply of goods and services associated with the system. Economic viability will be the predominant factor in determining the engineering and service parameters for the system.

#### Technological

The technology available - space segment, ground segment and alternative terrestrial technology will have a major impact on the commercially viable uses of the second generation system. The technology for the space segment must be set well in advance of actual system operation, while there will be opportunities to update ground segment technology over the system lifetime. National technology development objectives will need to be co-ordinated with relevant policy Departments and other organizations. It should not be overlooked that co-ordination with sectors of industry and possibly unions will also be required.<sup>1</sup>

A copy of this document was sent to Aussat on 11th June 1985. Graham Gosewinckel was far from enthusiastic about the proposed planning relationship and wrote to Lansdown,

...Aussat, as the system owner and operator, is continuing to discuss future requirements with the full range of customers, namely the commercial sector and the Government sector within Australia, and with those overseas countries having a possible interest in accessing the system. I am sure you will agree that it is important that any activity within your Department relating to the second generation system should be limited to consideration of policy issues in the telecommunications and broadcasting areas and that your officers should not represent to AUSSAT's customers either in the private or Government sectors that their requirements are a matter for discussion with the Department.<sup>2</sup>

Gosewinckel's rebuke should have given DOC forewarning of the strain this issue would place on their relationship. The Departmental seminar, to which Maclean had wanted to invite Aussat, took place on 1st July 1985. CSD's reason for not inviting Aussat was that it was establishing its own agenda for second generation planning. An officer from DOC's Forward Development Unit (FDU) reported from the seminar,

It appears that AUSSAT are not to be permitted to have a free hand in deciding the requirements for the next generation satellite system.<sup>3</sup>

The issue came to a head on 25th July 1985 when Mere and Jackson from DOC's project team met with Wayne Nowland from Aussat's group. Cameron Hazlehurst later recalled the meeting was 'abortive', because Nowland indicated to Mere and Jackson that "...Aussat saw no need to discuss second generation planning with CSD officers."<sup>4</sup>

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<sup>1</sup>.Hazlehurst, C. "Second Generation Communications Satellite System Planning", CDD, 30 April 1985. pp 4-5

<sup>2</sup>.Gosewinckel, W.G. "Letter to R.B.Lansdown", 19 June 1985.

<sup>3</sup>.Matson, B. "CSD:Second Generation Satellite Planning Seminar", FDU, 2 July 1985.

<sup>4</sup>.Hazlehurst, C. First Assistant Secretary, Communications Strategy Division(CSD), "Aussat Awareness of Intended Role of Government in Second Generation Satellite System Planning", Minute Paper to the Secretary, 24 June 1986. p 2

After receiving a report of the meeting a somewhat disconcerted Lansdown wrote to Gosewinckel,

...I have the impression that you and I need to meet on the subject of co-ordination on the matter of the second generation satellite. My earlier understanding was that you and I agreed we each had a role to play as AUSSAT and the Department, and naturally there would be some significant differences with the situation that prevailed in 1979/80 and 1981. You wrote to me on 19 June...The last paragraph of that letter causes me some concern - concern which I hope is unnecessary. In part what precipitated this letter is hearing from Rein Mere about a meeting with Wayne Nowland in Sydney at the end of July which obviously was not very comfortable from our point of view.<sup>1</sup>

The meeting proposed by Lansdown did not eventuate and there was a breakdown in contact on second generation matters between DOC and Aussat for the rest of 1985. Aussat resumed dialogue with DOC on second generation planning in February 1986, when Graham Gosewinckel wrote to the new head of the Department, Charles Halton. On this occasion it was Aussat which was trying to take the lead and define DOC's role. Gosewinckel proposed the establishment of a committee, to provide the formal vehicle for consultative activity during the planning and design stage of the second generation satellite system, by Aussat and invited Halton to nominate a representative from the Department.<sup>2</sup> DOC's response would prove to be similar to other actors who had been approached to be enrolled during the planning process for the first generation. In short, the Department would return with a proposal for their own planning structure.

As Halton was new to his position he sought advice from both W.R. Ellis, Acting First Assistant Secretary of CSD, and the Department's Deputy Secretary Hugh Payne. By way of background information Ellis reported,

I understand CSD encountered a negative response from AUSSAT at its initial attempt to establish liaison arrangements with Aussat on 2nd generation matters. It was clear from this reaction that Aussat had a narrow perception of the DOC role in the planning process. The matter was raised with the then Secretary, and about that time Mr Gosewinckel wrote to the Secretary stating in clear terms the AUSSAT view...We understand the meeting foreshadowed in the Secretary's reply never eventuated. As a result a vacuum remains as to the respective roles of AUSSAT and DOC.<sup>3</sup>

Ellis added,

...subject to Aussat clarifying the terms of reference we should agree to participate

<sup>1</sup>.Lansdown, R.B. "Letter to W.G.Gosewinckel", 1 August 1985.

<sup>2</sup>.Gosewinckel, W.G. "Letter to Charles Halton", 10 February 1985.

<sup>3</sup>.Ellis, W.R. "Aussat Proposal for Second Generation Satellite System Advisory Committee", Minute Paper to Vin Kane, 24 February 1986. p 1

provided we can be convinced that the respective roles of DOC and AUSSAT suit our purpose...[and]...agree Aussat to chair, noting the wider role of DOC, which can come in at a higher level.<sup>1</sup>

After laying out the reasons why he believed the Department had a role to play in the planning process, Hugh Payne was very clear in his response, stating,

I read the letter from the General Manager of Aussat as a grab for dominance in the planning of the Second Generation Satellite System.<sup>2</sup>

and although

...I am not very clear myself about the appropriate procedures and mechanisms we should be putting forward...I am not amenable by (*sic*) the approach proposed by Mr Gosewinckel. I do not see why OTC in any case should have specific representation of the sort Mr Gosewinckel suggests.<sup>3</sup>

On 21st March 1986, Aussat gave its first presentation to the Department for just over a year. Aussat's presentation confirmed for Ellis the course of action he and Payne had recommended to Halton. In his report to the Secretary he concluded,

Mr Johnson indicated that he saw the proposed AUSSAT chaired consultative committee undertaking a policy coordination role in the broadcasting, telecommunications and international areas. As this is more properly the role of the Department, his statement foreshadows some difficulties with determination of our respective roles.<sup>4</sup>

Ellis also reported Wayne Nowland's 'strawman' design for the second generation. According to Nowland's presentation the second generation satellites would be bigger, more powerful, and more versatile because an homogeneous design (30x30 watt Ku band transponders on two satellites) would provide 'maximum flexibility'.<sup>5</sup> For Ellis,

The presentation and subsequent discussion provided a timely focussing of attention in the Department on the issue of the replacement of the current series of satellites. In particular it reinforced how little time is available to determine the policy environment which will shape the design of the replacement satellites.<sup>6</sup>

In other words during the breakdown in relations between DOC and Aussat over second generation planning, the latter had progressed towards its preferred design without input

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<sup>1</sup>. *Ibid.* p 2

<sup>2</sup>. Payne, E.E. "Planning for the Second Generation Satellite System", Minute Paper to Vin Kane, 28 February 1986. p 2

<sup>3</sup>. *Ibid.*

<sup>4</sup>. Ellis, W.R. "Aussat Presentation: 21 March - Second Generation Satellite Planning", Minute to Secretary, 24 March 1986. p 1

<sup>5</sup>. *Ibid.* p 2 The argument that a homogeneous 30 watt would provide greater flexibility is a complete reversal of the position Gosewinckel took on the design of the first generation. As was shown in an earlier chapter the General Manager of Aussat had argued against a Minister's suggestion for an homogeneous 30 watt system, on the grounds that it would increase cost and reduce flexibility.

<sup>6</sup>. *Ibid.*

from DOC. Halton accepted the advice proffered by his officers and replied to Gosewinckel on 24th March 1986 in the following terms,

I agree with the view that the Portfolio bodies proposed for membership of the suggested committee, with the possible exception of the Overseas Telecommunications Commission, do need to consult closely in order to develop sound advice as an input to the second generation planning. A committee process would be a useful way to seek to quantify user needs, within a policy context, so that system planning and design can proceed. Over and above that, however, I believe there is an urgent need for a high level portfolio committee to be chaired by my Department which will serve to bring together a range of national policy issues...relevant policies in these fields will need to be settled as far as possible before firm decisions could be made about the system design on the basis of user requirements. Therefore, while I have no problems with AUSSAT establishing a committee for consultation during the planning and design stage and would be happy for a Departmental officer to join such a committee, I believe its work will need to be complemented and in some degree shaped, by advice from a high level committee convened by the Department.<sup>1</sup>

In short DOC would allow Aussat to have its committee but, as Payne and Ellis had recommended, the Department was reserving the right to oversee, and where it felt appropriate, direct the planning process. The Department was also able to swing the weight of ministerial authority behind its proposed organizational arrangements. After receiving a letter from the Chairman of Aussat, David Hoare, reporting to Duffy on the company's plans for a second generation on 7th March 1986, Ellis drafted a Ministerial reply and suggested that the Government announce the planning process was under way from its perspective. The letter Ellis prepared for Duffy conveyed the following to Aussat's chairman,

You will be aware, of course, of the critical importance of national policy environment within which the replacement satellites will be required to operate and I know that my Department is in touch with Aussat with a view to ensuring that adequate consideration is given within Government to these policy matters.<sup>2</sup>

Ellis also provided the Minister with a draft press release to announce the establishment of a high level Communications portfolio committee to be chaired by Charles Halton, consisting of representatives from DOC, Telecom and Aussat. Halton wrote to Graham Gosewinckel on 9th April 1986 to make Aussat aware of the Department's plans in this regard.<sup>3</sup> Although the Department was able to impose their favoured arrangements, the

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<sup>1</sup>.Halton, C. "Letter to W.G.Gosewinckel", DOC, 24 March 1986.

<sup>2</sup>.Ellis, W.R. "Second Generation Communications Satellites", Minute to Minister and attached letter to Chairman of Aussat, 19 March 1986.

<sup>3</sup>.The Portfolio Committee's membership included : C.C.Halton (DOC,Chair), W.G.Gosewinckel (Aussat), M.K.Ward (Telecom), G.F.Maltby (OTC), G.Whitehead (ABC), R.L.Brown (SBS). Its terms of

wording of Halton's letter was conciliatory towards Aussat's previously stated reservations about DOC involvement. Halton stated,

...the Aussat role is properly recognised and...there is no intention to duplicate activities. It will be necessary however to establish close consultative links between the Department and the Company to ensure that the planning process runs smoothly.<sup>1</sup>

Yet, as we have noted, the Department believed it could temper Aussat's control over the planning process by the establishment of a portfolio committee. While Halton was telling Aussat that there was no intention to duplicate activities, privately DOC was not concerned if this occurred. This is revealed in CSD notes on coordination arrangements which concluded,

There is no clear delineation between portfolio and interdepartmental issues, just as there is no clear separation between 'design' and 'policy' issues...the subject matter of all three groups will therefore unavoidably overlap...but this is not a problem, in fact it is probably desirable.<sup>2</sup>

Attached to Halton's letter to Gosewinckel was a document specifically outlining DOC's role in the policy process and certain assumptions affecting that activity. Again the wording of the document is extremely sensitive to Aussat's reservations and contains some illuminating passages:

Boundaries affecting the DOC Role: The environment for determining the replacement series of satellites is quite different to that which prevailed when establishing the initial system:

- \* there is no longer any need to justify the introduction of a new technology;
- \* a large proportion of the requirements to be satisfied by the replacement satellites is likely to be carry-over from the current series to ensure continuity of services;
- \* Aussat is a functioning entity, its corporate structure determined by the Government with an implicit charter to plan for future generations of satellites;
- \* acquisition of new satellites is in many respects conceptually little different to the acquisition of any large item of capital equipment - DOC involvement with new satellites should only arise where policy issues are raised;
- \* given the existence of Aussat, the Department is not the appropriate agency to handle prospective customer requirements. Existing and prospective customers in both the public

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reference were stated as: "To facilitate consultation on the portfolio policy aspects of major issues relating to the design and use of the replacement series of domestic communications satellites. In particular, the committee will provide a forum to facilitate the coordination of advice to the Minister during preparation of Cabinet submissions seeking Government approval at appropriate stages of the planning and acquisition process." The Inter Departmental Working Group on Replacement Communications Satellites had as its purpose, "To facilitate coordination of the inter-portfolio policy aspects of the design, procurement and operation of the replacement series of domestic communications satellites. In particular, the group will provide a forum for the coordination of Cabinet submissions seeking government approval at appropriate stages of the planning and acquisition process." Its membership included, DOC, Dept of Aviation, DITAC, Dept of Defence and the Dept of Finance. CSD, 11 April 1986. Attachments A & C.

<sup>1</sup>. Halton, C. "Letter to W.G. Gosewinckel", 9 April 1986.

<sup>2</sup>. CSD, "Notes on Coordination Arrangements for Replacement Satellite Planning", 1986.

and private sector should deal directly with AUSSAT in regard to future requirements.<sup>1</sup> This document also included:

Assumptions affecting the DOC Role: ...

- \* it is unlikely that the replacement satellites will incorporate a quantum leap in technology, rather they will be slightly more powerful and efficient versions of what we already have;
- \* it is unlikely that there will be a requirement for "WARC 77" type DBS, or any other special purpose satellites (e.g. for Defence, meteorology);
- \* business and government sector general communications requirements will be met by standard space segment hardware and special packages will not be required;
- \* the economic/telecommunications policy environment will not change radically prior to the 1990's; and
- \* Aussat will continue as the sole owner/operator of the domestic satellite system, including the space segment (i.e. the space segment will not be owned in whole or part by another party such as INTELSAT or some other Australian private or public organization).<sup>2</sup>

This extract deserves close analysis. First, as to the Department's role, it was during early 1986 that the title of 'second generation' gave way to 'replacement satellites'. The language change was made to infer a natural continuity should exist in the policy process. The words second generation implied a new or radically different technology which in some quarters would be interpreted as properly engendering a new debate. The title 'replacement satellites' on the other hand implied that there was nothing new or different about the planned artifacts and as such no reason for the same debate over their need. In reality Aussat's plans called for far larger and more powerful satellites capable of delivering new services. The fact that many of these changes were highly questionable meant that they should have subject to debate, outside Aussat's own decision making process. Yet what also must be taken into account, is that at the time this document was produced, DOC had only just recommenced a dialogue with Aussat on the second generation planning. Thus DOC's relative ignorance of Aussat's ambitious plans are not reflected in statements such as 'the replacement satellites will not incorporate a quantum leap in technology'.

The Department's other avenue of influence over the policy/design process stemmed from Hazlehurst chairing an Inter-Departmental Committee formed to co-ordinate inter-portfolio policy matters. DOC was conscious of the fact that other Departments would

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<sup>1</sup>.CSD, "National Communications Satellite System - Planning For Replacement Satellites", 3 April 1986. pp 2-3

<sup>2</sup>.Ibid. p 3

have to be enrolled in the policy process. This was pointed out to Ellis by B.W. Johnman, Acting First Assistant Secretary of DOC's Corporate Policy & Projects Division, on 24th March 1986. Johnman proffered the following advice to Ellis,

Finance (together with the other coordinating agencies to some extent or another) fought us all the way in relation to the first generation issues including the introduction of new services, the financial implications for the Commonwealth, and ownership...This is likely to continue into the second generation as it will inevitably raise important choices which the central agencies will wish to influence. To elaborate and play the devil's advocate:

- \* Finance is likely to argue that any new Budget funded service requiring funds downstream will need specific approval...

- \* I can easily imagine Finance walking away from the whole process if the whole impact of the second generation on dividends and equity capital requirements have not been debated.

- \* Clearly Finance does not accept that the existing ownership situation should continue into the longer term.<sup>1</sup>

The Inter Departmental Working Group gave DOC greater influence over the policy process in several ways. Firstly by making the Department a channel through which other areas of Government had to pass to implement their own interests, DOC effectively controlled the information flow from the public sector to Aussat which was not represented. It also had the effect of bringing Aussat on-side in that the satellite company had to cooperate with DOC if it wished to minimize the potential for obstruction from other Departments, such as Finance, or in the case of DITAC, it wished to enrol its support as a powerful ally using arguments for industry development to win Cabinet approval for an expensive second generation.

### Second Generation Planning Structures and Operations

Even though the second generation planning structures were formalized in early 1986, negotiations attempting to define the role of the various groups continued well into the year. Conflict was essentially engendered by the same areas of contention which led to a breakdown in relations on second generation planning between Aussat and DOC in 1985. On 14th April 1986 Dick Johnson repeated Aussat's concern that the DOC might come between the satellite organization and its public sector clients to Cameron

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<sup>1</sup> Johnman, B.W. "Second Generation Satellite", Minute to W.R.Ellis, 25 March 1986.



Hazlehurst.<sup>1</sup> Clearly Aussat wanted to limit DOC influence over the second generation planning process.

As with the first generation, both Aussat and DOC recognized that the satellite design was a key area and the former felt that control over shaping the artifact would allow it to dictate 'policy' or, more precisely, how the second generation was used. In the conversation mentioned above Johnson indicated to Hazlehurst that policy (in this case in relation to DBS) might be 'technology led'.<sup>2</sup> Hazlehurst commented that it might be more appropriate to label this course of policy formation as 'technology bound'. What both were alluding to was their belief that the shape of the technology would determine future policy. For Johnson the emphasis was on Aussat 'leading' policy makers down, no doubt what he envisaged was, the most rational path. Hazlehurst's concern was that Aussat was binding the Government to its chosen course.

In reality both are appealing to the sort of technological determinism Ron Johnston criticized in David Collingridge's work.<sup>3</sup> Yet even though the supposition that entrenched technology dictates policy is fundamentally flawed, the important thing for us to note is that the belief that it does operate in this manner, does influence the decision making process. In this case it meant that both Aussat and DOC were keen to control the design process.

What DOC feared was that the technology would be the crystallization of Aussat's policy alone. Thus far from being technology led, future policy would be 'bound' by the existing technology to the most seemingly rational path preordained by the satellite company. DOC saw its task was to keep Aussat's design within the parameters of existing and likely Government policy. For instance, Aussat proposed including a mobile communications system in the second generation series, which caused Hugh Payne to caution Hazlehurst in the following terms,

I think you should watch what AUSSAT might be proposing in relation to mobile communications system or service. The law says that Aussat cannot become a provider of

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<sup>1</sup>.Hazlehurst, Cameron. "Aussat Matters: Replacement Satellite Co-ordination", Minute Paper to Secretary, 11 April 1986. p 1

<sup>2</sup>.Ibid. p 2

<sup>3</sup>.Johnston, Ron. Op.Cit.

a switched telephone or data network, but it seems to be developing ambitions to become a provider of a mobile telephone service which would allow the owner of a mobile telephone to make interstate and perhaps international calls...If this is the way AUSSAT is likely to head, it will be getting very close to providing a similar telephone service to Telecom.<sup>1</sup>

Yet as DOC tried to monitor the design process through the planning structures they created they found Aussat reluctant to impart relevant information. In a sense this was the result of the two organization's objectives for the planning structure. For DOC the planning structures were instruments of control while for Aussat participation was necessary to win Government approval for the second generation. Thus within the planning groups there was a constant tendency for Aussat to attempt to limit DOC control of the design process, first by excluding participation by others within the various committees' terms of reference and secondly by withholding technical information. In establishing the Aussat chaired Advisory Committee, Johnson argued that the committee should not have technical matters on its agenda as these were properly the sole responsibility of the satellite organization.<sup>2</sup> Johnson also wrote to Halton to report from the first Advisory Committee meeting,

The Committee held its first meeting on 16 May 1986 and agreed to the Terms of Reference as attached. The Committee also requested that in my capacity as Chairman, I should advise you that the Committee sees its role as being to identify areas of policy for consideration by the appropriate organizations, and not to carry out such considerations.<sup>3</sup> (Underlined in Original)

As such Aussat was hostile to the other planning groups involving themselves in the design area. Hazlehurst recorded this attitude in a Minute to Halton on 20th August 1986,

During discussions with Dick Johnson and Wayne Nowland on 15 August it was quite apparent that they do not readily accept the validity of the Portfolio Committee addressing matters which they see as largely AUSSAT's business. Hence they are not disposed to be particularly forthcoming in that forum.<sup>4</sup>

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<sup>1</sup>Payne, E.E. "Planning for Replacement Satellites", Minute to Cameron Hazlehurst, 6 August 1986.

<sup>2</sup>Hazlehurst, "Aussat Matters: Replacement Satellite Co-ordination", *Op.Cit.* p 2

<sup>3</sup>Johnson, R.C. "Letter to C.C.Halton, Secretary DOC", Aussat, 27 May 1986. The Advisory Committee terms of reference were recorded as being: "Recognizing that the nominal end-of-life of the second generation system is the year 2002 (a) review the design of the second generation system, as developed by Aussat in consultation with its customers and prospective customers; (b) identify those areas of Government policy of relevance to the design, and identify and element(s) of those policies requiring consideration by the appropriate organization(s)."

<sup>4</sup>Hazlehurst, C. "Aussat Second generation Planning - Second Meeting of the Portfolio Committee", Minute to Charles Halton, 20 August 1986.

Further documentation of Aussat's position on this matter is evident in a Minute from Peter Jackson, the Acting Assistant Secretary of the Communications Systems and Technology Branch, to Hazlehurst on a forthcoming Portfolio Committee meeting,

I spoke to Dick Johnson today about including an agenda item on an update by AUSSAT on their system concept, and circulation of an outline of the current concept. He responded that he thought that Mr Gosewinckel would not approve of any AUSSAT "technical" documentation being circulated to the Committee, which in Mr Gosewinckel's view was purely a "policy" committee. I made the point that the AUSSAT system concept was central to the Committee's deliberations and Mr Johnson agreed that a clear definition between policy and technical matters was not possible. However, he agreed that the agenda item could be included, but we would have to play it by ear on the day according to how Mr Gosewinckel plays it.<sup>1</sup>

John Maclean provides an interesting assessment of relations between DOC and Aussat in first and second generation planning. In respect to the second generation planning Maclean avers,

There was quite a lot more conflict. It was always an uneasy relationship in my day. There wasn't close cooperation. In my day there were fewer players and each of the players saw they needed the other. We needed the OTC/Aussat people because of their technical competence and knowledge. And they lent a very strong technical credibility to it all ... They needed us because we knew the Canberra system and we as Communications were a very tight Department . We could push it through and get the major users onside. Now the second time round it all got bigger. It was a big Aussat, OTC were disillusioned, with the first generation something had obviously gone wrong. It wasn't killing them in the skies. There was a whole question mark hanging over satellites. Aussat was fighting for its life because it clearly could have gone and could always go fairly quickly if a government wanted to dismantle it, pay off the debt, just hand it all over and make it a small division of Telecom or OTC. It was just that continual fight of Aussat very sensitive about revealing their data to these boffins in Canberra, who might sink them ... It was always difficult getting cooperation. I guess it was a question of those that want to build don't want to be stuffed around by the people who want to question the economics and those that want to run with the policy and economics and the financial niceties, don't particularly want to be stuffed around by a pile of engineers who just want to build something. There is always a mutual suspicion between the two.<sup>2</sup>

Maclean's comments contain an accurate summary of the reasons for the creation of the initial planning structure and the reasons why it maintained and then lost its social cohesion. As Maclean identifies, OTC was an important actor in the first generation planning process but had become disillusioned with Aussat by the second. Before considering the design of the satellite which emerged from the second generation planning structure, we need to recount the reasons for OTC's changed perspective, in which it had been transformed from collaborator to critic.

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<sup>1</sup> Jackson, Peter. "Portfolio Committee Meeting", Minute to Cameron Hazlehurst, 29 August 1986.

<sup>2</sup> Maclean, Personal Interview with Author, Op.Cit.

### Aussat and the South Pacific

The idea of using Australia's domestic satellite system to provide communications services to South Pacific nations was first raised in 1980. In that year several Pacific Island Countries (PICs) enquired as to whether Australia could provide communications services through its proposed satellite system.<sup>1</sup> The Australian Government advised the PICs that the design of the first two satellites had made no provision for South Pacific services and that it was adjudged to be too late in the procurement process to alter the satellite's configuration. The Government did however undertake to take into consideration PIC needs in the planning of any future generations and together with New Zealand funded a study of a co-operative programme between the twelve nations which make up the South Pacific Forum.<sup>2</sup> This resulted in an Australian proposal in 1983 for the establishment of a South Pacific Telecommunications Development Program (SPTDP), which was subsequently endorsed by the Forum members in their meeting of that year. At this meeting, Prime Minister Hawke again reiterated Australia's willingness to take PIC requirements into consideration. E.J.Wilkinson was appointed as Program Controller for the region, with the responsibility to report to the South Pacific Economic Community (SPEC). Wilkinson, a satellite enthusiast, later recalled,

I believe my advocacy assisted in making the case for modifications to the third of the Australian satellites (K3) to provide a limited pilot facility to assist the South Pacific gain "hands on" experience with satellite network[s] at a time when the only other option, the Intelsat network, was unaffordable due to high space segment hire charges and unhelpful operating rules. I must point out that I gained ready support from the Aussat organisation at all levels but found only limited enthusiasm in other parts of the Australian Bureaucracy.<sup>3</sup>

In early 1984 Aussat suggested modifying its third satellite (A3) to provide services on the first generation. This was approved by the Aussat Board in February 1985 and

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<sup>1</sup>.Personal Interview & Subsequent correspondence with G.V.Brady, Assistant Secretary, General Economic Branch, Department of Foreign Affairs, 5 May 1987.

<sup>2</sup>.Wilkinson, E.J. "Letter to David Charles, M.P. Chairman, Joint Committee on Foreign Affairs & Defence", South Pacific Bureau for Economic Co-operation, 2 May 1986. The study was entitled "SPEC Rural Telecommunications Study of the South Pacific", September 1982.

<sup>3</sup>.Wilkinson, Op.Cit. p 4

Minister Duffy in March of the same year.<sup>1</sup> Duffy announced the decision on 3rd April 1985, stating that it "effectively brings forward by several years the possibility of AUSSAT providing facilities that would allow for domestic satellite services within countries in the South Pacific."<sup>2</sup> One reason Aussat shifted its attention to the South Pacific during this period was that it had lost Papua New Guinea (PNG), as a client in early 1985. PNG had been an observer in the deliberations of the White Inquiry in 1978 and after discussions over a number of years, Aussat's design had included a special spot beam on each of the three satellites to provide domestic communications services.<sup>3</sup> However in 1985, the PNG Government decided to take up an offer from an American Company for free access to transponder capacity in return for registering the proposed orbital locations with the U.N.'s International Frequency Registration Board.<sup>4</sup> Although Aussat viewed PACSTAR as a 'paper' proposition, which would be unlikely to proceed, it was nevertheless disappointed to lose a major source of revenue. In addition, there was the possibility that if the system did eventuate, it would be a competitor to Aussat's ambitions in the South Pacific and as such the satellite authority would have liked to have had an established operation by the time PACSTAR was launched.

After receiving Duffy's approval Aussat devoted considerable marketing and technical resources in an effort to sell capacity to PICs.<sup>5</sup> This interest was not, however, returned by PICs at a formal level for several reasons. First and foremost was the PIC realization of the expensive nature of satellite communications and of the Australian system in particular. As such their initial enthusiasm, prompted by Australian advice through the SPTDP, waned significantly. A cynical interpretation of the formation of the SPTDP could portray it as an attempt by a developed nation to club together a group of developing nations, so that they could help pay for the former's technology. Yet even collectively the PIC's did not have the financial resources to embark on the use Aussat

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<sup>1</sup>.Hoare, David. "South Pacific", Letter to The Hon Michael Duffy, Minister for Communications", Aussat, 14 July 1986.

<sup>2</sup>.Brady, Op.Cit. p 2

<sup>3</sup>.Gosewinckel, Graham. "Letter to The Hon D.Charles, Sub Committee Chairman, Joint Committee on Foreign Affairs & Defence", Aussat, 13 March 1987.

<sup>4</sup>.Ibid. Registration can only be initiated by governments.

<sup>5</sup>.Hoare, David. "South Pacific" Op.Cit. p 2

and there was no desire on their part to restructure aid programmes.<sup>1</sup> Added to this was the fact that Intelsat already operated in all but two PICs, Tuvalu and Niue.

Another reason for PIC disinterest was that while Intelsat would allow domestic and international traffic to run together, the Australian position, as promoted by OTC and the Department of Foreign Affairs, was that any use of Aussat would have to be in keeping with Australia's obligations under the Intelsat agreement. Wilkinson opposed this position arguing,

It is ridiculous that Australia should be nervous about a minor intrusion into the very high earnings of Intelsat in the Pacific; especially as the Australian service would be to the substantial advantage of the South Pacific. The ultimate irony is that, while Australia is nervous of offending Intelsat, American, Japanese or other Intelsat partners will certainly not allow the same reservations to stop them from offering satellite network facilities and assume the privileged position that could so easily be achieved by Australia.<sup>2</sup>

Aussat also argued that the limit on the types of service they could provide was the major obstacle to them operating in the South Pacific. David Hoare made clear in a letter to Duffy in 1986,

...the inability of the Company to provide regional, as well as domestic services will always prevent AUSSAT from providing services in that region, while the current prohibition on the provision of regional services by AUSSAT remains Government policy.<sup>3</sup>

At this stage Aussat was aware that the ITU together with Wilkinson had published a report noting that,

...any satellite option chosen to meet the domestic telecommunications needs of member countries must also be capable of being utilised to provide regional services. The ITU representative also recommended use of satellites operating in the C-Band (this is the band in which both INTELSAT and PACSTAR would offer service) rather than Ku-Band frequencies (available on the AUSSAT system). Both recommendations were endorsed by the meeting of 10-12 June, effectively eliminating any prospect of AUSSAT providing telecommunications services in the South Pacific....based upon recommendations provided by INTELSAT and the International Telecommunications Union. A strong policy environment now exists for nations of the South Pacific to seek non AUSSAT solutions for their telecommunications needs. In view of these recent developments, AUSSAT has reluctantly decided that there is no commercial value in the company utilising its limited marketing and technical resources in maintaining an active role in the South Pacific area at this time.<sup>4</sup>

Despite Wilkinson and Gosewinckel lobbying for Canberra to ease restrictions on Aussat

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<sup>1</sup>.Brady, Op.Cit. p 2

<sup>2</sup>.Wilkinson, Op.Cit. p 4

<sup>3</sup>.Hoare,"South Pacific", Op.Cit. p 2

<sup>4</sup>.Ibid.

providing regional services, Government policy remained unchanged. Gosewinckel had a meeting with Charles Halton in April 1986, at which time he,

...claimed that competition from other satellites across the North Atlantic would materially weaken INTELSAT, that the ongoing international use of existing satellites in the Asean region pointed towards a need for the Government to reconsider its involvement in INTELSAT and to permit an expanded international role for AUSSAT.<sup>1</sup>

Halton replied,

...that such an analysis failed to comprehend the changing balance between satellites and optical fibre cable as alternative providers of telecommunications services between fixed bases in different countries. I said that I accepted that broadcasting was somewhat different but that I was not aware of any completed or ongoing work which might at the present time justify a major review of government policy. I also reminded Graham Gosewinckel that Australia was one of the initial signatories to the INTELSAT Agreement and it was a traditional part of this country's approach to international relations that the Government of the day did not readily walk away or try to rewrite an established multilateral agreement.<sup>2</sup>

For Aussat it was not just a matter of providing regional services to PICs. The satellite company realized that the PICs would have great difficulty in affording the cost of a transponder. More important was the fact that any change in policy by the Australian Government, to allow potential use by PICs of the satellite system, would have allowed Aussat to sell capacity to other users for regional communications. Thus while the system was beyond the financial reach of the PICs, neither PBL or New Zealand faced this problem. PBL had in fact approached Aussat in April 1986 with a proposal to use a 12 watt transponder in the South Pacific.<sup>3</sup> Any change in Government policy to allow use of Aussat by PICs would have set a precedent for PBL to bypass Intelsat and for Aussat to offer services in competition with OTC, between Australia and New Zealand. It would also have acted to reinforce Aussat's independence against any move to merge it with any organization against which it was offering competitive services.

Brandishing possible PIC use as a justification changing government policy dissolved in 1986. In that year Australia asked the PICs to indicate their needs for capacity on the second generation by the December. In line with their decision to use Intelsat, based on more attractive tariffs (Intelsat offered considerable price and system incentives), possible

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<sup>1</sup>.Halton, C.C. "Minute to Cameron Hazlehurst", DOC, 14 April 1986. p 2

<sup>2</sup>.Ibid.

<sup>3</sup>.Ibid.

rain attenuation on Ku-Band, and the ability to run domestic and regional traffic together, no PIC nation indicated any need.<sup>1</sup>

### OTC and Second Generation Planning

Aussat's moves towards providing a Pacific Service were not welcomed by OTC, which held a monopoly on overseas telecommunications in and out of Australia. It is a curious irony that Aussat had become a potential competitor to an organization which played a seminal role in its foundation. As has been shown in earlier chapters, OTC wished to gain control of Australia's domestic satellite system, in the main because it saw this as a way to remain independent of Telecom. This did not occur because of opposition from the Department of Finance which opposed OTC ownership because of its wish to involve private investment. What OTC did not envisage in the late 1970's was spawning a potential competitor or that Australia's satellite system might play a part in destabilizing Intelsat. At the second meeting of the Advisory Committee, OTC's representative Laurie Waller argued that Australia could play a key role in ensuring the stability of Intelsat from a political perspective.<sup>2</sup> He also suggested Australia would not be well placed to compete for international satellite services if Intelsat broke up.

It was obviously acutely embarrassing for Australia's international communications carrier to explain why another Government owned organization was trying to undercut its stated policy of support for Intelsat. As John Langdale pointed out in a report for OTC, Aussat's initiative clearly weakened Australia's support for the existing international telecommunications regulatory structure.<sup>3</sup> In Langdale's view the destruction of Intelsat, which carries approximately 60% of Australia's international traffic, would inevitably mean that,

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<sup>1</sup>.Brady, Op.Cit. p 2-3 See also Peter B. White "Satellite Communications and the South Pacific: Competition and Change", First Canberra Conference on International Communication, 1-4 December 1986.

<sup>2</sup>.CSD, "Notes on 2nd Meeting of Aussat Advisory Committee", 6 June 1986.

<sup>3</sup>.Langdale, John. "Aussat in the Southwest Pacific Region: International Telecommunications Policy Implications", A Report to the Overseas Telecommunications Commission (Australia), 1986.



Australia's users, being located on medium and low-density routes, are likely to pay more for international telecommunications.<sup>1</sup>

For its part Aussat had few qualms about destabilizing Intelsat, nor did it necessarily recognize the validity of OTC's monopoly. In fact Aussat sought and obtained legal advice in early 1986 to the effect that it was not precluded by legislation from offering international services and that OTC did not have a legal monopoly.<sup>2</sup> In Aussat's view it was unfair that Intelsat appeared to be able to freely compete with domestic satellite carriers while the reverse was not permitted.<sup>3</sup>

It is against this background that OTC's involvement in planning the second generation must be viewed. As the domestic satellite organization loomed as a potential competitor and more importantly a threat to the organization's international interests, OTC produced a defensive response designed to check Aussat's ambitions in the Pacific. In its strongest form OTC's preferred strategy would have threatened Aussat's very existence, yet even if it was not implemented, OTC realized it could use the proposal as a lever against Aussat. The strongest of the OTC proposals was that there should not be a second generation of satellites.<sup>4</sup> Instead Intelsat capacity could be leased for a fraction of the cost to ensure continuity of service to those dependent on the existing system.

The proposal was a complete reversal of OTC's position on use of Intelsat as opposed to acquiring a first generation satellite system. Waller first suggested using Intelsat for domestic services at the second Advisory Committee meeting. OTC again floated this idea at the third meeting of the Advisory Committee, and undertook to provide a discussion paper for the fourth meeting in August 1986. The document stated that there would be no institutional impediments because Article III(e), of the Intelsat Agreement, allows it to provide satellite services separate from its other responsibilities for domestic public communications.<sup>5</sup> The document outlined four options for use of Intelsat capacity:

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<sup>1</sup>.*Ibid.* p iii

<sup>2</sup>.Hazlehurst, "Aussat Matters", Minute to DOC Secretary, 11 April 1986. p 2

<sup>3</sup>.CSD. "Notes on 2nd Meeting of Aussat Advisory Committee 6 June 1986", 20 June 1986. p 2 The view was put by Aussat's Dick Johnson.

<sup>4</sup>.Tony Staley states that Aussat were furious at this suggestion. Staley, Personal Interview with Author, *Op.Cit.*

<sup>5</sup>.OTC. "The Use of Intelsat Capacity as Aussat Second Generation Space Segment", Paper provided by OTC to the Second Generation Policy Advisory Committee, August 1986. p 1

- (i) Use of existing INTELSAT space segment to provide additional capacity for existing and/or specialised domestic requirements (as was done for the RATV service).
- (ii) Advance the INTELSAT follow-on spacecraft (FOS) timetable to 1991 to provide a spacecraft with an Aussat on-board package.
- (iii) Provide an INTELSAT FOS in 1993 with an AUSSAT on-board package.
- (iv) Have INTELSAT provide satellites in 1993 based on the FOS design and dedicated to AUSSAT use.<sup>1</sup>

OTC's case in support of option (iv) suggested that if a common satellite was used by Intelsat and Aussat, both organizations would benefit from substantial economies of scale in areas such as spacecraft purchase (including a common on-ground spare), launch and launch insurance costs. OTC also anticipated a major objection to this proposal by stating that due to Intelsat's considerable purchasing power, it would be well placed to foster Australian industry involvement. In addition OTC suggested that Intelsat might enhance its Australian content on other satellites under such an agreement.

At the Advisory Committee on 7th November 1986 Aussat made clear its opposition to OTC's proposal. The major objections raised were:

- a) The timetable of 1993 is too late for Aussat.
- b) It is difficult to confirm that Aussat would benefit from the economies of scale suggested.
- c) Aussat would have no contractual relationship with the supplier and therefore no control over the contractual timetable, design solutions and decision making processes within Intelsat.
- d) Aussat TTC&M contract would have to follow the Intelsat spacecraft contract.<sup>2</sup>

DOC commented that use of Intelsat capacity might preclude Australia's defence forces from using the satellite system for strategic communications. OTC argued that this question and other difficulties raised by Aussat might be resolved by further discussions with Intelsat. It suggested Intelsat might be able to shift forward its 1993 timetable.

After receiving OTC's report in August, Aussat made no attempt to contact Intelsat to obtain further information on the merits of using the alternative system.<sup>3</sup> Clearly as this option involved not proceeding with its own second generation and in all probability the demise of Aussat as an independent entity, the satellite organization was not even prepared to seek more information on a proposal, which OTC suggested would have halved costs and saved Australia hundreds of millions of dollars.

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<sup>1</sup> Ibid.

<sup>2</sup> Aussat Advisory Committee, "Notes on Meeting - Second Generation Planning", 7 November 1986.

<sup>3</sup> Jackson, Peter. "Notes on Aussat Advisory Committee on Second Generation Aussat Planning", Communications Strategy Division, 7 November 1986.

That Aussat had not, and never did have the intention of, contacting Intelsat was reported in notes made by a DOC officer on the November 1986 Advisory Committee Meeting. In the report of the meeting it was stated, Aussat had not contacted Intelsat "...in view of their perception of disadvantages clearly outweighing any advantages in terms of second generation."<sup>1</sup> At this meeting Aussat stated it would not be contacting Intelsat despite strong recommendations from OTC to do so but conceded that it would invite Intelsat to its industry briefing so that it could tender if it wished. OTC responded that this was not the way Intelsat had traditionally carried out its operation and as such inferred it was unlikely to tender.

It is difficult to assess whether OTC's proposal was a successful strategy in terms of the organizations interests. Superficially at least the proposal would have to be judged as a failure if it was OTC's wish to incorporate Aussat. As has been argued, if Aussat did not proceed with its own second generation system it would have had little justification for remaining as a separate entity. The corollary for OTC was that as it had the closest working relationship with Intelsat it would have been best placed to take charge of Australia's satellite operations. That this possibility was in the minds of DOC bureaucrats is clearly indicated in a Minute from Cameron Hazlehurst to Charles Halton, in which he stated,

We should, I think look very closely at the case for integrating OTC and Aussat, especially if it looks as though there might be emerging options for more substantial domestic use of Intelsat.<sup>2</sup>

It was precisely for this reason Aussat did not favour the Intelsat option and that proper consideration was never given to a proposal which would have purportedly cost half the present course, considerably strengthened Intelsat and the credibility of Australia's stance against deregulating international communications.

If, however, OTC's objective was not to halt a second generation but to check a potential threat to its interests, then the strategy was never really put to the test because of the lack of interest from South Pacific nations and the ABC in using the system.

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<sup>1</sup>.Ibid.

<sup>2</sup>.Hazlehurst, Cameron. "Portfolio Committee Meeting", DOC Minute Paper, 29 July 1986. p 1

In January 1986 the ABC, at the request of the Department of Communications analysed the relative economic and technical factors associated with using either Aussat or Intelsat to provide a television service to the South Pacific. This analysis was updated in the middle of that year and it was concluded in the resulting paper that,

The Intelsat option would be cheaper, both in transponder cost and in earth station cost. The cost of using Intelsat would be reduced even further if use can be made of the Intelsat earth station which already exist in most of the Pacific Forum countries and/or the about 60 Remote Area Television Service (RATV) earth stations owned by the Australian Government which are now surplus.<sup>1</sup>

To support this conclusion the ABC produced the following table:

	<u>Dish Size</u>	<u>Dish Cost</u>	<u>Transponder Cost</u>
Aussat 30W	13-16m	\$200-250K	\$2.56M p.a.*
Intelsat	6m	\$50K	\$1.75M p.a.

\* This Aussat's published 1985 price. The ABC chose not to disclose their discounted and therefore actual transponder cost. However even if this figure is used it does not alter the dramatic difference in cost between the two options.

This report was a blow to any aspirations Aussat had to carry ABC signals into the Pacific and together with the disinterest on the part of PICs using the system called into question the wisdom of altering the configuration of the third satellite. As it eventuated Aussat was saved from serious embarrassment by lengthy launch delays and New Zealand acquiring capacity at substantially reduced rates.<sup>2</sup>

### The Second Generation Design

As with the initial system, the design of the second generation of Aussat satellites did not proceed in an autonomous or culture-free fashion.<sup>3</sup> The shape of the second generation technology was not inevitable or obvious, but rather within certain design constraints a product of Aussat's strategy to foster the development of a system under its control and preclude developments which threatened that momentum. To understand the shaping of

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<sup>1</sup>.ABC. "Proposed A.B.C. Television Service to the South Pacific: Technical Considerations (Up Dated)", 1986. p 1

<sup>2</sup>.ATUG, "Aussat in the Pacific: Clouds on the new horizon?", Australian Communications, December/January 1986/87. p 14 The New Zealand Post Office pays about 70% of the normal rate for a 30 watt transponder.

<sup>3</sup>.Staudenmaier, Op.Cit.

the second generation we must examine the strategies various actors chose to embed their motivating values in the technology. In other words scrutinize the means adopted to foster the system's momentum and how this process in turn influenced further technological developments.

Before looking at the negotiations surrounding the design process we must first recall the state of the world satellite industry and the experience of Aussat's first years of actual operation in which this process took place. As has been previously detailed, the world civilian communications satellite industry is in a far from healthy financial position. Factors such as launch failures, spiraling insurance rates, transponder gluts and competition from fibre optics have all contributed to making the industry's future uncertain. The effect on domestic satellite and telecommunications agencies has been for them to look away from satellites to meet their future communications requirements. In Telesat's case it has led them to scale down the capacity of their next generation due to the amount of unused capacity on their existing system.<sup>1</sup> *Telesat's 1985 Annual Report* states,

Plans for Telesat's next generation of satellites were finalized in late 1985, to allow for the long provisioning period required for their construction. These spacecraft will replace the Anik C and D series, which will remain in use until the 1990's. Telesat has decided to procure two dual band (6/4 GHz and 14/12 GHz) spacecraft, both of which will be available for launch in 1990 to meet service requirements to the year 2000. *The Anik E twins will effectively down-size capacity, in accordance with a realistic range of demand derived from the best available forecasts.*<sup>2</sup> (Emphasis added)

As of 1987 Telesat had four in-service satellites operating at approximately two-thirds utilization and a fifth satellite in storage orbit.<sup>3</sup> Aussat's first two years of operation have largely mirrored the experience of its overseas counterparts. Although Aussat boasts that up to 80% of its capacity has been leased so that it has one of the best take up records of any system in the world, what this equation ignores is that approximately 80% of that figure is comprised of public sector clients. As has been shown the ABC is providing well over 40% of Aussat's revenue albeit at the cost of much internal strain. Together the

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<sup>1</sup>.Telesat, *Annual Report 1985*, Telesat Canada, 1985. p 12

<sup>2</sup>.*Ibid.*

<sup>3</sup>.Bureau, *Op.Cit.* p 3

broadcasting industry contributes approximately 75% of Aussat's revenue.<sup>1</sup> In 1986 eight of the twelve high powered transponders on the three satellites were allocated for broadcasting and three for Video and Audio Entertainment Information Services (VAEIS). Of the thirty three low powered transponders, one was allocated for broadcasting, ten for services in support of broadcasting (i.e. programme distribution & video conferencing and a further three for similar services.<sup>2</sup> By 1988 two of the VAEIS services had been discontinued.<sup>3</sup> This meant broadcasting use of the satellite system could be summarized in the following manner<sup>4</sup>,

	30 watt	12 watt
ABC	4	4
SBS		1
GWN(RCTS)	1	
Imparja	1	
QSTV(RCTS)	1	
Channel 7		1
Channel 10		2
Bond Media	2	1

Similarly Telesat has approximately 70% of its space segment business derived from broadcast undertakings.<sup>5</sup> Just as Aussat is heavily reliant on the ABC, Telesat is largely dependant on CBC for much of its revenue. Yet the latter's relationship with CBC is going to come under pressure from 1988 onwards as Andre Bureau, the Chairman of the Canadian Radio-television and Telecommunications Commission, explained,

When Telesat became a member of Telecom Canada, benefits were envisaged in having an integrated terrestrial and satellite network. With the initial connecting agreement between Telesat and other members of Telecom Canada, Telesat was assured of its ongoing viability by virtue of the transfer payments provided for under this agreement. As a result of this agreement, no direct government subsidies were necessary. However, following the recent amendment to the Connecting Agreement, transfer payments from the Telecom Canada members will no longer be available to Telesat after the end of 1987. The major challenge facing Telesat is whether, without any external subsidies, it can generate sufficient revenues to provide it with an adequate rate of return.<sup>6</sup>

<sup>1</sup>.Broadcasting Policy and Planning Division, "Broadcasting Policy Environment for the Second Generation of Aussat Satellites", DOC, 15 September 1986. p 1

<sup>2</sup>.*Ibid.*

<sup>3</sup>.The Role and Functions of the Australian Broadcasting Tribunal, Report from the House of Representatives Standing Committee on Transport, Communication and Infrastructure, Commonwealth of Australia, Canberra, November 1988. p 15

<sup>4</sup>.Farrell, *Op.Cit.* p 80

<sup>5</sup>.Bureau, *Op.Cit.* p 1

<sup>6</sup>.*Ibid.* p 6

If Telesat is to make up for the loss of the transfer payments it will increasingly turn to the broadcasters which provide 70% of its total space segment revenues. Indeed rate increases of 5.5% per year have already been approved through to 1990, leading Bureau to suggest that satellite distribution costs, which are already expensive, could become prohibitive.<sup>1</sup>

One of the prime assumptions guiding second generation planning has been that broadcasters will continue to be the major users of the system. Yet the experience of the industry in America has been that video traffic is rapidly being shifted off satellites onto the terrestrial fibre network. U.S. Sprint is currently in the process of converting its domestic video teleconferencing service from the GTE Spacenet satellite system to its own fibre network. Kenneth Van Meter, teleconferencing director and general manager of The Meeting Channel recently stated,

The general trend of the industry is away from satellite and towards fiber optics for teleconferencing and definitely for voice traffic.<sup>2</sup>

Given the advantages of fibre optics, regulatory authorities are under pressure to review policies which were originally designed to give satellite technology a chance against undersea cables on international routes. In 1987 the FCC requested comments on balanced loading, which was a control mechanism designed to split communications traffic between satellites and cable facilities. One of the submissions came from the communications policy committee of the Institute of Electronics and Electrical Engineers which argued that communications satellites were "...less cost effective than fibre optics for trunk networks and that the technical characteristics of satellites also are inferior in terms of echo and delay."<sup>3</sup>

Richard Solomon, a research associate at the Massachusetts Institute of Technology contends,

...as we move toward an (integrated services digital network) or open network, digital environment, it will be increasingly difficult for governments to force users to send traffic

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<sup>1</sup>. *Ibid.* p 7

<sup>2</sup>. "Sprint Moves Bulk of Video Traffic Off Satellites and Onto Fibre Optics", *Satellite News*, 21 September 1987.

<sup>3</sup>. "The Twilight of Balanced Loading", *Satellite News*, 30 November 1987. p 4

over uneconomical routes just to cross-subsidize satellite carriers.<sup>1</sup>

Added to this Intelsat's Joseph Pelton commented recently that future satellite systems, along with their launch and ground segment components would need to deliver transponders in orbit at a cost of \$50,000 each to make "fiber optics cry uncle".<sup>2</sup> Pelton added that the current cost of transponders was between US\$1-5 million. The cost of an Aussat transponder in the 1990's will be in the order of \$6 million.

In addition it must be noted that Aussat's first three years of operations have produced losses approaching \$100 million at a time when Telecom is laying an advanced fibre optic system around Australia. As the desire to enter Telecom's lucrative trunk networks along major routes was clearly the objective for at least some of Aussat's proponents, a pertinent question is what the onset of fibre optics means for Aussat? The short answer to this question is that Aussat's first generation could not compete with Telecom's existing system on the basis of cost along major trunk routes.<sup>3</sup> As satellite costs are rising and terrestrial equivalents falling it is difficult to foresee Aussat threatening Telecom's market, despite the fact that this is clearly on the satellite authority's agenda.

It will be argued in the following that these factors have shaped the second generation in quite fundamental ways. In particular the argument will be used to explain (a) why Aussat management have chosen a design course against the explicit wishes of the broadcasting industry which provides about 75% of its revenue; (b) why Aussat is dramatically increasing the size of its second generation in direct contrast to Telesat; (c) why an expensive and potentially highly risky mobile communications package has been included even though no clear demand has been identified.

As has been made clear Aussat's management have always regarded control of the design process as a crucial part of their ability to determine their role in Australia's communications infrastructure. It was this fact that led to the breakdown in relations with DOC over second generation planning in 1985 and to similar discord with the Aussat

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<sup>1</sup> "Debate Between Satellite and Fiber Fans Continues Unabated", Satellite News, 30 November, 1987. p 4

<sup>2</sup> "Intelsat Special Projects Chief Charts Future Battles with Fiber", Satellite News, 26 October 1987. p 9

<sup>3</sup> Walsh, Peter. Impact of Satellite Communications on Terrestrial Networks, Telecom Australia, 1984.



Board in 1986. In part the first breakdown probably contributed to the second in that as DOC was denied participation in the design process for over a year it used the mechanism of the Board to reassert some authority over the design process. It did this along with Telecom and OTC, both of whom were concerned to look after their own interests. At a Portfolio Committee meeting DOC noted,

...some broadcasters were concerned about the costs resulting from AUSSAT providing "options and flexibility" which are not necessary - such costs will be carried by customers, who also face the consequent push for new services which cut into their broadcasting business.<sup>1</sup>

At the same Portfolio Committee meeting Mel Ward, Telecom's Managing Director, asked Aussat whether technological advances would be applied to gain a reduction in costs for the same capacity. Ward also stated that with the advent of fibre optics with their increasing capacity and reducing cost curves, Aussat would need to concentrate on areas in which the satellite had particular advantages.<sup>2</sup> With this in mind Ward asked questions concerning the subjects Aussat wanted to keep confidential,

As a shareholder and portfolio member Telecom is interested in the viability of the second generation (in financing and debt/equity - eg what expenditure, is it needed now, and how it ranks against other opportunities?) Telecom questioned whether potential customer demand had been realistically appraised.<sup>3</sup>

In the period leading up to the Board's first consideration of Management's preferred concept, the design process occurred largely 'in-house'. As we have witnessed Aussat was able to deny technical information to the relevant planning committees set up by DOC. In a sense, the Aussat Board meeting on the 24th September 1986 was the first opportunity DOC and Telecom had to assert real control over Aussat Management. At that meeting the Board was presented with a preferred design which was far larger and more ambitious than the first generation and one which caused much concern to those members who had grown increasingly pessimistic towards the company's future financial position. At the March Board meeting Dick Johnson, Aussat's General Manager, had suggested to the Board that they were overly pre-occupied with pessimistic financial figures being

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<sup>1</sup>.Ellis, W.R. Assistant Secretary, Communications Systems and Technology Branch, "Planning for Replacement Satellites Portfolio Committee meeting, No. 1/1986: 30 July 1986", 20 August 1986. p 1

<sup>2</sup>.Ibid.

<sup>3</sup>.Ibid.

presented.<sup>1</sup> Yet by June Graham Gosewinckel was outlining to DOC the "...serious cash flow problem which was dominating AUSSAT's otherwise healthy financial outlook."<sup>2</sup> As such the Board rejected Management's system concept, based on its high cost (in view of the projected economic climate), size increase and the tariff structure & projected revenue flows.<sup>3</sup>

At that stage Aussat Management indicated the intention to improve their case for their system concept rather than make modifications. However the fact that they subsequently did undertake a revision which reduced capacity and justified this change on the basis that suppliers had indicated that they would have trouble meeting the former's payload requirement, indicates that this design may only have been an opening position and that management would have been well aware of the technical difficulties. In any event the system the Board approved still had a far greater capacity and size increase over the first generation. The various system concepts proposed were:

#### **July 1986:**

The system concept had three satellites with a mix of bandwidths (24, 54 and 72 MHz) and 75 x 30 watt transponders in all. Add on packages for defence, science, meteorology and mobile communications and DBS were being considered.

#### **September 1986:**

Two satellites with 25 high power transponders (mixed 27/54 MHz).

Four Transponders on each satellite for New Zealand.

Defence (X-Band).

Mobile Package (L-Band or UHF).

#### **November 1986:**

Australia (KU Band) - 30x54 MHz high power (30-50 Watt) transponders (B1,B2).

New Zealand (KU Band) - 8x54 MHz high power dedicated(30-50 Watt) transponders for New Zealand domestic service.

Defence (X Band) - 2x20 Watt dedicated X Band transponders for Australian and earth coverage service.

Mobile (L Band or UHF) - 2x160 Watt dedicated L Band mobile transponders for domestic land, sea and aeronautical mobile service.

**June 1987:**(Revisions to the November concept which were endorsed by the Aussat Board in May 1987)<sup>4</sup>

(a) removal of the X-band transponder which is no longer required by the Department of Defence;

<sup>1</sup>.Halton, C.C. "Notes on Aussat Pty Ltd Board Meeting 26 March 1986", DOC, March 1986. p 5

<sup>2</sup>.DOC. "Notes of Meeting Between Aussat and DOC on Friday 20 June 1986", June 1986. p 1

<sup>3</sup>.Hazlehurst, Cameron. "Aussat Planning for Replacement Satellites", DOC, 25 September 1986.

<sup>4</sup>.Hoare, David. "Letter to Michael Duffy", 1 June 1987. p 2

- (b) an alteration to New Zealand's requirements - 4 transponders rather than 8.
- (c) revised arrangements for the provision of scientific/experimental equipment; and
- (d) confirmation of incorporation of a mobile satellite service package.

Thus, as of June 1987, the concept was for:

- 15 x 54 MHz linearised high power (45-50 Watt) KU Band Transponders for Australian service, with enhanced performance national and spot beams, and flexible transmit beam connectivity;
- 2 x 54 MHz linearised high power (45-50 Watt) KU Band transponders for dedicated New Zealand domestic use, plus a capability on six (6) Australian transponders to permit switchable Australian, New Zealand, or Trans-Tasman service;
- one high power 14 MHz L Band communications system for Australian mobile service comprising a 14 MHz outbound Ku/L Band (nominally 150 Watt) transponder and a 14 MHz inbound L/Ku Band transponder, with the Ku portion provided by part of an Australian Ku Band transponder;
- optional Customer Furnished Equipment (CFE), including prospectively:
  - \* a Ka Band Beacon
  - \* a VHF/UHF/L Band beacon package
  - \* a high energy particle detector
  - \* a solar cell experiment.<sup>1</sup>

Aussat estimated that the latest proposed system would cost in the range of A\$590-660 million dollars.<sup>2</sup>

The first thing that must be noted regarding the Board approved second generation concept is that although it reduced the number of transponders on the satellites from 25 to 19, it specifically contravened the wishes of the the broadcasting industry. Despite the rhetoric of industry consultation, Aussat's homogeneous high powered transponder design was not what broadcasters wanted. Their main objection to the high powered homogeneous design was that they believed they would have to purchase the more expensive transponders to perform functions that were being adequately carried out by 12 watt transponders. In fact a DOC planning document stated,

During consultation with the broadcasting industry, both commercial and national broadcasters indicated that 30-watt power levels and bandwidths greater than 27MHz exceeded their technical requirements for SPS. Some broadcasters indicated that transponders with reduced bandwidth and an associated reduction in price would be welcomed.<sup>3</sup> (Underlined in Original)

Aussat's reply to this criticism was that customers using existing 12 watt transponders could expect tariff continuity. Yet how the system could perform viably under these conditions was not explained. What has occurred in fact is that Aussat has produced a

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<sup>1</sup> Ibid. Attachment B, "Summary of the Proposed System Concept for Replacement Satellites".

<sup>2</sup> Ibid.

<sup>3</sup> Communications Strategy Division. "Chairman's Brief: Planning for replacement Satellites, Portfolio Committee Meeting, No 1/1986, 30 July 1986", DOC, 29 August 1986.

design incorporating expensive capacity that the industry neither needs or wants and which has to be paid for regardless of any notion of tariff continuity. To highlight the absurdity of Aussat's argument for tariff continuity G.E.Moriarty, the ABC's Director of Engineering and Property, observed in July 1986,

I would like to point out that the ABC sees its objectives in relation to the second generation satellites as being firstly to reduce the cost and increase if possible the flexibility of our existing services and secondly to possibly introduce new services. We have based our plans on the assumptions about transponder costs which were suggested by you in our meetings, that is, that a 30W 27MHz transponder on the second generation satellite would be the same price as a 12W 45MHz transponder on the first generation at the time of changeover, and that a 30W 52MHz transponder on the second generation would be the same price as a 30W 45MHz transponder on the first generation. Based on this we assume that a 12W transponder on the second generation satellite will be cheaper than a 30W transponder.<sup>1</sup>

and

The desire of AUSSAT to have only 30 watt TWTA's in the second generation is noted, however in many cases the ABC's services could be adequately maintained using 12 watt TWTA's. In these cases the ABC sees no good reason why it should have to pay for an unnecessary increase in transponder power.<sup>2</sup>

Aussat's final 1987 design, with standard 50 watt transponders, was patently far from the wishes of its major customer. Comsat's failed DBS service was similarly criticized when it filed its FCC application. The company was criticized for taking a system design approach that dramatically increased the costs 'in the sky' for small reductions in the size of TVROs.<sup>3</sup>

Another part of the second generation design which deserves attention is the inclusion of a mobile package which, it is estimated, represents about 10-15% of the cost of the system. Aussat claim to be building a system which is complementary to the terrestrial network. Yet the inclusion of a 'experimental' mobile package is questionable on a number of grounds. First there is little evidence of enough demand to justify a capital cost of \$60 million, or that the system would generate the \$65 million over the first five years or the \$25 million thereafter which Aussat predicts. Secondly the system needs very high powered transponders which, in the past, have had a shorter life-span and a larger risk of

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<sup>1</sup>.Moriarty. G.E. ABC Director, Engineering and Property, "Second Generation Satellites", Letter to R.C Johnson, General Manager of Aussat, 8 July 1986. p 1

<sup>2</sup>.Ibid. p 2

<sup>3</sup>.Henry, Jane. B. "Economics of Pay-TV Media", in Video Media Competition: Regulation Economics and Technology, Eli Noam (Ed) Columbia University Press, New York, 1985. p 39

catastrophic failure. The reason that this system is being included is made clear in an Aussat briefing document which states the organization should,

...expand into new markets not threatened by competitive systems (eg, optical fibre networks) and which are best suited to satellite delivery ie...mobile communications.<sup>1</sup>

Why then have Aussat embarked on a course of high powered 50 watt transponders against the expressed wishes of the broadcasting industry which provides 75% of its revenue and an experimental and highly risky mobile package with a 150 watt transponder? There may be several reasons why the satellite organization has chosen high powered transponders. A plausible explanation might be that given the uncertain future of the industry as a whole and the fact that Aussat's management firmly believe that technology leads policy, that they can ensure the organization's future by technological entrenchment. With the approval of the second generation, Australia will have committed over a billion dollars to the satellite system. If one believed that the more money that a government commits to a project the more secure it is, then the more expensive the technology Aussat places in orbit, the more pressure on policy makers to allow the company to make a return on that investment. This could either be achieved through regulation or deregulation. Deregulation would mean allowing Aussat a free reign to try to 'cream skim' Telecom's most lucrative trunk routes. On the other hand a future regulatory approach might conceivably involve AUSTEL<sup>2</sup> setting the rates authorities could charge based on their capital investment and forcing Telecom into a form of 'balanced loading', whereby it had to utilize the satellite. In such circumstances the greater the cost of Aussat's second generation the higher the return they could expect. As has been demonstrated earlier in Chapter One, planned over capacity in has been a common feature of the satellite industry , for reasons other than utility.

A second reason for increasing the cost of the second generation might be that Aussat is playing a complex game of brinkmanship with the Australian Government. When it is remembered that Aussat has always favoured being privatized and that one of the present

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<sup>1</sup>.Aussat, "Replacement Satellite Program", 20 November 1986. p 3

<sup>2</sup>.The creation of AUSTEL, a new independent regulator, was announced by the Australian Government in May 1988. Refer Australian Telecommunications Services: a new framework, Statement by the Minister for Transport and Communications, 25 May 1988. AGPS, Canberra, 1988. p 122

arguments forwarded in favour of the sale of public enterprises is that they are vastly undercapitalized, then the more the second generation costs, the greater the pressure on those resisting the injection of private equity.

A third reason for a homogeneous high powered design could be that given the uncertainty facing the industry, Aussat wants the technical capability to provide whatever services it can. As the communications industry turns away from satellites overseas, Aussat can not predict the market it will have into the next decade. The following list summarizes what Aussat believes will be its major markets:

- (i) Television & Radio, with particular emphasis on broadcasting, video entertainment (VAEIS), videoconferencing, and itinerant services.
- (ii) Government Services, including State Government networks, distance education services and specialised facilities for Defence-strategic and tactical communications.
- (iii) Corporate services, with emphasis on expansion of Very Small Aperture Terminal (VSAT) markets for the financial, retail travel and information industries and major business.
- (iv) Offshore services, including specialised facilities for New Zealand domestic telecommunications and broadcasting applications and, if permitted by Government policy, limited capacity for trans-Tasman private network traffic.
- (v) Mobile services, particularly two-way mobile voice/data communications, position fixing via satellite, and remote low speed data collection for telemetry and monitoring applications.<sup>1</sup>

Yet given the state of the satellite industry both in Australia and overseas, Aussat has little cause for confidence in any of these market areas.

Firstly, as has been noted, video traffic is being shifted off satellites overseas onto fibre optic systems. Although Aussat mentions broadcasting as an area of growth, we have noted the HACBSS system is a severe financial burden on the ABC and one which the organization has stated it will continue to undertake only as long as the legislation requiring it to do so, remains in place. In addition the RCTS scheme is not economically viable and only operates where heavily subsidized by Government. In Western Australia the State Government gives Golden West, a \$2 million a year subsidy to operate RCTS and the Commonwealth Government hands out a similar amount to Imparja to broadcast in the central beam.<sup>2</sup> The Queensland Government subsidizes Bond Media to operate the beam covering the North Eastern Zone. The two operators originally granted licenses for

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<sup>1</sup>.Aussat, "AUSSAT'S Replacement Satellite Program", Attached Aussat Paper to a Letter from David Hoare to Michael Duffy, 26 November 1986. p 2

<sup>2</sup>.Moes, Barbara A. "How the Goldenwest is being won", Broadcaster, March 1986. p 25

the two beams covering eastern Australia delayed taking up their options because they were unable to obtain similar subsidies. Satellite South East, a consortium of twelve regional stations in NSW and Victoria, who won an RCTS licence, bailed out of their commitment in the face of a multimillion dollar loss if they proceeded.<sup>1</sup>

Similarly the VAEIS system has been a financial nightmare for participants. Of the three initial operators two, 'Club Superstation' and 'Sportsplay', have sold out to the third owned by Alan Bond after suffering disastrous financial losses. When Club Superstation was sold by businessman Robert Holmes a Court, he reportedly lost \$19.2 million on his investment.<sup>2</sup> Directors of Powerplay Ltd., the company that owned Sportsplay, revealed that by the time it was sold they had lost \$17 million, securing only a third of the outlets the service needed to break even.<sup>3</sup>

Some of these operators saw VAEIS as a fore runner to the introduction of pay television in Australia after the end to the Hawke Government's four year moratorium till 1990.<sup>4</sup> However even if Australia did adopt an "Open Sky's" policy in relation to Pay-TV, overseas experience with DBS and the size of the Australian market, suggest that it would not be financially viable. The possible introduction of pay television through a form of DBS will be discussed below in that it has undoubtedly been an influential factor in shaping the design of Aussat's second generation.

The other area of suggested growth, video conferencing, is the proverbial solution in search of a problem, a gimmick utilized by IBM to promote SBS. Satellite video conferencing has never taken off overseas and where companies such as U.S. Sprint have a choice they are converting their activities to fibre optics. Comsat in 1985, for instance, scrapped INTELMET, a subsidiary it formed with the Intercontinental Hotels Corporation, to provide a video conferencing service to an international market.<sup>5</sup> If

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<sup>1</sup>.Wright, Lee. "Loss prospect makes SSE sell stake to ATN 7", Sydney Morning Herald, 4 May 1987. p 31

<sup>2</sup>.Peers, Martin. "Bond Media plans TV network to Cover Aust", Financial Review, 15 April 1987. p 24

<sup>3</sup>.Pollak, Alex and Ian Cockerill, "Who shot the Swans?" Sydney Morning Herald, 18 June 1988. p 74

<sup>4</sup>.Maddox, Gary and Stephen Wall. "The Economic Effects on Existing Broadcasters of Introducing Pay Television", Report for the Department of Transport and Communications, August 1988, in Future Directions for Pay Television in Australia, Vol 2: Appendices and Common Carriers Papers, Transport and Communications, AGPS, 1989. p 173

<sup>5</sup>.Comsat, 1985 Annual Report, 1985. p 22

Comsat could not make a New York to London video conferencing system viable, it suggests that this is not an area Aussat should be confident of as an area of growth.

The second area suggested by Aussat as one of potential growth is Government services. Presumably Q-Net which the Queensland Government sold off to the Bond organization, would be an example of such a service. Although Q-Net was set up with the justification of being more economically efficient than purchasing Telecom capacity, experience showed otherwise. The Q-Net sale to Bond was perplexing to the national carrier. Telecom's Bill Rowlings commented at the time,

We can't fathom the economic and technical rationale used in the decision - it's clear from what the Queensland Government has said in its Q-Net documentation that the cost of providing voice and data services via Q-Net is far higher than Telecom's standard charge for the equivalent capacity. What that means is that Q-Net, for an independent operator, is not likely to be commercially viable without a substantial subsidy. This means that either Bond Media or the Queensland Government will be paying more for the voice and data services than if Telecom provided these services in the normal way.<sup>1</sup>

Other state governments not motivated by an ideological commitment to break Telecom's monopoly have developed alternative strategies. Queensland's expensive experience with a private satellite network prompted Victoria to opt for a primarily terrestrial fibre optic system (Vistel).<sup>2</sup> South Australia, on the advice of consultants, also ruled out use of Aussat as being inappropriate and too expensive to use.<sup>3</sup> With these terrestrial networks in place it is difficult to envisage state governments reverting to satellites with the launch of the second generation.

Aussat also nominated distance education as a possible area of growth. This claim is patent nonsense. The costs of using the satellite system for distance education are prohibitive. This was manifest from the results of a School of the Air trial conducted by the Queensland Government and Aussat around Mt Isa using satellite technology, discussed in the previous Chapter. Lloyd Lacey, of the Queensland Education Department, who was involved in the Mt Isa trial stated to ABC journalist Kirsten Garret

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<sup>1</sup>.Hughes, Owen. "Telecommunications and Federalism", Paper delivered to symposium on 'Implementing the Telecommunications Reform Package', Monash University Public Sector Management Institute/Commonwealth Department of Transport and Communication, 12 August 1988. p 11

<sup>2</sup>.*Ibid.* p 10

<sup>3</sup>.*Ibid.* Refer also Logica Pty Ltd, South Australian Government Communications Strategy Study, September 1987.



that he had been to America to measure their experience with distance education and that it had failed without exception where they had been using public money and video because of the cost.<sup>1</sup> Aussat's second generation will do little to improve the economic viability of using the satellite system for this purpose.

The other public sector area, targeted for growth by Aussat, was use by the Australian Defence forces.<sup>2</sup> Since the Aussat document was written the Minister for Defence, Kim Beasley has advised DOC that Defence does not have a requirement for additional capacity on the second generation system. Defence lost interest partly because of the cost for an X-band package, estimated to be in the order of \$50 million and because of concerns about the security of a civilian system. This will clearly not be a growth area for the satellite company.

The third category nominated as a potential growth area is the VSAT market. Yet the take up of this technology overseas has been very slow, making it far from the industry saviour some have portrayed.<sup>3</sup> Richard Tallman, senior industry analyst at Dataquest Inc., San Jose, California commented recently that there were two factors impeding the take up of VSAT technology in the United States,

One is the delayed launchings. The second is what all this fiber optic capacity will lead to. The VSAT market has a definable niche: communications from one central point to a number of points...Especially low speed data for inventory, such as what K-mart is doing. It's not a carrier type thing.<sup>4</sup>

K-mart, which owns a chain of retailing supermarkets, purchased a turnkey VSAT system for its 7,500 stores in the US. The K-mart system is often cited as the forerunner of other VSAT applications, however,

VSAT users, Tallman said are primarily large retailers or financial institutions that require a great deal of point-to-multipoint communications. Ironically, data transmission applications, for which VSAT was originally aimed, can be accomplished more economically, efficiently and quickly via terrestrial media, such as fibre optics, Tallman said.<sup>5</sup>

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<sup>1</sup>.Telephone Interview with Kirsten Garret, 1987.

<sup>2</sup>.Defence interest in Aussat's second generation goes back to 1978. Refer Major D.J. O'Neill "Military Satellite Communications - Coming in the Backdoor? or Is What's Good for Kerry Packer Good for Australia?", Signalman, Vol 1, No 1, 1978.

<sup>3</sup>."For Satellite Industry, No Place Left But Up", Communications Week, 12 January 1987. p C3.

<sup>4</sup>.Ibid. p C6

<sup>5</sup>.Ibid.

In addition there are problems with using satellites for high speed data transfer as George Petty, the network planning director of AT&T reports,

About 10 years ago, we started putting satellites up along with everybody else...We put the satellites in with our regular network, as though they were microwave or coaxial cable, and immediately we began getting complaints - mostly from computer operators. They said they'd be willing to pay extra for circuits that were restricted to terrestrial lines.<sup>1</sup>

AT&T now offers a class of service to computer customers that guarantees the use of terrestrial circuits.<sup>2</sup>

Apart from the case of SBS, the most spectacular financial failure of a VSAT system involved the Federal Express 'ZapMail' project. When Federal Express scuttled the service they wrote off a staggering US\$343 million.<sup>3</sup> Thus even though this market is unlikely to burgeon, the advent of the technology has undoubtedly influenced the design of the second generation, in that VSAT's need high powered transponders to transmit to smaller dishes. The hidden agenda here is clearly the desire to compete in the same market as Telecom for corporate customers.

Yet, as noted earlier Aussat could not compete with Telecom on the basis of cost with its first generation. Although Aussat did initially announce tariffs below Telecom's, the fact that their annual cost was greater than the terrestrial equivalent, meant that Telecom could revise its prices. Subsequently Telecom did in fact rebalance its own tariffs, bringing down rates on trunk routes and increasing the cost of local traffic, while still achieving healthy profit margins. Even though Aussat does not have any statutory social obligations, unlike Telecom, satellites are simply not competitive with the national carrier's terrestrial service.<sup>4</sup> Telecom fully realizes Aussat's predicament as indicated in a confidential report written in 1984,

The high variable costs of satellite circuits places Aussat at a big disadvantage in competing with Telecom in that it cannot compete on a cost basis. In this regard it must be noted that Aussat's publicly announced prices are below variable costs, let alone fixed

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<sup>1</sup>Guterl & Zorpette, *Op.Cit.* p 31

<sup>2</sup>ITT runs adds in telecommunications trade journals asserting telephone transmission over satellites degrades call quality. ITT's add states "because 'our domestic calls don't use delay-causing satellites, we'd argue that we're even more fanatical' about sound quality." *Satellite News*, 30 November, 1987. p 5

<sup>3</sup>Kerver, Tom and Tamara Bennett. "Strategies For '87", *Satellite Communications*, January 1987. p 15

<sup>4</sup>Fuller, B.J. Acting Chief General Manager of Telecom, "Letter to Bill Mansfield, Federal Secretary of the ATEA", 25 January 1985. p 2

costs directly associated with these products. It can only sustain prices at anywhere near these levels by cross subsidisation, and in this regard it is worth noting that it has an effective monopoly over part of the broadcast market. However if Aussat's operations were ever to come under the scrutiny of the Prices Surveillance Authority[PSA], it would face extreme political difficulty in sustaining cross-subsidisation for commercial gain, particularly when it would be the Government subsidising big business in a fairly direct fashion. Telecom has faced pressure from the PSA not to subsidise even for the social gain to isolated Australians.<sup>1</sup>

In addition the onset of fibre optics has removed any question that Aussat would be able to exploit unfilled demand for capacity not delivered by Telecom. Telecom mapped out a strategy to deny Aussat entry into its lucrative markets before the launch of the first satellite. The Telecom report mentioned above noted,

Telecom is in a position to increase capacity along major trunk routes very rapidly by enormously increasing the scale of construction. With marginal construction costs below annual tariffs even for the least economic scale of construction, and rental being due quarterly in advance, the cash inflows from such a network expansion would mean that the whole project could easily be self funding within one year...Therefore, Telecom can easily deny AUSSAT the ability to compete on the basis of capacity on major routes simply by increasing its scale of construction.<sup>2</sup>

The fourth category nominated as a potential growth area is obviously more of concern to OTC. However the provision of New Zealand and off-shore services relies to a significant extent on future Australian and NZ Government policy. Since the Aussat document was written, NZ has halved its requirement of second generation transponders from 8 to 4. The problems for the Australian Government with allowing Aussat to offer services in competition with OTC and Intelsat have been discussed above. Although Aussat is determined to incorporate switching potential which will allow it to offer international services to NZ, in addition to the domestic services the present policy allows, a major change would be required by the Australian Government.

The final area proposed for growth, mobile communications, has been addressed above and enough evidence presented to suggest that Aussat can not be confident if its future relies on this immature technology with no clear market demand. John Maclean stated, in reply to a request for his assessment of the market potential of mobile communications via the second generation satellites,

I think it is nibbling around the edges. They're just looking for another HACBSS.

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<sup>1</sup>.Walsh, Peter. (Report 13) Op.Cit.

<sup>2</sup>.Ibid. (Report 8)

They're desperately trying to find themselves a bit of a market. You've got all these things to pin point lost hikers but the real thing is you want it for bulk communications between A and B, where you've got a big load. If they can't get into the business market to set up a closed user network or even an open user value added network that is open to the public, then satellite technology will never come into its own. And they are now going to be at risk as cable comes in and the ISDN in telecommunications. We may find satellites are just not worth it except to get into remote locations and you'll have to pay a high price for it. As soon as you get a lot of optical fibre right across Australia, which will come, the capacity is just so much more. The 'point/multi-point', the big advantage of satellites you can't reproduce on the ground, doesn't seem to amount to anything because who needs it?<sup>1</sup>

In fact several key actors interviewed for this thesis, both proponents and opponents of Aussat, argued that they were a little naive when it came to foreseeing the implications of fibre optics for satellites.

The other problem Aussat faces is that despite Telecom's 25% interest, which was foisted on it by the Government, the two have always adopted adversarial positions. This situation has ensured that unlike some terrestrial carriers overseas, Telecom has never had a reason to foster an uneconomic technology.<sup>2</sup> This is why the Australian Telecommunications Users Group (ATUG), continually calls for independence for Aussat.<sup>3</sup> Thus, while Aussat retains what would be seen by some quarters as the 'advantage' of being able to construct networks completely independent of the national network and therefore the ATEA, it has not been able to persuade Telecom to use satellites in areas such as remote telephony and therefore greatly integrate the satellite system within the terrestrial network. By the time Aussat's second generation is launched Telecom will have an established terrestrial DRCS network reaching practically every remote location.<sup>4</sup> Telecom's strategy in this respect was described in the following,

It must be emphasized, however, that the incorporation of the satellite into terrestrial networks will both incur high direct costs and threaten the commercial integrity of satellite products and the strategic integrity of Rural and Remote Area Program (the RRAP). The high costs will occur both because of the innately high costs of satellite communication and the diseconomies of small scale technology, particularly since the necessary skills will be more difficult to develop and maintain in remote areas. Integrity is threatened and there will be increased pressures for Telecom to use satellites as a standard means of communication: not charging premium prices for new commercial products, and using satellite technology in lieu of the DRCS in remote areas at massive extra cost to itself.

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<sup>1</sup>. Maclean, Personal Interview with Author", Op.Cit.

<sup>2</sup>. Walsh, Peter. (Report Nine) Op.Cit.

<sup>3</sup>. Staley, Personal Interview with Author, Op.Cit.

<sup>4</sup>. Australian Telecommunications Commission, Annual Report 1986, Melbourne, 1986. p 15 Telecom has scheduled the construction of a total 187 DRCS before 1990.

These considerations may well dictate that satellites should not be included in the terrestrial network under any circumstances, even in the small number of cases where it may be cheaper to do so. Insofar as overcoming inadequate terrestrial capacity is concerned, it has been shown previously that terrestrial network construction is much more cost effective.<sup>1</sup>

The unknown factor at this stage is the position AUSTEL will adopt with regard to regulating Telecom's use of the satellite. Through various regulatory mechanisms AUSTEL could conceivably force Telecom to use what the carrier views as an uneconomic technology. While Aussat has largely been shut off from competing with Telecom's network in the area of voice and data communication, it still has ambitions for the second generation in broadcasting.

#### Aussat, DBS and Pay-TV

As has been shown Aussat's first generation has been primarily used by the broadcasting industry. It is from this area that Aussat derives 75% of its revenue and from where it believes the main use will be made of its second generation. Yet, as has also been noted, Aussat's design for the second generation, despite vaunted industry consultation, is fundamentally against the wishes of the ABC and FACTS. The broadcasters specifically stated that they did not require higher powered transponders or greater bandwidth and that they would prefer to see the emphasis on reducing the cost of existing services. The question then must be asked as to why Aussat's management has chosen not only to dispense with the low powered (12 watt) transponders but to increase the homogeneous concept from 30 watt to a standard 50 watt level. This increase can be partly explained by the refusal of the Aussat Board to endorse the construction of two second generation satellites with 25 transponders each. Faced with a reduction in the number of transponders, Management increased the power and bandwidth of those remaining. Yet what should also be taken into account is the debate which occurred during 1986 over the future of Direct Broadcasting Satellites (DBS).

In August 1986 Aussat advised DOC that 30 watt transponders would not be strong

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<sup>1</sup>. Walsh, Peter. (Report 9), Op.Cit.

enough to provide a metropolitan DBS, albeit the pairing of two such transponders would give approximately a 52 watt beam which would be suitable for a quasi DBS service. Presumably by pairing two 45-50 watt transponders on the second generation Aussat could deliver a signal approaching 100 watt into Australia's major cities.

The debate over DBS in 1986 was vastly different to the one which had taken place in the late 1970's and early 1980's over satellite broadcasting and the shape of the first generation. Based on the overseas experience with DBS, at least in the case of the Murdoch group from direct hands on knowledge, Australia's media groups which had been interested in satellite broadcasting from high powered transponders had lost their earlier enthusiasm. Tom Burton, one of Michael Duffy's former staff members, claims the Government's moratorium was result of Rupert Murdoch convincing the Minister that Pay-TV was not viable in Australia.<sup>1</sup> Murdoch's view was certainly widespread within the broadcasting community. When interviewed by DOC or Aussat during the second generation planning process, FACTS members uniformly opposed the introduction of DBS services into Australia.<sup>2</sup> Before examining the reasons for FACTS rejection of Pay-TV via satellite it is necessary to briefly recount the overseas experience with DBS.

While satellite enthusiasts continue to boast about the prospects of DBS and from time to time positive stories appear in the media, a careful reading of events shows that wherever this technology has been put into place it has been an unmitigated failure. The first DBS operator in the United States was a company called United Satellite Communications Inc (USCI) which began operations in 1983. The same year Rupert Murdoch's company withdrew from DBS saying prices would need to come down for its reinvolverment.<sup>3</sup> USCI pressed ahead and by the end of 1984 "...had only 9,000 subscribers to show

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<sup>1</sup>.Burton, Tom. "Pay-TV: new ripple in the piranha pool", Sydney Morning Herald, 9 September 1988. p 29

<sup>2</sup>.The only broadcaster to show an interest in DBS was the ABC. In 1986 the ABC suggested a purpose built DBS satellite. Aussat and DOC rejected this concept in the knowledge that if the satellite had 4x200 watt transponders each would have to be leased out at \$25 million dollars per annum to generate the \$100 million in revenue they need to be economically viable. Not only would the cost of transponders be prohibitive the ABC would have to make major expenditure increases on programming to attract viewers away from free to air broadcast services. Refer "Broadcasting Policy Environment for the Second Generation of Aussat Satellites", DOC Broadcasting Policy and Planning Division, 15 September 1986.

<sup>3</sup>.Reinecke, "Aussat:Will it Become more Space Junk", Op.Cit. p 36

against debts of \$53m."<sup>1</sup> In terms of DBS, Jeremy Tunstall has noted that USCI's DBS operation was relatively cheap in that it used capacity on Canada's Anik satellite, similar to Aussat's first generation in terms of transponder power, rather than launching its own high power/expensive satellite. Taking on board USCI's experience other major US companies, which had intended to enter the DBS market, quickly dropped the technology. These companies included Comsat, Oak Industries, CBS, RCA Americom and Western Union. Comsat suffered the most of these companies, and abandoned DBS in the wake of a net loss of US\$41.5 million in 1985, its first ever negative result.<sup>2</sup>

The failure of DBS in the United States is primarily due to the fact that cable systems are a far more economically attractive way to distribute Pay-TV to the majority of the population. Eli Noam concluded that for the 85% of the United States population,

DBS is becoming a substantially weaker mode of distribution than was believed earlier, largely due to the substantial fixed cost in satellites as well as the high marginal cost of subscribers' equipment and installation.<sup>3</sup>

Typically a DBS satellite with 6 to 8 transponders costs in the order of US\$500 million. This represents a substantial up front investment with a two or three year lead time. Once the satellite is in orbit transponders need to be leased out at around US\$10.5 million (medium power) to US\$15 million (high powered). SBS asked US\$17 million but had no takers.<sup>4</sup> To recoup costs satellite Pay-TV services needed to charge subscribers US\$30-40 dollars per month for 5 to 6 channels. Cable systems charged between US\$6-30 for 36-54 channels. Satellite subscribers faced the cost of purchasing a dish, amplifiers, descramblers, maintenance and installation.<sup>5</sup> They could also not access the interactive services offered via cable such as videotext and home banking.

The advent of fibre optics has further shifted the economic pendulum towards cable with a single strand of fibre being able to carry eleven standard television channels.<sup>6</sup> This has

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<sup>1</sup>.Tunstall, Op.Cit. p 73

<sup>2</sup>.Comsat, Op.Cit. p 12

<sup>3</sup>.Noam, Op.Cit. p 14

<sup>4</sup>.Henry,Op.Cit. p 36

<sup>5</sup>.Noam, Op.Cit. p 3

<sup>6</sup>.Ibid. p 8

already induced the divested AT&T companies to try to enter the Pay-TV market.<sup>1</sup> Analysis has also shown DBS to be a less economic proposition than Multichannel Microwave Distribution Service (MMDS) in the urban markets of the United States.<sup>2</sup>

The European financial experience with DBS has been similarly dismal. Despite predictions that it would break even by 1987 Rupert Murdoch's 'Sky Channel' has accumulated debts of US\$30 million since it commenced operations in April 1982.<sup>3</sup> The first British venture into satellite broadcasting launched in January 1987, 'Super Channel', has also been a financial failure, notching up losses of \$120 million by October the following year.<sup>4</sup> Independent Television News(ITN) claimed that Super Channel (which was losing \$2 million a month in early 1989) was offered to it as salvage for a token \$2.<sup>5</sup> A controlling interest (55%) in Super Channel was later sold to BETA television for that price, when several ITV companies bailed out.<sup>6</sup>

Elsewhere on the continent, Europa TV, a satellite to cable station suspended operations in December 1986, after it failed to reach the audience figure it need to breakeven.<sup>7</sup> In 1987 publishers Bauer Verlag and Burda Verlag pulled out their 14% stake in the German language SAT-1 and KMP Music Box, leaving behind an estimated US\$10 million loss since January 1984.<sup>8</sup> The German language RTL-Plus, a pan European general entertainment channel owned by CLT of Luxembourg has losses believed to be running as high as US\$25 million a year.<sup>9</sup> Bob Jaques reports that in France,

Another body-blow for DBS came with the newspaper leak of a letter sent by French budget Minister Alain Juppe to prime Minister Jacques Chirac in late January [1987]. The letter spoke of the 'ruinous' commercialization prospects for the TDF project and

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<sup>1</sup>.Baer, Walter. S. "Telephone and Cable Companies: Rivals or Partners in Video Distribution?" in Noam Op.Cit. p 187

<sup>2</sup>.Henry, Op.Cit. p 31

<sup>3</sup>Jaques, Bob. "New media, old problems", Space Markets, Spring 1987. This is a conservative estimate of Murdoch's losses on Sky which have been put as high as \$80 million by Julian Petley. Julian Petley "Dish-Up: The prospect for Britain", Sight and Sound, Winter 1988/89. p 12 Refer also David Miller, "Murdochvision: Satellite TV, News International and International News", Glasgow University Media Group, 1988.

<sup>4</sup>.Petley, Op.Cit.

<sup>5</sup>.Ibid.

<sup>6</sup>.Ibid.

<sup>7</sup>Jaques, Op.Cit.

<sup>8</sup>.Ibid.

<sup>9</sup>.Ibid.



effectively recommended that at least the second satellite be canceled in favour of France's leasing transponders aboard Eutelsat II. Germany has already killed its plans to build a second flight model of the near identical TV-SAT, so it can never offer an 'operational' service, with a standby spare in orbit, unless a buddy act is arranged with TDF.<sup>1</sup>

John Gratham has suggested that what attracts Europe's media tycoons to DBS, despite the heavy losses, is that "...being in the satellite business enhances ones chances of getting into the conventional broadcast television business, which is cheaper (no satellites), more convenient (no receiving dishes) and reaches a wider audience."<sup>2</sup> Europe has around 120 million Television households with an average of 2.9 persons each, representing the largest broadcasting market in the western world and that the demand for TV advertising is 30% greater than available airtime.<sup>3</sup> Australia on the other hand has nothing like this market size or glut of advertising dollars.<sup>4</sup> The Australian television market is approximately one-twentieth the size of the US market and concentrated in the major cities.<sup>5</sup> Len Mauger, the Chairman of FACTS, told a 1987 conference, "I have some doubt whether the scattered Australian population will hold the same attraction for DBS as the U.S. and European markets."<sup>6</sup> Sky and Super Channels have notched up massive losses while having a weekly audience reach of more than 10.7 and 9.5 million viewers each.<sup>7</sup> Given that there are only 5 million television households in Australia<sup>8</sup>, Pay TV would be broadcasting to a market size which has not proved viable in the United Kingdom. In addition, the market could not be expected to significantly expand taking into account that 98% of Australian homes had at least one television set by 1984.<sup>9</sup> Yet

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<sup>1</sup>.*Ibid.* Juppe stated the TDF-1 & 2 satellites were "...obsolete and that to pursue the project would run the risk of trapping France in an industrial and commercial backwater." *Financial Times, New Media Markets*. Vol 5, No 4, 18 February 1987. p 1

<sup>2</sup>.Gratham, John. "The Global Pillage", *New Statesman and Society*, 26 August 1988.

<sup>3</sup>. Jaques, *Op.Cit.* adds that there are problems with advertising across national borders, "For example, bans or restrictions on TV advertising for margarine in France, pet food in Italy, and sweets in the Netherlands." For background on these systems refer Negrine, *Op.Cit.*

<sup>4</sup>.Bagwell, Sheryle and Elizabeth Knight, "Bond Faces Faltering TV Advertising Market", *Financial Review*, 23 January 1987. p 4

<sup>5</sup>.Johnson, L.W. *et al.* "Pay television in Australia", *Telecommunications Policy*, Vol 9, No 4, December 1985. p 302

<sup>6</sup>.Mauger, Len. "Australian Communications: The Next Five Years", Paper presented to Plenary IV, International Institute of Communications Conference, Sydney 1987. p 5

<sup>7</sup>.Petley, *Op.Cit.*

<sup>8</sup>.Maddox and Wall, *Op.Cit.* p 170

<sup>9</sup>.Badham, Richard., Ian McNicol and Albert Moran. "Australia", in *Video World Wide: An International Study*, (Ed) Manuel Alvarado, UNESCO, John Libbey, London, 1988.

the costs to start and run a Pay-TV satellite service would be similar to those in the US and Europe.

It is of course the major cities that any Australian DBS/Pay-TV operator would want to target.<sup>1</sup> This has certainly been the American experience as Armando Valdez reports,

The principal DBS audiences are the potential viewers in major, urban markets and service to potential viewers in remote areas is actually a by-product of its intended service to high density, urban metropolitan areas. In reality, DBS operators do not have an incentive to provide service to rural, remote areas.<sup>2</sup>

The Australian experience with Aussat mirrors what occurred in the United States. None of the RCTS services are commercially viable providing signals to remote areas. As well it is doubtful that these services would be profitable even if Pay-TV was introduced through a DBS service to major cities. Not only are Australia's cities served by free to air television providing essentially the same programming, but there is also a high penetration of home video recorders (VCR). Mauger told the conference mentioned above that VCR penetration had reached over 50% of Australian households.<sup>3</sup> Based on this figure, Mauger proffered his belief that the need for Pay-TV through any media had been materially affected.

While consultants employed by the Department of Transport and Communications to study the implications of Pay-TV, took the high penetration of VCR's to indicate a ready demand for such services<sup>4</sup>, it would be equally valid to conclude that the market has been saturated. When the FCC examined the possible introduction of DBS into America in 1980, it concluded that unless DBS was introduced by the mid-eighties, "...the rapidly expanding home video market would reach saturation and freeze it out by limiting its potential audience and thereby undermining its economic viability."<sup>5</sup> As the home video

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<sup>1</sup>.This was recognized by the Broadcasting Policy and Planning Division in their report "Broadcasting Policy Environment for the Second Generation of Aussat Satellites", Op.Cit. in which they stated, "To be viable any new satellite broadcasting service would need to concentrate on the mass markets in major cities to generate the necessary revenue." The report went on to say "However, the major cities are likely to be the first areas targeted for the expansion of Telecom's optical fibre network." p 31

<sup>2</sup>.Valdez, Armando. "Development of New Telecommunication Resources in a Deregulated Environment: An examination of FCC Policy on Direct Broadcast Satellites", in Policy Research in Telecommunications, Vincent Mosco (Ed), Ablex Publishing Company, Norwood, New Jersey, 1984. p 376

<sup>3</sup>.Mauger, Op.Cit. p 3 Maddox and Wall Op.Cit. p 176 put the figure at 58% in 1987.

<sup>4</sup>.Maddox and Wall, Op.Cit.

<sup>5</sup>.Valdez, Op.Cit. and Federal Communications Commission, FCC Staff Report for Regulation of Direct

market reaches saturation point in Australia, any DBS operation would have to contend with the fact that their programming would be parroting the fare of both free to air television and VCR services.

Policy makers in communications have long neglected the fact that an increase in broadcasting capacity is not automatically translated into either improved programming or fostering local content. This has been the Canadian experience with DBS.<sup>1</sup> William Melody has written,

It is perhaps ironic that over this period in which Canada has been pioneering in satellite development, it has been steadily losing control over the content of its own mass communication environment. Despite the imposition of Canadian television content rules, the proportion of Canadian content viewed by Canadians declines irrevocably year after year. The audience share of the Canadian Broadcasting Corporation (CBC) declines in parallel. It has reached the point that statistics for 1980 for the CBC network indicate that only 4% of the entertainment/drama programs broadcast were Canadian. And of the viewing audience for entertainment/drama programs, only 3% watched the Canadian programs.<sup>2</sup>

and

The contradiction in Canadian policy is explained by the fact that Canada's policies promoting satellite technology on the one hand, and its media/cultural policies on the other, have not been co-ordinated, related, or generally recognized. The promotion of satellites has proceeded without regard to, and without assessment of, the implications for broadcast content or Canadian culture that will flow from them. The pursuit of satellites is undertaken as a means: to stimulate the domestic economy; to attempt to establish a favourable position in the international telecommunications equipment markets; and to obtain international prestige...In fundamental terms, the combination of satellites and CATV [Cable] has provided an enormous increase in broadcasting capacity. There has been no parallel policy to create and promote domestic television content to fill that capacity, even partially...In fact, these developments have placed direct pressures on Canada's existing broadcasters actually to reduce the volume of Canadian production. Being constrained by limited programming budgets and expanded capacity to fill with programs, the economic pressures are to spend less on high-cost new Canadian productions and more on U.S. reruns and imports.<sup>3</sup>

As Melody points out DBS has been primarily introduced in Canada not for the actual service but as part of an industrial strategy. Jill Hartley has pointed out that the Japanese

Broadcast Satellites. Office of Plans and Policy, Federal Communications Commission, 2 October 1980. See also Dengman, K. Dunmore, K.R. and Scardella, V. "Direct Broadcasting Satellites: Policies, Prospects, and Potential Competition." U.S. Department of Commerce. National Telecommunications and Information Agency, March 1981.

<sup>1</sup>.Melody, William.H. "Direct Broadcast Satellites: The Canadian Experience", Paper presented at a Symposium on Satellite Communication: National Media Systems and International Communication Policy, Hans Bredlow Institute for Radio and Television, University of Hamburg, Hamburg, Federal republic of Germany, 11 December 1982.

<sup>2</sup>.Ibid. p 3

<sup>3</sup>.Ibid. pp 5-6

have introduced experimental DBS for the same reasons.<sup>1</sup> Peter Lyman viewed the Canadian policy to introduce Pay-TV as a response to the fact that United States broadcasters were sending their satellite signals direct into Canada.<sup>2</sup> Yet as Melody demonstrates increased domestic capacity does not ensure cultural sovereignty. The same argument is made by Kenneth Dyson and Richard Collins in the context of European initiatives in cable and satellite broadcasting.<sup>3</sup>

Similarly in the United Kingdom, Gareth Locksley reports,

Noticeably, little consideration has been given by the UK Government to the consequences of DBS for traditional broadcasting in the UK. The Government has placed national technology and industrial policy above any wish to preserve the public aspects of existing broadcasting and is fostering an international 'cream skimming' challenger to British Telecom, which still has a strong public service duty.<sup>4</sup>

and

The recent British experience in DBS typifies the confusion over broadcasting. Initially the independent and public service broadcasters in the UK took an over-optimistic view of the prospects of DBS. Encouraged by government enthusiasm for satellites as a vehicle of industrial rejuvenation, they were virtually hoodwinked into DBS proposals without questioning, the viability of the project in terms of its costs, demand conditions or reference to European partners. This condition is endemic in Europe.<sup>5</sup>

The argument that increased capacity reduces programme quality has long been used by FACTS to lobby against a fourth network in Australia's capital cities. They point out that although comparable American centres are served by numerous stations, they do not have the requirement to broadcast domestic production. In the case of an Australian mini-series this can run as high as a million dollars an hour.<sup>6</sup> The same argument can be expected to be mounted against Pay-TV either via cable or DBS.

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<sup>1</sup>Hartley, Jill. "The Japanese approach to the development of new residential communications services", in New Communication Technologies and the Public Interest, Marjorie Ferguson (Ed), Sage Publications, London, 1986. p 176

<sup>2</sup>Lyman, Peter. Canada's Video Revolution: Pay TV, Home Video and Beyond, The Canadian Institute for Economic Policy Series, James Lorimer & Co, Toronto, 1983. p 68

<sup>3</sup>Dyson, Kenneth. "The Politics of Cable and Satellite Broadcasting: Some Western European Comparisons", West European Politics, April 1985. Dyson argues that there is a need to switch the debate from cable and satellite broadcasting technology to programming, because this is the industry upon which the success of the various communication delivery systems depends. Refer also Richard Collins, "Broadcasting Policy in Canada", in Marjorie Ferguson, Op.Cit. p 160

<sup>4</sup>Locksley, Gareth. "Direct broadcast satellites: The media-industrial complex in the UK and Europe", Telecommunications Policy, June 1987. p 195

<sup>5</sup>Ibid. p 206 Refer also Andre Goodfriend, "Satellite Broadcasting in the UK", in Negrine, Op.Cit. pp 144-175

<sup>6</sup>Mauger, Op.Cit. p 5

The United Kingdom experience has demonstrated that, because of the enormous costs associated with satellite broadcasting, proprietors have opted for low cost/imported programming. While the BBC spends \$1.1 billion a year on national programmes for its two channels, and ITV & Channel 4, together spend approximately \$1.130 billion, satellite broadcasters spend far smaller amounts.<sup>1</sup> British Satellite Broadcasting(BSB) spends \$260 million and Sky Channel \$200 million a year on programmes.<sup>2</sup> Nor could Sky's programming claim to be innovative, the majority of which are inexpensive American 'soap operas', including 'The Lucy Show' made in the 1950's.<sup>3</sup> Benjamin Woolley reported,

Where Channel 4 demanded novelty and social awareness, Sky wanted 'sure fire ideas', copied if necessary, from other channels, and explicitly told potential contractors to leave their 'need to be original' behind them when pitching for business.<sup>4</sup>

It is difficult to conceive that a smaller Australian market could economically support original, high quality programming in sufficient quantity to enhance cultural development. Where Pay-TV already exists in Australia, via the VCR medium, the vast majority of all programme material is imported. The majority of this material comes from the United States (approximately 62%), and the United Kingdom (approximately 17%), while Australian made programmes account for only 4% of distributed titles.<sup>5</sup> An unregulated Pay-TV market would follow the pattern set by the video industry.

While the future use of satellite technology for DBS is far from clear<sup>6</sup>, we now turn to the predominate commercial users of Aussat and their views towards DBS/Pay-TV.

### Broadcasting and Media Ownership: Implications for the Future of Aussat

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<sup>1</sup>.Petley, Op.Cit. p 13

<sup>2</sup>.Ibid. Sky's budget is for four channels.

<sup>3</sup>.Huck, Peter. "BBC at the Crossroads", Australian Financial Review, 17 February 1989. p Weekend 3  
Australian 'soap operas' are also broadcast including 'The Sullivans' and 'The Young Doctors' which were originally screened in the 1970's.

<sup>4</sup>.Woolley, Benjamin. "Space Invaders", The Listener, 2 February 1989. p 5

<sup>5</sup>.Badham, *et al.* Op.Cit. p 116

<sup>6</sup>.Christopher Irwin, the BBC's planning and development coordinator, predicts the combined audience of cable and satellite TV channels in the United Kingdom, will be less than eight per cent of total viewing by 1994. Refer Woolley, Op.Cit. p 5

While Aussat planned the technical parameters of the second generation, the Hawke Government formulated the policy framework in which the satellite system would operate. From the first time Kerry Packer spoke to Malcolm Fraser about the potential of a domestic satellite, commentators pointed to media networking as being the probable outcome of a decision to proceed. Indeed Kerry Packer accurately predicted before the Task Force that there would be three commercial networks and the ABC covering Australia within 10 to 15 years.<sup>1</sup> Certainly early actors in the decision making process, such as Jack Curtis, saw the satellite in terms of networking and Tony Staley now avers that he always understood that the decision had implications for networking.<sup>2</sup> After the Cabinet decision to proceed with the satellite system in 1983, the Government turned its attention towards utilization.

In 1984 two inquiries considered the satellite's implications for broadcasting policy. In accordance with requests from the Minister, the Australian Broadcasting Tribunal (ABT) conducted an inquiry into the regulation of the use of Satellite Program Services (SPS) and a DOC officer carried out a review of the policy of 'localism' in Australian broadcasting.<sup>3</sup>

The ABT report recognized that the main users of SPS would be the three commercial networks principally through the Sydney and Melbourne based broadcasters. In addition it was informed by Aussat that it was financially essential for the satellite company to allocate transponders to commercial broadcasters by June 1984.<sup>4</sup> At the same time the ABT stated that it did not believe '...distribution of television programmes via satellite would be a financially viable proposition for SPS providers in either the short or medium term.'<sup>5</sup> For the three commercial networks use of Aussat capacity for distribution represented a rise in costs of 300%.<sup>6</sup> Thus it was clear to the ABT that the principal

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<sup>1</sup>National Satellite Task Force Conference, P&B Tape 1, Op.Cit. p 4

<sup>2</sup>Curtis & Staley, Personal Interviews with Author, Op.Cit.

<sup>3</sup>Australian Broadcasting Tribunal, Satellite Program Services, Report, Volume 1 & 2, July 1984. DOC Localism in Australian Broadcasting: A Review of Policy, August 1984.

<sup>4</sup>ABT, "SPS Report" Vol 1, Op.Cit. p 3

<sup>5</sup>Ibid. p 71

<sup>6</sup>ATEA, Satellite Programme Services, Submission to the Australian Broadcasting Tribunal Public Inquiry, February 1984. p 32 Refer also Doug Fraser Television and the Satellite: II The Current Issues.

media owners of the Melbourne and Sydney stations would not use the satellite except on their own terms. If the satellite was not more economically viable than terrestrial alternatives for distribution the principal players would only utilize it if they were allowed to increase their control of the network and consequently boost their share of advertising revenue. The ATEA submission to the inquiry pointed out,

It would be too trusting to believe that the networks would greatly increase their distribution outlays without promised or 'understood' increases in revenues. What is particularly curious about the increased costs that the networks will have to bear is that use of the higher cost transponders offers no advantage under the conditions of television use which the Minister has outlined.<sup>1</sup>

The ATEA concluded the networks were using this uneconomic investment as a lever to open up the industry to allow the technology to be applied according to their agenda. If this occurred the ABT reckoned,

...there would be a further centralising of programming and advertising functions and decision making, and consequently the strength and influence of the Sydney and Melbourne stations would be further increased.<sup>2</sup>

The ABT was bluntly told that any attempt to regulate the centralization of control would lead to a boycott by the major network players.<sup>3</sup> The News Corporation told the inquiry that such a major investment could only be "...justified if the optimum benefits of satellite distribution can be achieved in a professional and commercially viable manner."<sup>4</sup> PBL's representatives voiced similar opinions stating "...if the regulation was such as to prohibit us from free trading with our partners then the cost associated with taking a dedicated transponder 30 and 12 [watts] would be subject to review."<sup>5</sup>

It is important to note that the ABT was not against networking which it saw as 'economically rational and beneficial'.<sup>6</sup> It was also critical of the two station rule which it held to be discriminatory against those operators outside the Sydney and Melbourne

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Legislative Research Service, The Parliament of the Commonwealth of Australia, 1985. p 5

<sup>1</sup>.ATEA, "Satellite programme Services", Op.Cit. p 33

<sup>2</sup>.ABT "SPS Report" Vol 1 Op.Cit p 83

<sup>3</sup>.The Minister was being given the same message. Refer Tom Burton Op.Cit.

<sup>4</sup>.ABT, "SPS Report", Vol 1 Op.Cit. p 125

<sup>5</sup>.Ibid. p 126

<sup>6</sup>.Ibid. p 168

markets.<sup>1</sup> What it was against was the concentration of ownership and control.<sup>2</sup> The ABT position mirrored DOC's attitude towards networking. In 1983 Bob Lord had written to Lansdown,

The Department has long favoured networking as a necessary concept in the efficient operation of Australian broadcasting stations, provided the networking arrangements do not result in the network 'key' stations (usually Sydney and Melbourne) gaining control (through programming) of stations affiliated with the network. In the inquiry on the so called 'Murdoch amendments' most broadcasters and others making submissions took a similar view. The former Government decided to support and encourage networking, subject to the preservation of localism.<sup>3</sup>

Lord continued,

...the availability of the ACSS will provide a new and efficient distribution facility of particular interest to television broadcasting. This will lead to a much level of networking in the distribution sense. That is highly desirable, provided that the Sydney and Melbourne commercial television stations are not permitted to use this form of networking to gain control of programming (and possibly advertising) on regional and smaller metropolitan stations.<sup>4</sup>

The solution the ABT proposed was to propose limiting licensees to the ownership of one station in metropolitan markets.<sup>5</sup> Networking could still be achieved through a proposed 'Federal Networking Consortium'. If this proposal was adopted, the ABT argued, the purported advantages of networking could be achieved while at the same time increasing the diversity of ownership amongst metropolitan stations.<sup>6</sup>

Concurrent with the ABT inquiry was the review of localism carried out by James Oswin. After careful consideration of the tradition of localism in Australian broadcasting, Oswin came down in favour of its retention, stating,

...local stations are seen to contribute to the social and economic development of a community or region by providing a focus for group effort and by assisting commerce and economic activity. Submissions from individuals and organisations indicated a high

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<sup>1</sup> Ibid. p 167

<sup>2</sup> Bailey, Julie James. "Media Ownership in a Satellite Age", Paper given to Conference on Communications Technology and Control: A Domestic Satellite for Australia, November 1978. In this paper Bailey, who later joined the ABT, argued that ownership and networking did not have to be synonymous and that it was possible for stations to show the same programmes but have multiple ownership. p 3

<sup>3</sup> Lord, Robert. "Australian Communications Satellite System (ACSS) - the second set of 30W Transponders", Memo to Secretary, DOC, 15 July 1983. p 2 The 'Murdoch Amendments' refers to Ian Sinclair changing the act so that Rupert Murdoch could own television stations despite the fact that he was not an Australian Resident. Refer Bowman, Op.Cit. p 97

<sup>4</sup> Lord, "Australian Communications Satellite System ACSS", Op.Cit. p 3

<sup>5</sup> ABT "SPS Report", Vol 1, Op.Cit. p 170

<sup>6</sup> Another ABT proposal was regulation through taking into the size of the population reached by any licensee.



level of satisfaction with the way in which commercial radio and television stations are currently fulfilling this role, together with a desire for this performance to continue...Further, many submission expressed concern that the contribution made by local stations might be endangered by the introduction of city-originated services which could not, or would not, be responsive to the needs of local viewers. While these people are interested in gaining access to additional services, they are not prepared to do so if the cost is the loss of their local service.<sup>1</sup>

The Report concluded, contrary to the arguments presented by industry associations and some stations, that local ownership was 'paramount' as a structural element in the continuance of localism.<sup>2</sup>

After receiving these two reports the Hawke Government turned its attention to providing a commercial equivalent to HACBSS. In its Satellite Program Services report, the ABT had presented the government with two options. First was the so called 'Network Solution'.<sup>3</sup> This involved the Sydney and Melbourne based media companies being able to cover Australia with their signals through distribution of unencoded SPS signals to regional stations. Outback Australians could then pick up three signals through the purchase of a dish ranging from 2.5 metre to 3.4 metre in diameter. As noted earlier, this was opposed by the ABC, because it would have required remote Australians to purchase two dishes to receive its signal in the event that the three commercials were on one satellite and the national broadcaster on the other.

Although this would have given the choice of three commercial signals, this option was not favoured by the ABT because the cost of dishes would have been even more expensive, it would be contrary to localism in terms of time difference across Australia & programme content relevance, and it would have entailed 'dire consequences for regional stations' if people in their areas opted to receive the signal. These were arguments which had been repeatedly gone over throughout the decision making process.<sup>4</sup>

As an alternative to the network solution the ABT recommended a 'regional solution' advanced by the RTA in which a single license would be issued in the four footprint areas. Accordingly Duffy asked the ABT to hold an inquiry into the issuing of license in

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<sup>1</sup>.DOC, Localism in Australian Broadcasting, *Op.Cit.* p 227

<sup>2</sup>.*Ibid.* p 244

<sup>3</sup>.Duffy, "Regional Commercial Television Services", Ministerial Statement, 10 October 1984. p 3

<sup>4</sup>.These issues had been covered by Chris Deacon in his "Evaluation of Commercial Television Networks' Use of 30 Watt National Beam Transponders For Distribution", DOC Communications Analysis Section, 14 July 1983.

October 1984.

Announcing the inquiry Duffy made it clear that he did not favour network control of the RCTS licenses. His ministerial statement included the following,

...we would welcome one of the Sydney-Melbourne licensees seeking to join a consortium of licensees for the SE zone, or a Brisbane licensee participating in the the NE zone. However, those licensees who already hold dominant positions in the broadcasting system might be well advised to concentrate upon zones where they do not already have a licence. The consortium concerned would bear the onus of convincing the Tribunal that the proposed arrangements satisfied the Government's policy objectives regarding ownership and control. That is, the Tribunal should reject any application for an RCTS licence which clearly exacerbated concentration of ownership or control in the Service Area concerned.<sup>1</sup>

Along with their recommendations for licensees the ABT again used the report to criticize the two station rule for failing to address the concentration of media ownership and control in Australia.<sup>2</sup> Its attitude to the rule was reflected in its awarding of RCTS licenses to companies, that already owned two stations. This was a necessity in some cases, such as the Golden West Company in the Western Australian Beam, where the only applicants had been companies which owned the maximum number of stations.

In these deliberations the ABT and the Government recognized that these services would be uneconomic. While the way was left open for state government assistance Duffy indicated there would be no Commonwealth subsidy for successful applicants.<sup>3</sup> Duffy also cryptically stated that RCTS licenses would be seen as advantageous by "...entrepreneurs who wish to take a strategic position in the broadcasting system."<sup>4</sup> It was the first indication that the government was considering changing the ownership pattern in Australian broadcasting.

At the same time the ABT issued its recommendations on RCTS, DOC's Forward Development Unit(FDU) released its report on the future policy framework governing commercial television. While the primary focus was equalisation, comments were also made on the question of media ownership. While the FDU swept aside the ABT's suggestion of divestment for those that owned more than one metropolitan station as too

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<sup>1</sup>.Duffy, "RCTS", Ministerial Statement, Op.Cit. pp 9-10

<sup>2</sup>.ABT, "RCTS" First Report, Op.Cit. p 72

<sup>3</sup>Ibid. p 122

<sup>4</sup>.Duffy, "RCTS" Ministerial Statement, Op.Cit. p 7

radical, it found merit in the idea that licensees should be bound by audience reach, rather than the number of stations owned. The FDU found that the ABT had presented a convincing case that the present two station rule concentrated control in the hands of Sydney-Melbourne networks and that unless a new policy was adopted equalisation would compound this problem. Recognizing the Government's deregulatory stance, yet rhetorical commitment to discourage the concentration of ownership and control, the FDU suggested that a greater aggregation of interests be allowed outside Sydney and Melbourne. While it recognized that this could be interpreted as further centralising ownership and control outside the major metropolitan markets it felt that this was the price to be paid for providing "...opportunities for growth in commercial television interests outside Sydney and Melbourne."<sup>1</sup> Again an option was presented to the government which would purportedly take into account 'economic realities', 'accommodate the introduction of new technologies' but not extend the 'dominant influence' of the Sydney-Melbourne based networks.

With the launch of the first satellite in 1985, the question of media ownership and satellite use was pushed to the forefront of issues facing the government. While the original impetus for breaking the two station rule had come from Packer, a new push for jettisoning it came from those sections of the television industry who were locked out of competing in Australia's largest markets by the entrenched oligopolies.<sup>2</sup> At a meeting in September 1985, Michael Duffy, reportedly told David Aspinall of the Bond Corporation and media entrepreneurs Christopher Skase and Kerry Stokes, that the two station rule would be abolished.<sup>3</sup>

This was in line with the thrust of ABT and DOC recommendations. Yet neither the Department or the Tribunal could have envisaged how contrary to the major criticism of the two station rule - that it concentrated control in the hands of Sydney/Melbourne based networks - the legislation which replaced it would be. As has been documented earlier,

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<sup>1</sup>.DOC (FDU), Future Directions for Commercial Television, AGPS, Canberra, June 1985. p 66

<sup>2</sup>.O'Regan, Tom. "The Background to TV Networking", More & Lewis, Op.Cit. p 140

<sup>3</sup>.Earl, Greg. "Paul Keating's Media Masterstroke", Financial Review, 23 February 1987. This was not officially announced by Duffy until 27 November 1986. Refer Ian Reinecke, "Satellite Broadcasting in Australia", in Negrine, Op.Cit. p 207

key Labor strategists believed networking, controlled by a few metropolitan owners, would be a positive development for the ALP. In coming to terms with the question of ownership the main considerations were that networking be accomplished in away that delivered control to magnates sympathetic to the party. Those media groups that had a long time hostility to the ALP or had not shown the chameleon like ability to shift allegiance according to whoever sat on the treasury benches were to be penalized, while 'media mates' were to be rewarded.<sup>1</sup> The Prime Minister reportedly told Cabinet, in December 1985, that Labor's two media mates were Packer and Murdoch.<sup>2</sup> At the same time the Government wanted to maximize use of what was by now obviously going to be mainly a broadcasting satellite. Keating would later comment,

The satellite was in the sky but we couldn't deliver the regional television. It was a breakdown in public policy. We had the equipment, we had the technology, but we didn't have the policy.<sup>3</sup>

The networks had applied pressure to the Government throughout 1985 by threatening to not use the satellite.<sup>4</sup> Even when the contracts had been signed for the lease of transponders, the shrewder of the Networks had the opportunity written into their contracts to terminate their lease if the necessary regulatory environment was not provided by the Government.<sup>5</sup>

The legislation finally struck to accomplish this task was generally known as the cross media ownership laws. Under the new laws an individual or company could own an unlimited amount of stations provided they did not reach more than 75% of the population. This was later amended to 60% in a deal hammered out with the National

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<sup>1</sup>.Bowman, Op.Cit. p 11 & p 24

<sup>2</sup>.Ibid. p 9 Bowman indicates this occurred in 1986 which is true. The reference to 'media mates' was an ongoing argument from Hawke and Keating. Refer Earl, Op.Cit. This meeting was one of the most bitter of the three year old government. Hawke pushed through a proposal favouring Packer and Murdoch, at which time Senator Button, who had played such an influential role in Labor's attitude towards the satellite, asked what else the PM wanted done for his mates. Carew, Op.Cit. p 175

<sup>3</sup>.Carew, Op.Cit. p 179

<sup>4</sup>.Refer Greg Earl, "Duffy Treads Tightrope over 'Split' in the Networks", Financial Review, 28 May 1985; Judith Hoare "Networks take their stand on satellite investment" Financial Review, 18 June 1985; and Judith Hoare "Aussat pleased, for now, with two out of three TV networks", Financial Review, 30 June 1985.

<sup>5</sup>.Payne, Hugh. "Minute to Vin Kane", 14 April 1986. This was discussed at Aussat's Board meeting on 26 March 1986.

Party to allow the bill to pass through the Senate.<sup>1</sup> The Australian Democrats favoured 35%.<sup>2</sup> The FDU had noted in its report that in the US the FCC limited audience reach to 25%.<sup>3</sup>

Although the proposed laws met some resistance in Cabinet, Hawke and Keating were able to push the decision through, when the Prime Minister reportedly announced that it would win the ALP the next election.<sup>4</sup> In the words of political commentator Peter Bowers, the Treasurer had proposed the new legislation and raised audience reach for the following, "Keating sees the cross-media rule as historic because it looks after Labor's long term interests first, looks after Labor's mates second, and pays back Labor's enemies third."<sup>5</sup>

It was a strategy which had its origins in Geoff Evan's work in 1979. For Labor a shallow pragmatism which triumphed over principle. Hawke had told Regional Television Australia (RTA) in June 1984, that the particular principle guiding the Government's approach in this area was "...to discourage concentration of media ownership and control of stations."<sup>6</sup> Michael Duffy repeated this objective in a Ministerial Statement summarizing the ABT's recommendations in October 1984.<sup>7</sup> Yet by 1986 the disparity between rhetoric and practice was clear. The balance between social and economic values planners had sought, was disrupted by the Hawke Government's short sighted emphasis on the economic dimension. Years of broadcasting policy planning and development designed to limit the concentration of ownership was swept aside to appease media moguls sympathetic to the Hawke Government.

Over the next twelve months the 'great media shake-up', as the press dubbed it, saw the

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<sup>1</sup>.Bowman, *Op.Cit.* p 31

<sup>2</sup>.Australian Senate, *Television Equalisation*, Report of the Senate Select Committee, AGPS, Canberra, 1987. Although this was presented by Labor as unreasonable it had been the original figure the established networks had lobbied for everyone else. PBL and News wanted a special concession to allow them to reach 43% the size of their present Sydney/Melbourne market.

<sup>3</sup>.DOC (FDU), "Future Directions for Commercial Television, *Op.Cit.* p 68 Refer also Karen Rothmyer "Hot Properties: The Media', *Columbia Journalism Review*, Nov/Dec, 1985.

<sup>4</sup>.Earl, *Op.Cit.* p 28

<sup>5</sup>.Bowman, *Op.Cit.* p 24 Keating would later gloat to Fairfax executives "I've hurt you more than you hurt me", Carew, *Op.Cit.* 179

<sup>6</sup>.Hawke, Robert. "Speech by the Prime Minister to Regional Television Australia", Sydney, 5 June 1984. p 4

<sup>7</sup>.Duffy, "Regional Commercial Television Services,(RCTS)" *Op.Cit.* p 4

largest concentration of media ownership in any comparable liberal democracy. In the print media, Rupert Murdoch, who had previously controlled 28% of the daily newspapers circulated in Australia, emerged with 59%.<sup>1</sup> While he had to divest his television interests, this was going to be necessary anyway given that he had become an American citizen. Murdoch's Melbourne and Sydney stations were purchased by Northern Star Holdings (NTS) for over \$700 million.<sup>2</sup>

The potential for networking had dramatically increased the perception of the value of Australian television stations. Kerry Packer took advantage of this fact to sell his two Channel Nine stations to Alan Bond for a figure variously reported to approach one billion dollars.<sup>3</sup> It was a grim irony that in 1983 David Aspinall, Alan Bond's right hand man, had gone before the Caucus Sub-Committee on Communications and argued on behalf of Swan Television,

We support the establishment of the Australian Communications Satellite System. However, we have consistently argued that the Communications Satellite System should serve to link the country and not centralise the industry. The material and programs put to air in any particular area must remain the prerogative and responsibility of the company licenced to serve that area and that the existing laws and long established policies governing the ownership and control of commercial television and radio broadcasting must be maintained in order to safeguard the interests of the community and the existing operators.<sup>4</sup>

Aspinall continued,

We are strongly opposed to the 30 watt transponders which now have the capacity to be switched into a national beam being allocated to the Eastern States television networks. We are gravely concerned at the consequences of having signals from 30 watt transponders carrying Eastern States network television blanketing Australia. We believe this would inevitably lead to the United States style networking, which would ultimately result in a diminution of autonomy in local television stations and consequently a serious deterioration in the quality of local television. The concentration of media power that would be placed in the hands of the three Eastern States would be awesome should the 30 watt transponders be allocated to those companies.<sup>5</sup>

Other media ownership changes over the next year left NTS, Bond Media and

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<sup>1</sup>.Bowman, Op.Cit. p 15

<sup>2</sup>.Loane, Sally TV networks wield the axe in large-scale staffing cuts", Times on Sunday, 26 April 1987. p 3

<sup>3</sup>.Bowman, Op.Cit. p 15

<sup>4</sup>.Aspinall, David. "Supplementary Information to Government Caucus Sub-Committee on Communications", Swan Television and Radio Broadcaster Limited, 11 October 1983.

<sup>5</sup>.Ibid.

Christopher Skase's Quintex, owning Australia's three television networks.<sup>1</sup>

By 1988 it was clear that the Bond had paid too much for the Nine Network (as Kerry Packer surmised at the time) and press reports in late 1988 speculated that Bond Media was on the market. This was partially confirmed in December 1988, when Bond Media sold STW 9 and its radio network for a combined total of \$185 million to reduce the company's debt level.<sup>2</sup> Certainly Bond media's early pre-tax profit margins were far below underwriter's forecasts at the time the company was floated.<sup>3</sup> Convinced that networking would provide efficiencies the new media owners paid out some \$3 billion for acquisitions.<sup>4</sup> Yet as the following two tables exhibit, they had bought into a stagnant market.<sup>5</sup>

Australian Television Advertising Expenditure 1982-1986 and Predictions for 1987-1988.

Year	Total Advertising Revenue \$ Billion	Real Growth Assume 9% CPI	Television Advertising Revenue \$ Million	Real Growth Assume 9% CPI	%Share Advertising Revenue
1982	2.3		758		30.0
1983	2.5	-0.3	846	2.6%	33.7
1984	3.0	11.0%	1024	12.0%	34.5
1985	3.3	1.0%	1128	1.1%	34.0
1986	3.5	-2.1%	1213	-1.5%	34.2
1987	3.8	-2.1%	1290	-2.5%	34.1
1988	4.1	-0.5%	1395	-1.0%	34.0

<sup>1</sup>.Bowman, Op.Cit.

<sup>2</sup>.Deans, Alan. "Bond Media bid for TNQ tipped", Sydney Morning Herald, 16 January 1989. p 31

<sup>3</sup>.Knight, Elizabeth. "Bond Media sets a deflated standard for TV Magnates", Financial Review, 10 February 1988.

<sup>4</sup>.de Vries Robbe', Michelle. "Has The Advent of Aussat Delivered The Government's Promise of Equalisation of Television Services in Australia?", A dissertation submitted in fulfilment of the requirements for the degree of Master of Business Administration, Graduate School of Management and Public Policy, University of Sydney, march 1988. p 96

<sup>5</sup>.Ibid. p 95 & 97 For confirmation of stagnant advertising revenue, refer Rayner, Op.Cit. p 59

### Profit Report of Combined Australian Commercial Television Industry

	<u>1984-5</u> nearest \$Million	<u>1985-6</u> nearest \$Million	<u>Growth</u>
Operating revenue	1103	1204	9.1%
Operating Expenses	998	1110	11.2%
Operating profit	105	94	-10.8%
Non Operating profit	6	11	-29.5
<u>Pre-Tax Profit</u>	<u>111</u>	<u>105</u>	<u>-13.1%</u>

While the conventional wisdom had it that networking would increase efficiency and lead to higher profits, the expectation was too great. In the United States studies have shown that group ownership does not necessarily confer economic efficiencies, except perhaps in the production of news.<sup>1</sup> The Australian situation is slightly different with the requirement, however small, of programming domestic drama. The new moguls argued that networking would allow them to increase the money available for domestic production. It certainly allowed them to cut costs by networking programmes out of Sydney. Yet because of the huge amounts paid for television stations with borrowed money there was pressure to cut staff and programme costs. The same sequence of events had occurred earlier in America. In 1985 CBS thwarted a takeover bid by cable magnate Ted Turner. Its decision to purchase 21% of its own stock left the company with a billion dollar debt. This was followed by a decision to offer 2,000 employees early retirement.<sup>2</sup>

In Australia staff cutbacks occurred almost immediately after the ownership changes with programmes predominantly networked from Sydney. The most dramatic manifestation of this was the Fairfax management cutting staff and local programmes in Melbourne after they took control of the former Herald and Weekly Times owned Channel Seven. The Sydney and Melbourne Channel Sevens had previously been the only two stations not jointly owned. The resistance of Melburnians to the destruction of 'localism' was evident in the ratings figure for Channel Seven news which on occasion slipped below the ethnic

<sup>1</sup>.Besen, Stanley M. and Leland L. Johnson, "Regulation of Broadcast Station Ownership: Evidence and Theory", in Noam, Op.Cit. pp 373

<sup>2</sup>.Rothmyer, Op.Cit. p 38



Special Broadcasting Service. Kerry Packer claimed that James Fairfax was the "Mr Magoo of the media", because he had paid \$320 million for an operation losing \$250,000 a week.<sup>1</sup> The absurdity of the Fairfax purchase was that given their ownership of the immensely profitable *Age* newspaper they were in contravention of the cross media ownership rules specifically designed to retard their growth. Yet Kerry Packer's earlier attempt to network radio by using a Melbourne station as a relay for Sydney's 2GB had also been a dismal failure. In fact radio broadcasting networks' early enthusiasm for satellite networking had dimmed by 1988, with the Maquarie Broadcasting Group reportedly stating, after selling MacSat, that satellite broadcasting was not an avenue it saw as viable.<sup>2</sup>

In addition the new television owners found that advertisers were reluctant to pay increased charges to pay for station purchases and turned to the print media.<sup>3</sup> Bond Media tried to increase advertising rates by 18% in 1987.<sup>4</sup> This left advertising buying groups wondering where the supposed efficiencies of networking had disappeared. Advertisers now realized that the concentration of ownership reduced the flexibility they had previously enjoyed in negotiating media deals.<sup>5</sup>

Stagnant revenues for television networks is likely to adversely effect cultural sovereignty. If the market is left to determine programming the result was likely to be less rather than more Australian programming. The new manager of the Ten Network Ian Gow reportedly described the price of Australian made mini series as 'economic suicide'.<sup>6</sup> As a result, the ABT revealed proposals in December 1988 to force the new owners to increase airtime given to Australian programmes to 50% from July 1989 rising to 60% within five years.<sup>7</sup> Responding to the ABT announcement, Gow, reportedly stated, that this would be extremely hard to achieve in light of the fact that Pay-TV would

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<sup>1</sup> Packer, Kerry. "The Gang that couldn't shoot straight", *Australian Business*, 24 June 1987. p 20

<sup>2</sup> Neales, Sue. "MacSat sold for \$1.5 million", *Financial Review*, 31 August 1988.

<sup>3</sup> Zahara, Pauline. "Inserts tip the Balance against TV", *The Australian*, 21 November 1988. p 13

<sup>4</sup> de Vries Robbe', *Op.Cit.* p 96

<sup>5</sup> Cheeseman, Keith. "Advertising and the Media Industry", More & Lewis, *Op.Cit.* p 50

<sup>6</sup> Loane, *Op.Cit.*

<sup>7</sup> Kingston, Mark. "TV chiefs told: go Aussie or else", *Sydney Morning Herald*, 10 December 1988.

"worsen the economics of the industry".<sup>1</sup>

The long term implications for Aussat of networking are difficult to assess. While networking represents increased use of satellite capacity already taken up by NTS, Bond Media and Quintex this does not mean that the company will be able to lease out more transponders. In fact Bond Media handed back a transponder during 1988, which it had acquired as a result of the acquisition of other media groups. This is the reason Aussat is attempting to persuade the Government to allow the introduction of Pay-TV via the satellite rather than a fibre optic based Telecom system.<sup>2</sup>

What the networks' attitude to the future use of satellites will be is equally unclear. Unlike the ABC they are not committed by government policy to use the system. With the advent of fibre optics connecting Australia's capital cities by 1990 they will almost certainly reassess their use of satellite technology. Country stations burdened with the cost of aggregation are already turning away from Aussat as a transmission means. This will further erode the economic viability of the RCTS licensees which had hoped the SPS would provide much of their revenue. If the RCTS scheme collapsed, it would remove the main legitimization of Aussat. This is almost certainly the reason the government reversed previous commitments to discourage the networks from owning RCTS licenses and of subsidizing Imparja when the Northern Territory government backed away from earlier commitments.

Bond Corporation's development of Sky Channel has been seen by some observers as giving them a strategic position for the introduction of Pay-TV. As the main commercial supporter of the system they will be able to make the argument that they deserve to be given a Pay-TV licence should the Government decide to introduce DBS. Should cable be chosen as the preferred medium the government would be placed under pressure not to allow existing networks to own systems where they have free to air television stations. The FCC prohibits dual ownership of cable and free to air services in the same market.<sup>3</sup>

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<sup>1</sup> Ibid.

<sup>2</sup> Wilenski, Peter. "Technological change and its impact on Media policy planning", Prometheus, Vol 6, No 2, 1988. Refer also "Direct Broadcasting by Satellite", Aussat Paper, in Future Directions for Pay Television In Australia, Vol 2, Op.Cit. pp 259-275

<sup>3</sup> Besen and Johnson, Op.Cit. p 365

If Bond Media was locked out of the Pay-TV market it would place additional strains on its investment in the Nine Network. An additional media outlet would cause programming and promotional costs to rise and at the same time eat into advertising revenue.<sup>1</sup> This is why the Australian networks have traditionally opposed the introduction of Pay-TV, often with sound reasons.<sup>2</sup> Assuming media ownership and control was not allowed to further concentrate, the promotion of Pay-TV/DBS by Aussat means that it is on a collision course with its major commercial clients.

Another factor counting against the introduction of DBS is the effect it would have on the equalisation policy. From the time of the White Inquiry, regional stations were opposed to the prospect of direct satellite broadcasts into their areas. The Government's equalisation policy stems from the desire to deliver three commercial signals to those areas which presently receive one commercial station. This policy has always been favoured by the Networks, because it gives them a guaranteed market and the Government had the initial benefit of making sure the satellite was utilized.<sup>3</sup> However, it has not been equally welcomed by regionals, because in their view they will expend vast sums to broadcast into neighbouring regions without increasing their revenue.<sup>4</sup> Two reports from independent advertising buying consultants supported the regional's view. Merchant and Partners, a Sydney based firm, told the FDU in 1985,

In our opinion advertising revenue will not increase as a result of either aggregation or supplementary licence plans. Total viewing audiences will not increase, nor will the individual regional markets increase in terms of television homes in current defined regional primary coverage areas.<sup>5</sup>

While the Melbourne firm Mitchell and Partners stated to the same inquiry,

Television operators are in a situation of supply and demand with rates and revenue interlocked....The operation of three stations in general markets, especially if they are in

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<sup>1</sup>.How much revenue would be lost to Pay-TV is debatable. A recent survey in the United Kingdom showed, that advertisers were more interested with improved programming and scheduling on terrestrial services and a fifth terrestrial channel than the introduction of satellite broadcasting. Refer Woolley, Op.Cit.

<sup>2</sup>.Free, Les. "Planning for Change in the Television Industry", Telecommunications Journal of Australia, Vol 35, No 1, 1985. p 76

<sup>3</sup>.Public Interest Advocacy Centre (Draft Submission) Senate Select Committee on Television Equalisation, (Consultant - Liz Fell), Sydney, 1987. p 8

<sup>4</sup>.Stone, Ken. "A Regional Perspective of Commercial television - The Future", Regional Television Association, Marrickville, 1 October 1985.

<sup>5</sup>.Ibid. p 2

aggregated form as described, will set in motion a pattern of over-supply and in our view will lead to savage rate cutting and an ultimate decline in the revenue base.<sup>1</sup>

At the same time regionals will have to fork out massive amounts for transmission equipment. Ken Stone told an industry conference in 1985,

At present it takes 36 main transmitters and about 135 translators to bring one television service to around 5 million regional Australians. That is about 7.5 transmission systems per million. To equalise the three commercial services in regional areas will mean reaching a total of 108 main transmitters and 405 translators or about 23.5 systems per million.<sup>2</sup>

While some of the larger regional networks, such as Prime Television, favoured aggregation, most of the industry recognizing the Government's commitment, preferred the Multi Channel Services (MCS) proposal.<sup>3</sup> The two regional consortiums originally granted licenses for the RCTS North eastern and South Eastern zones had banked on the MCS scheme going ahead. Jim Malone, managing Director of BTV 6 Ballarat and a Satellite South East board director reportedly stated in 1987,

When we got the SSE licence from the ABT, we expected 34 per cent of revenue to be generated by program service to the regional stations through Multi Channel Services. But the MCS scheme exists now in name only. The equalisation legislation is slanted towards forcing regional stations to aggregate rather than use MCS.<sup>4</sup>

This is the reason that SSE sold their licence to John Fairfax Ltd and Bond media was able to take control of the North Eastern Licence. Regionals could not bear the expense of a loss making RCTS service at the same time they were moving towards equalisation.<sup>5</sup>

As aggregation has forced the regional consortiums out of RCTS, it would be ironic if those same services were used for additional DBS channels on the second generation. Pay-TV via DBS would be strongly resisted by regionals because it would reduce their market, before they have had the chance to recoup their capital investment in equalisation.<sup>6</sup> While beams could be tailored to only serve metropolitan markets there is no technical reason why the present RCTS zones could not be served by Aussat's second

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<sup>1</sup>.Ibid.

<sup>2</sup>.Ibid. p 4

<sup>3</sup>.Ibid. and Robin Bromby, "Country TV to separate the wheat from the chaff", The Australian, 16 November 1988. p 23

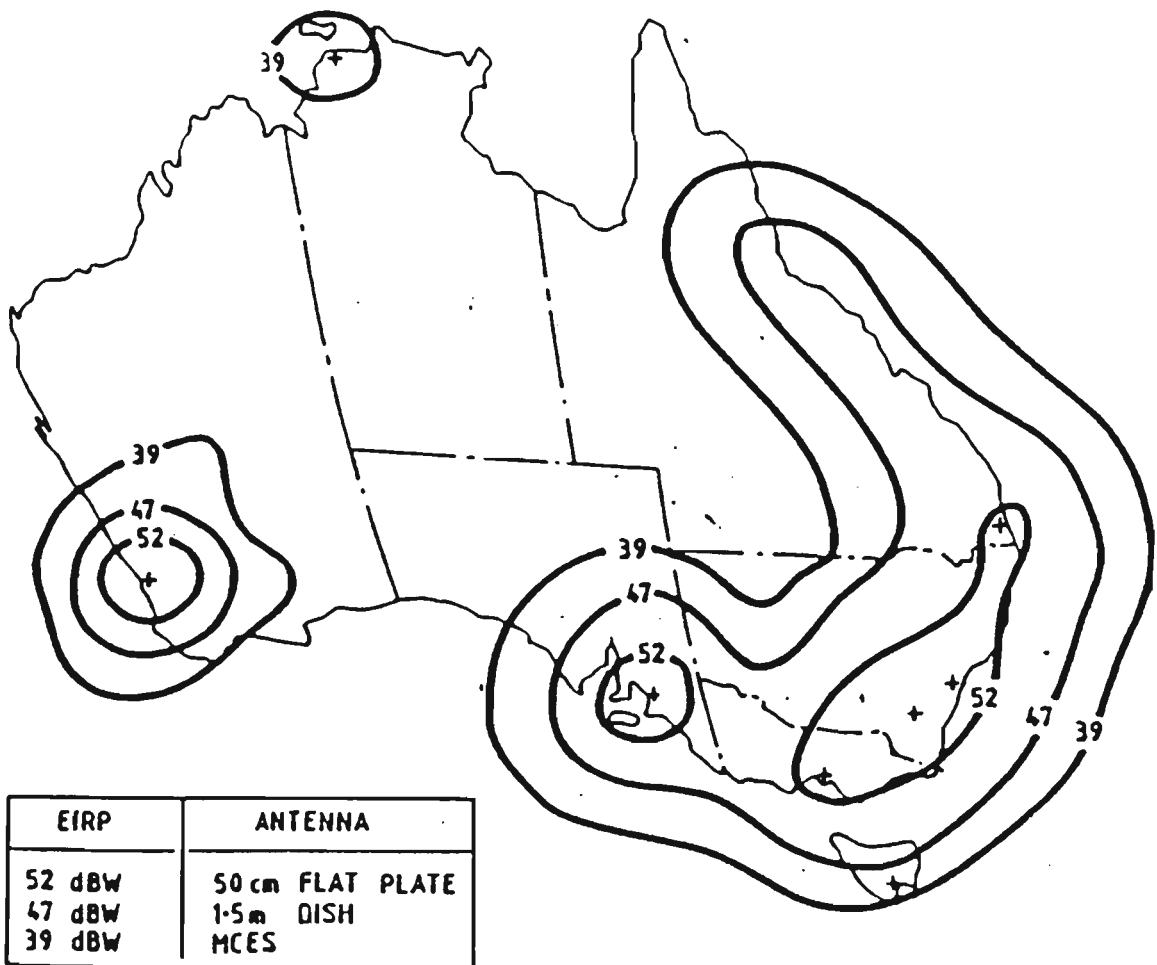
<sup>4</sup>.Wright, Op.Cit.

<sup>5</sup>.Stone, Op.Cit. p 7

<sup>6</sup>.DOC, "Localism in Australian Broadcasting", Op.Cit. p 266-7 In this report Oswin recognised viability of new regional services should not be jeopardized by the introduction of Pay-TV via satellite.

generation transponders. Political pressure could be expected from rural electors if they were denied a Pay-TV/DBS offered to metropolitan areas. They would inevitably ask why 'pencil beams' were designed to serve urban areas, allowed a reduction in the price of dishes, while remote Australians were asked to pay \$3000 for their HACBSS/RCTS receivers, and regional viewers received no Pay-TV service at all. Conscious that DBS, restricted to metropolitan areas, would be politically divisive, Aussat has proposed the following service areas<sup>1</sup>:

#### AUSSAT B HIGH PERFORMANCE (HP) BEAM EIRP (dBW)



<sup>1</sup>. Aussat Paper in *Future Directions for Pay Television in Australia*, Vol 2, Op.Cit. p 268

If DBS was extended to those areas most underserved by the present broadcasting system 10% of Australia's population would have to purchase expensive 1.5-2.4m TVROs.<sup>1</sup> Outside that footprint, remote Australian's would need a major city earth station to receive a direct signal. While the justification for a domestic satellite system had always been to take television to remote areas, Aussat's target is now overtly Australia's major population centres. Yet if the service was extended, it would come as a political embarrassment to the Government of the day to have to explain to remote viewers why their current TVRO equipment would be obsolete. Jim Lange explained to the ATUG conference in 1987 that because of Aussat's higher powered transponders on the second generation,

...a small TVRO will be able to receive many more transponders. However, since AUSSAT has settled on 54mghz transponders, most will carry two TV signals. Today's TVRO's cannot tune to half-transponder video. Similar problems will abound in other communications systems, so that you will find your current equipment will not be able to take advantage of the new power anywhere near as efficiently as the new equipment.<sup>2</sup>

Alternatively the introduction of a fibre optic cable service would initially start in urban areas and take much longer (if at all) to reach regional markets.<sup>3</sup> This option would obviously be preferable for regional networks.

That the satellite option is on the agenda at all reflects the fact that broadcasters were not able to intervene in the shaping of the second generation with the comparable influence that they brought to bear on the first series of satellites. Despite the bluster of some of the new owners of the major networks they lacked industry experience. They had not followed the satellite process through in the way PBL had from its inception. It is a lapse they may live to regret.

## Chapter Conclusion

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<sup>1</sup>.Aussat, "Direct Broadcast by Satellite", Op.Cit. p 267

<sup>2</sup>.Lange, James. "Satellite Technology: A Look into the Future", Paper presented to the ATUG Conference, Sydney, April 1987.

<sup>3</sup>.The cost of connecting fibre optics to homes is steadily decreasing. By 1991 it will cost US\$150 less to install a fibre optic cable, than use a copper equivalent into a home in a new suburban development and they have the capacity to carry more services. Refer Jeff Hecht, "Optical fibres find their ay home", New Scientist, 3 March 1988. p 63

The planning for the second generation of Aussat satellites was typified by the satellite authority's endeavours to secure a future for itself. Aussat was able to reorganize planning structures to take into account that certain actors, who had been collaborators during the first generation planning, had been transformed into critics. These critics needed to be held off while the satellite authority fixed its vision of the future in the design of the second generation.

While attention was focussed on the concentration of media ownership and attendant networking, Aussat was planning for the introduction of services prior to the Government making the appropriate policy. The debate over DBS/Pay-TV, is typical of the lack of cohesive policy making. Bringing Pay-TV onto the agenda was an admission of the failure of the Government's policy to prevent the concentration of media ownership in Australia. Whereas this chapter has documented Aussat's drive towards DBS/Pay-TV, the Government's report *Future Directions for Pay Television in Australia*, claims that satellites have not been primarily designed with this purpose in mind.<sup>1</sup> The report then goes on to state the potential revenue to Aussat is in the region of \$30-50 million a year.<sup>2</sup> As has been demonstrated in the present work, Aussat's design for the second generation of satellites has been explicitly shaped by the desire to offer Pay-TV services via satellite, to the extent of acting against the wishes of the broadcasting industry.

While overseas use of DBS is documented in *Future Directions for Pay-TV in Australia*, no attempt is made to analyse why these services were introduced. The report is equally muted on why media proprietors have been willing to bear extensive losses on DBS services for political objectives, rather than improving the choice available to viewers. Yet the most dubious assertion made in this report is that an increase in broadcast capacity will generate greater viewing choice for the Australian public. No account is taken of the fact that a measure of improved choice would have to include an increase in programme quality. While the Report cites the ABT's 1982 conclusion, that Pay-TV would offer Australians 'access to more relevant programming cultural diversity and access to more

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<sup>1</sup>.Department of Transport and Communications, *Future Directions for Pay Television in Australia*, Vol 1: Report, AGPS, Canberra, 1989. p xx

<sup>2</sup>.*Ibid.* p 76

useful information"<sup>1</sup>, this has patently not been the experience for viewers of existing DBS services overseas. The costs of satellite broadcasting are such that private operators are not be able to generate sufficient revenue for 'niche' programming or to substantially increase domestic production. The most inexpensive programmes are purchased and aimed squarely at mass markets presently served by terrestrial broadcasters.

The debate over Pay-TV and the attendant lack of systematic concern with social impact is symptomatic of a longer term policy approach of putting the technology in place before considering its social implications. In 1986, as the Department of Communications prepared its strategy to win approval for a second generation of satellites, the question of a social impact study of the first generation was raised. Vin Kane, First Assistant Secretary of DOC's Space, Telecommunications and Postal Policy Division, suggested to Charles Halton,

There is no doubt that the Australian satellite system is making a big impact on the community in both economic and social terms. I am concerned that we are selling ourselves short in not trying to record and quantify the developments that are occurring in both broadcasting and telecommunications areas.<sup>2</sup>

When Halton agreed, Kane wrote to Cameron Hazlehurst,

I do not think this need be a lengthy exercise but merely a gathering together of all the benefits, as far as possible to quantify that the satellite has brought to Australia.<sup>3</sup>

Hazlehurst recognized the utility of such a study, for the political process surrounding the second generation, but felt it was too early to properly assess the satellite systems social impact. Nevertheless Hazlehurst concurred and replied to Kane,

...in view of the timing of the replacement satellite submission for Cabinet, I agree that there is merit in undertaking an economic 'inventory' of the satellite system's impact. This would be useful should questions concerning the satellites' demand on public resources surface during our forthcoming interdepartmental discussions...This exercise would need to be carefully supervised and its terms of reference formulated to produce the intended outcome i.e. an initial economic appraisal suited to the requirements of our intended submission to Cabinet.<sup>4</sup>

Encouraged by Hazlehurst's reply, Kane promised to,

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<sup>1</sup>. *Ibid.* p xxii

<sup>2</sup>. Kane, V.J. "Social and Economic Impacts of the Australian Satellite System", DOC Minute Paper, to Charles Halton, 13 March 1986

<sup>3</sup>. Kane, V.J. "Social and Economic Impacts of the Australian Satellite System", DOC Minute Paper to Dr Hazlehurst, 1 April 1986.

<sup>4</sup>. Hazlehurst, Cameron. "Social and Economic Impacts of the Australian Satellite System", DOC Minute paper to V.J.Kane, 21 April 1986.



...develop a framework for embarking on a quick and dirty analysis of the economic impacts of the Australian satellite system...I[Kane] well understand that none of this could be said to be very analytical but with the extremely limited resources we have, it is probably the best we can do. My motivation in this is the likelihood that the Minister or we officers in, perhaps, a Senate Estimates Committee, will be asked the quite reasonable question - "What has been the economic impact of the Australian satellite system? Has it lived up to the sorts of predictions made at the time of the Government decision to proceed? The social impact side is obviously much more difficult...Not being academically minded myself, I hesitate to suggest it, but a study of this sort could be a useful thesis subject.<sup>1</sup>

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<sup>1</sup>.Kane, V.J. "Impacts of the Satellite", DOC Minute Paper to Cameron Hazlehurst, 23 April 1986.

## Chapter 7

### Social Shaping Of Aussat

This thesis has traced the development of Australia's domestic satellite system. The current work has highlighted those factors most relevant to the shaping of particular aspects of technological development and produced an understanding of how participants in the negotiation of the sociotechnical design sought to assert their interests. In addition, the thesis has examined Aussat's effect on its 'impact constituency' and how Australia's experience with the first generation of satellites, in turn shaped an on-going sociotechnical system. It has placed Aussat in the context of the world satellite industry and shown how satellites were developed in response to military requirements. This work has documented that the development of a civilian industry took place because large aerospace corporations wanted to extend their potential markets and governments envisaged the development of a strategically important industry. As has been shown there were always choices in the development of satellite technology but the military and industrial imperatives held sway. Yet while governments could sustain losses necessary to maintain the industry, those companies which tried to employ satellites to by-pass terrestrial communications companies have not been successful.

The current work has demonstrated the disparity between promise and performance of Australia's domestic satellite system. It has become so great that action should be taken to curtail the misallocation of public resources. Perhaps in the normal course of political affairs a technological system which has failed to achieve national objectives could be conveniently ignored or excused. Aussat's financial position, however, is such that the

Federal Government can no longer responsibly hold back from addressing fundamental issues. The most pressing concern is the appropriate organisation to house satellite operations. Aussat has not proven to be competitive or efficient as a stand alone carrier. The major indication of Aussat's uncompetitive position is that satellite charges are rising at a time when terrestrial prices are falling.

What is clear is that no equity infusion should take place as Aussat is presently constituted. Nor should this or a future government contemplate such a move at a time when Aussat has designed a second generation system which is three times more powerful than the A series and requires large additional cost, when as this thesis has indicated there is likely to be massive over-capacity. This concluding chapter builds on the analysis presented in earlier chapters, which traced the social shaping of Aussat, and canvasses the possible policy options for the Australian Government.<sup>1</sup>

### **Objectives and Expected Benefits**

As noted in the Introductory Chapter what different groups originally hoped to get out of a satellite system varied dramatically. To some it represented the chance to carry television to remote Australia; to enhance distance education; and even to provide services and benefits which could not be immediately determined. To others it represented the chance to compete with the national carrier and by breaking Telecom's monopoly to restrain the ATEA. For certain interests it represented a technology around which a new media ownership structure could be justified. One group saw it as a way of remaining independent of Telecom. Some actors had a faith in satellites and believed they were part of an inevitable course predetermined by the technology itself, while for others it represented a new market for hardware.

The project's success or failure can be measured against the expectations and experience of users. For distance educators the satellite option has proved too expensive, for

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<sup>1</sup>. Similar conclusions have been drawn in a study of Brazilsat. Refer Greta, S. Nettleton & Emile G. McAnany, Brazil's Satellite System: The politics of applications planning", Telecommunications Policy, June 1989. p 163-164

broadcasters it has been found financially unviable, for networks it has been found to be enormously costly and its stimulus for Australian industry proved negligible. In terms of remote telephony that satellite has had little impact. Surveys still reveal, as they did prior to the acquisition of a satellite system, that what remote Australians set as a priority in terms of communications was a reliable telephone service rather than television. Telecom always maintained the most economic way to achieve this was through a combination of terrestrial technologies. To say Telecom opposed the advent of Aussat misses the point that senior management did not regard the satellite as a priority in terms of their other capital commitments. Telecom has stuck to its original intention and gone ahead with its Rural and Remote Areas Program (RRAP) including the provision a Digital Radio Concentrator System (DRCS) service to 11,000 remote subscribers, where it was assessed to be a third of the price of providing an equivalent satellite service.<sup>1</sup> In 1983 Aussat acknowledged that Telecom would only use the satellite where DRCS was inadequate. This is an important issue to consider against the claim that Telecom is holding back Aussat or that government regulation has stymied an innovative technology. Three questions that are addressed in this concluding chapter are:

How has the performance of the domestic satellite system matched expectations?

Are the current institutional and regulatory arrangements appropriate?

What are the future policy options?

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<sup>1</sup>.Telecom Australia, Which Technology and Why, January 1986.

## **Promise and Performance**

### **(a) Aussat's Financial Position**

Although the satellite authority likes to portray its initial operating phase as the difficult establishment years, the period between 1989-1992 is when Aussat's financial planning projected the system would earn sufficient revenue to cover first generation costs and provide a \$300m surplus for reinvestment. The following table matches Aussat's 1984 financial projections with actual published performance,

	85/86	86/87	87/88	88/89	89/90	90/91	91/92
92/93							
(\$m)							
Total Revenue	39.62	113.33	136.49	165.82	190.82	209.65	230.37
171.96 <sup>1</sup>							
(Projected 1984)							
 Total Revenue	 28.649	 73.682	 94.075 <sup>2</sup>	 -	 -	 -	 -
(Actual)							

Total revenue has fallen short of projections in the system's first three years by \$93.034m. Aussat's accumulated loss from 1983-1988, before future tax benefits are taken into account, is \$107.413m. As detailed in Chapter Three financial modelling was used to ensure certain actors remained neutral, to gain the tolerance of some and the enrolment of others. It allowed DOC and Aussat to create a time and space in which to entrench the project. The problem for sociotechnical engineers is that these models can be used as a performance measure at a later stage, when unrealistic or over optimistic assumptions are revealed.

The reason Aussat has been actively seeking an injection of equity in 1989 is that it can no longer maintain the fiction that over the next four years it is going to generate the super

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<sup>1</sup> . Projected revenue for this year was actually \$253.16m. However \$81m is projected second generation space segment revenue and therefore it has not been included. The working life of the first two satellites is scheduled to end in 1992 although a third will continue through to 1996.

<sup>2</sup>. This figure excludes a \$10 million management fee paid by the consortium of banks financing the second generation to Aussat for managing the construction of the replacement satellites. Although counted as revenue the fee will later be added to the cost of Aussat leasing the second generation. No allowance is made for this in the earlier modelling.

profits necessary to pay for the current system. The satellite authority's strategy during the establishment years has been to defer problems by employing various accounting practices designed to allow them to make a profit in 1989 for one last roll of the equity dice with an unsympathetic government.

Aussat's dilemma is whether to increase its debt or continue to raise tariffs at the risk of alienating existing customers at a time when rapid expansion had been projected.

It would be difficult to envisage Aussat increasing actual revenue to keep pace with projected revenue. Following this it is important to note that the 10% escalation in prices was always built into Aussat's models, albeit opinions vary on how well this was explained to prospective customers.<sup>1</sup> The tariff escalation was programmed even with an expanding customer base with initial prices being part of a market entry strategy. The annual price escalation was not a crisis response to constrictive regulation but a reflection of actual costs incurred by Aussat and charges will continue to rise unless the satellite authority further blows out its debt or substitutes equity for increased tariffs.

Thus far Aussat's transponder prices have increased at or close to the rates projected in 1984. The price of a 30 watt transponder has recently risen to \$4.5m and if it continues to keep pace with original forecasts will reach \$6.42m by 1992/93. Low powered transponders (12 watt) presently costing \$2.8m were originally forecast to reach \$4.09m in 1992/93. On the assumption that Aussat will not wish to see the gap between projected and actual revenues widen it will need to maintain price increases in the order of 10% per annum. The problem for the satellite authority is that its major customers can be expected to fiercely resist any further price rise while Telecom's tariffs will continue to fall in real terms. Telecom's increases for reserved services will be limited to CPI-4%. In August 1989, Telecom announced a price freeze of standard telephone charges until July 1990 and that non standard services, such as private voice & data networks and broadcasting

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<sup>1</sup>.Refer "Television Capricornia Pty Ltd v Australian Broadcasting Tribunal & ORS", NTG 6 of 1986, Federal Court of Australia, Sydney, 23 December 1986. Evidence given in this case indicated Imparja and Golden West believed there would be a 4% annual escalation on transponders costing \$2,721,600 in 1987/88(sic) and thus rising to \$3,183,890 in 1991/92. In his summation Mr Justice Wilcox stated, "If the Tribunal had thought that Imparja would in fact be forced to pay \$2,721,600 for 1985-86 rising by 10% per annum, it could hardly have avoided the conclusion that the project would be rendered unviable." pp 37-39

services, would be limited to increases of between a 1 to 1.5% over the same period.<sup>1</sup> Aussat's customers will not continue to bear 10% annual rises where they have alternatives. Given the current institutional structure an equity injection into Aussat would be used to artificially hold prices down, acting as a further public subsidy to satellite users.

Thus despite the fact that it should record a profit in 1988/89, doubt exists as to whether Aussat can maintain its existing operating revenue, let alone accumulate a \$300 million surplus for reinvestment. The satellite authority's actual operating revenue has steadily fallen behind projected revenues and even if Aussat can maintain revenue increases in line with past trends, the shortfall between actual and projected revenues in 1993 will be in the order of \$330 million. The company's 1984 modelling projected the system would earn \$968.62m between 1989 -1993 or an average of \$193m per year. Yet what if Aussat's potential sales plateau or fall?

If Aussat can maintain revenue increases at the present level of price escalation, albeit at the risk of an exodus of voluntary customers, then a shortfall of \$330m must be deducted from the cumulative projected system revenues of \$1258m to 1993 leaving projected revenues over the first generation of \$928m.

Less optimistically if Aussat's revenues plateau it would have a shortfall of \$300m for the last five years (plus \$93m for the first three years). Deducting \$393m from the projected system revenues we are left with a total of \$865m.

When the potential revenue is matched against the costs till 1993 we have the following:

Scenario A (millions) 1982/93	Scenario B (millions) 1982/93
\$928 operating revenue	\$865 operating revenue
\$580 operating costs	\$580 operating costs
<u>\$378</u> depreciation	<u>\$378</u> depreciation
(\$ 30)	(\$ 93)

One caveat in accepting the above figures is that a fall in actual revenue may increase operating costs. For a company with a heavy debt to equity ratio a fall in operating revenue may reduce its capacity to retire debt and therefore prolong the burden of interest

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<sup>1</sup>.Ward,G.B.(Director-Pricing, Corporate Strategy Directorate,) "Expected Price Freeze on Standard Phone Services", Telecom Press Release, Telecom, Melbourne,26 August 1989.

payments with a consequent rise in operating costs. As such projected losses may be optimistic.

Given a conservative estimation that over the period 1982/93 the public sector's contribution to operating revenue will be 70%, without considering the capital costs of these users, we can begin to understand the actual cost of a domestic satellite system. Against this many of the economic and social objectives around which the public expenditure was originally justified have not come to fruition.

Aussat's position is far from unique. The international experience of satellite authorities documented in earlier chapters is that they need to be cross subsidized and that they possess capacity vastly in excess of need. Until 1988 Telesat in Canada was cross subsidized by terrestrial carriers and recently had two satellites in storage orbit because of lack of demand and poor planning. In the USA Comsat has long been reliant on AT&T being forced to split its traffic between satellite and cable based on the FCC's balanced loading policy. When pressure was applied to end balanced loading, Comsat could see the future of satellites was so bleak that in 1987 it gave AT&T a 30% reduction in tariffs in return for a nine year contract to lock in its major user while at the same time announcing an annual loss of US\$47m. Brazilsat, again operating with only half its transponders leased, is heavily cross subsidized by Embratel's interstate long distance and international terrestrial revenue.<sup>1</sup> Other systems which generate losses and have vast over capacity include Mexico's Morelos and the Middle Eastern Arabsat. As noted the satellite industry's problems include, launch failures and rising launch costs; in orbit satellite failures; spiraling insurance premiums; rising manufacturing costs; the increased militarization of space; competing technologies such as fibre optics; the financial failure of individual services such as Satellite Business Systems(SBS), the Federal Express 'Zap Mail' system and at an industry level Pay-TV via DBS. For civilian users satellite technology has proven to have a high risk with low, often negative returns.

**(b) Who are Aussat's customers?**

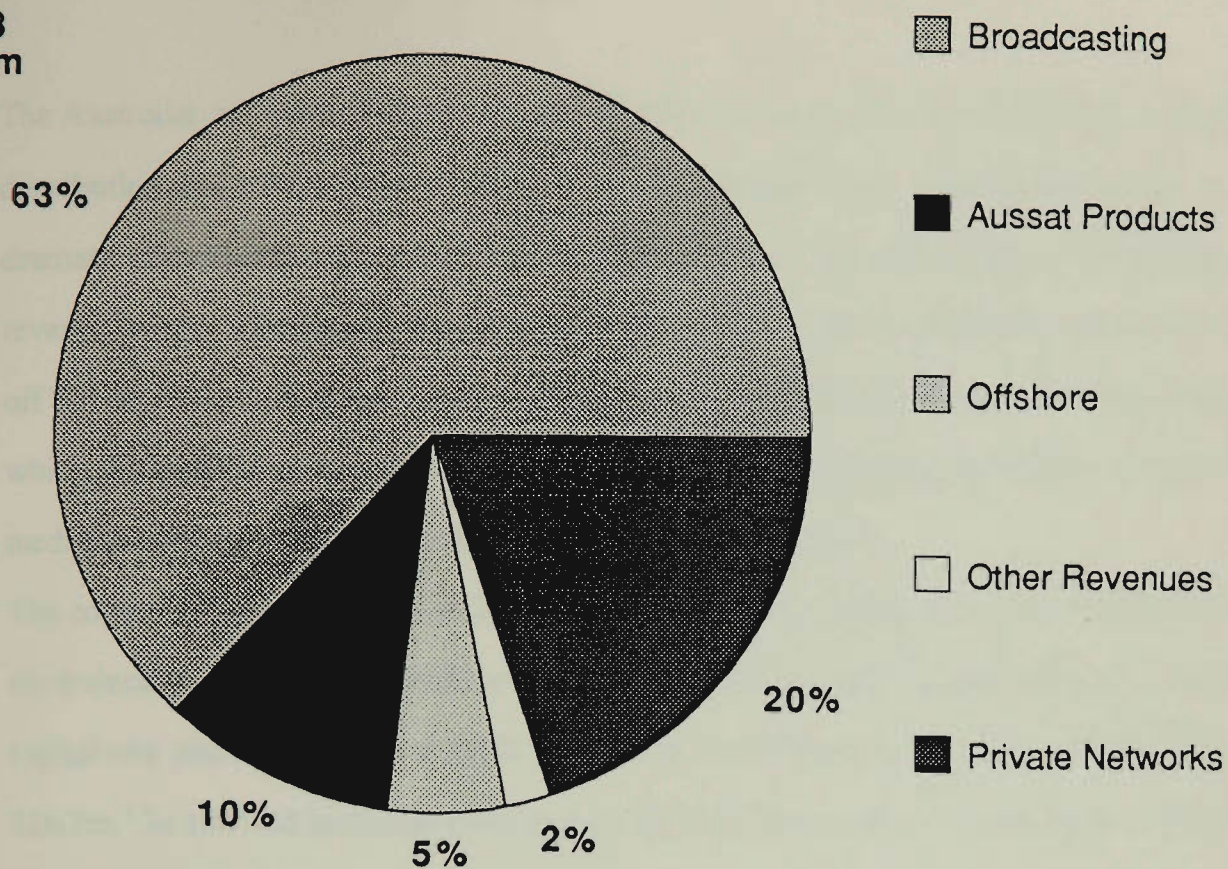
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<sup>1</sup>.Nettleton & McAnany, Op.Cit.

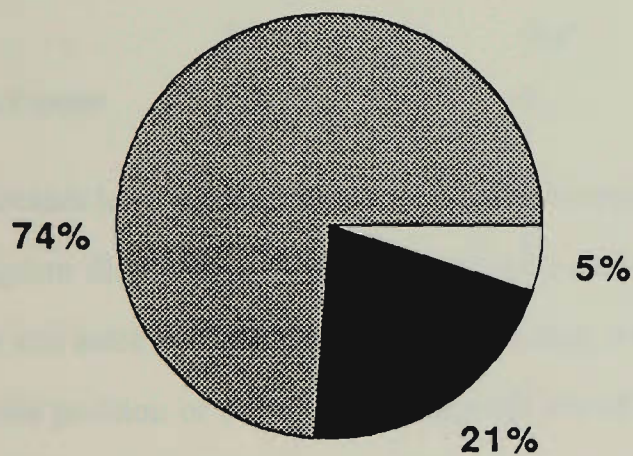


Aussat stated in 1988 that broadcasters provide 63% of their revenue.<sup>1</sup>

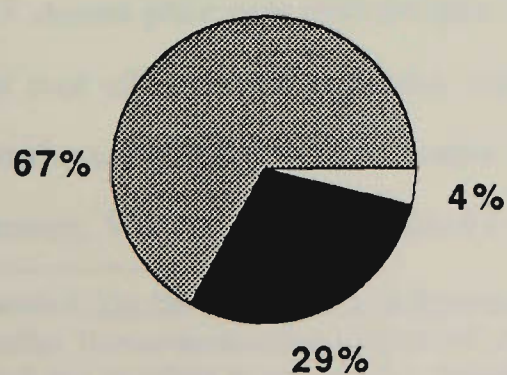
1987/88  
\$104.00m



1986/87  
\$73.70m



1985/86  
\$28.65m



<sup>1</sup> Aussat, 1988 Annual Report, Sydney 1988.

The Australian television industry utilizes satellite technology for two purposes, program distribution and remote broadcasting. In terms of distribution, satellite technology has dramatically escalated costs in an industry squeezed by high gearing ratios and stagnant revenue levels. The industry's plight was graphically illustrated by Northern Star writing off \$514m in the sale of the Ten Network in September 1989. The benefits of networking which the satellite system was to usher in, and for which long held principles of diverse media ownership were sacrificed, have simply not materialized.

The commercial broadcaster's technical costs, as reported to the ABT, have dramatically risen since the advent of Aussat. In the year following the shift to satellite the industry's capital city stations reported a 222% increase in combined technical costs from \$12m to \$26.7m.<sup>1</sup> In 1987/88 technical costs rose to \$33.3m. This contrasted to the years leading up to 1985 when real costs had been falling.

		1982-83	1983-84	1984-85	1985-86	1986-87
1987-88	\$m	\$m	\$m	\$m	\$m	\$m
Technical Expense	11.5	9.1	12.1	12.1	26.7	33.3

Cost increases have led the networks to closely examine the need for satellite distribution. For program distribution Telecom's inter-city fibre network represents a technically superior and more cost efficient option for Aussat's existing customers. Broadcasters are now in the position of being able to play off Aussat and Telecom against one another. The viability of the Telecom option has been recently evident in in the aggregation process in which regional networks have chosen terrestrial bearers over satellite technology.<sup>2</sup> Aussat price rises over the next three years would further widen the gap between the cost efficiency of terrestrial and satellite distribution at a time when Australia's major television networks, (Aussat's core business), are under tremendous financial pressure. What is easily overlooked is that two of the three networks only use

<sup>1</sup>. Whitlam Turnbull, The Impact of Pay TV on Existing Commercial Television Services, July 1989.

<sup>2</sup>. Refer Australian Telecommunications Corporation, Annual Report, 1989, p 45 With the break up of the Ten Network and its efforts to cut costs it is probable that it will leave affiliate stations to pick up the cost of receiving its programming and thereby shift the financial burden. In one sense the Ten Network which has employed two 12 watt transponders only has to serve stations in Brisbane, Sydney and Melbourne. Telecom now provides a national television relay network for ATN-7 linking Perth, Adelaide, Melbourne Canberra, Sydney and Brisbane.

the satellite for program distribution. For this purpose Telecom's network already has a significant cost advantage. In addition the Special Broadcasting Service, which is totally dependent on Aussat is currently assessing its future satellite requirements partly because of severe technical problems it has experienced (uplink rain attenuation and the difficulties of serving different time zones), but also because Telecom can provide a competitive alternative. In 1989 Channel Ten was reported to have ended its contract with Aussat and returned to Telecom's terrestrial network.<sup>1</sup>

The unease with which broadcasters view Aussat's current plans were reflected in a submission to the Saunderson Inquiry, in which Channel Ten argued that the capacity on the second generation should be halved,

To ensure that many hundreds of millions of dollars are not expended upon a resource of limited use, immediate steps should be taken to reduce the costs to the Australian people of the second generation of Aussat satellites. A reduction from two satellites to one should be undertaken unless it can be conclusively proven that continued usage will justify this enormous expense.<sup>2</sup>

Similarly the ABC's distribution costs have also increased and they have the added burden of remote broadcasting. The parallel RCTS services have also proven to be financially unviable and face an uncertain future. In 1987 an Aussat executive expressed an opinion to Gareth Evans, then DOTAC Minister, that the collapse of remote services would remove the legitimization of a domestic satellite system. Taking television to underserved areas was a central justification for the acquisition of Aussat. Surveys showing that outback people wanted a reliable telephone service in preference to television were brushed aside. Parliamentary rhetoric held that demand would spread like 'wildfire' and even the ABC projected up to 100,000 remote dishes would be installed. The \$1,000 dish became a selling point and an article of faith. Lobbying from manufacturers produced a sales tax exemption yet receivers eventually cost \$3,000. Commenting on Aussat's second generation in their submission to the Saunderson Inquiry FACTS stated,

The policy decisions for the current Aussat generation were based on technology claims which proved invalid. They were partially salvaged by a technology (B-MAC) which has

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<sup>1</sup>. Davies, Anne. "Telecom takes Ten from Aussat", *Financial Review*, 10 November 1989.

<sup>2</sup>. Channel 10, "Submission to the House of Representatives Standing Committee on Transport, Communications and Infrastructure, New Broadcasting-Related Services", February 1989. p 4

itself proved to be a mistaken choice in terms of tapping international manufacturing and development economies of scale. Should we again risk large public investment on what seems to amount to technical wishful thinking?<sup>1</sup>

The operating experience of the various RCTS services has confirmed that they are not financially viable even though all are propped up through State and Federal subsidies. Of the annual transponder cost of \$4.8 million, Golden West receives a 70% subsidy from the Western Australian Government and QSTV 60% from the Queensland Government. Imparja receives 50% of its transponder cost from the Federal Government, which was forced to reallocate funds from other Department of Aboriginal Affairs projects after the Northern Territory Government backed away from a promised subsidy.

As evident from earlier chapters none of these subsidies were ever considered in the original costing. The subsidy provided by the W.A. Government to each of the 2,100 dish owners via Golden West is \$1,500 per year.<sup>2</sup> The subsidy would be greater within the central beam where there are 928 individual receivers and 82 satellite fed retransmission sites.<sup>3</sup> Approximately 10% of Imparja's audience receives their television signal via satellite.<sup>4</sup> At the time of final submission of this thesis DOTAC was reviewing the entire RCTS program and the future of these licenses was unclear. The Western Australian Government indicated during the Saunderson Pay-TV hearings that it was not going to continue its subsidy beyond 1993. With the annual 10% increase in transponder prices to service its debt and operating costs, Aussat can not afford to cross subsidize services.

Unfortunately Imparja offers programming with little relevance or cultural value to Aboriginal people.<sup>5</sup> While they partly control the delivery technology the industry's cost

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<sup>1</sup>.Federation of Australian Commercial Television Stations, "Submission to the House of Representatives Standing Committee on Transport, Communications and Infrastructure, New Broadcasting-Related Services", March 1989. p 20

<sup>2</sup>.Skelton, Phillip Graeme. Director, Office of Communications, Western Australian Department of Computing and Information Technology, "Evidence to House of Representatives Standing Committee on Transport Communications and Infrastructure Inquiry into New Broadcasting Related Services, Official Hansard Report," 19 April 1989. pp 400- 403

<sup>3</sup>.CAAMA, "Towards a Distance Education Service for Aboriginal Children in the Remote Areas of the Northern Territory, South Australia and Western Australia", Alice Springs, July 1989.

<sup>4</sup>.Weston, Dion. "Technical Capabilities and Operational Considerations flowing from the Use of the Imparja RCTS for Distance education and Remote Area Telecommunications", Imparja, Alice Springs, March 1989. p 3

<sup>5</sup>.Similar problems have been encountered in Canadian satellite broadcasting to the northern Inuit communities. Refer to Ursel Koebberling, The Application of Communication Technologies in Canada's

structure means that in reality they have little say over what is broadcast. Does ownership matter if the funds are not available for Aboriginal people to produce programs for themselves? Should television be a priority when there are so many other pressing social needs for Aboriginal people? What is ignored in concentrating on giving Imparja an RCTS license is that control of the technology does not equate to control over content. What little advertising the station is able to attract will need to be sold during programs targeted at white consumers.

One option which Imparja and Golden West have called for is to allow them to resell unused capacity. In one sense this option has always been available if Aussat was willing to lease back unused capacity for resale. However there may not be sufficient demand for capacity leased back to Aussat. Educators face the reality that a satellite service to a remote location with one way video/two way voice signal costs in the order of \$60,000 and the Mt Isa trial of distance education once again showed it was technically possible but hugely expensive. If a remote broadcaster leased 3 hours a day for 40 weeks (@ \$1,200 per hour) to a distance educator for a 40 week school year it could earn \$720,000 in revenue. Providing 3 hours of educational programming a day to the 232 students in Western Australia using school of the air would cost \$3,103 per student per annum just for transponder time, without considering the uplink earth station rental cost, program production cost, cost of TVRO, and the cost of interactive discussion between teacher and student via the terrestrial network. An indication of the costs of producing programs relevant to Aboriginal children can be drawn from a proposal for an Aboriginal School of the Air. CAAMA estimated that just to produce "...a half hour radio program broadcast every school day, a one hour, fully produced TV program every month, and a two hour TV 'chat' session every week, for teachers..." they would need \$2,865,923 in the first year for operational expenditure and capital costs.<sup>1</sup>

Golden West has suggested the use of 12 watt transponders which one executive

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communities. Refer to Ursel Koebberling, The Application of Communication Technologies in Canada's Inuit Communities, Thesis submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy in the Department of Communication, Simon Fraser University, 1988.

<sup>1</sup>.CAAMA, Op.Cit.

suggested could still provide a high quality remote broadcasting service at just over half the cost of a 30 watt transponder. The problem is, however, not with the bandwidth but the amount of power, as current dishes require service from higher powered transponders to receive an acceptable signal.<sup>1</sup> Remote broadcasters are required under their respective licences to use 30 watt transponders and Aussat has a sales policy which dictates that RCTS operators purchase 100% of transponder capacity, 24 hours a day, 365 days per year.<sup>2</sup> Use of 12 watt transponders for remote broadcasting services would halve Aussat's RCTS revenue. With the RCTS owners pressing the Federal Government for more funding the future of commercial remote broadcasting remains uncertain. Clearly the Government will not allow the services to collapse without the provision of alternatives.

On the evidence presented in the current work it is clear that Aussat's broadcast market will not expand. If Aussat was granted Pay-TV it would open up a potential market but may negatively impact on existing customers.<sup>3</sup>

One argument suggested for Aussat's poor performance is that Telecom's limited use of the system has held it back i.e. opting for DRCS instead of a satellite based solution for remote telecommunications. Telecom does have the Iterra satellite service which is largely an exercise in symbolic politics although it does serve certain communities (i.e. Birdsville) where it has been assessed as the most cost effective technology. The Iterra service now comprises a total of 105 operational earth stations (54 of which are trailer truck or pallet mounted units available for rental).<sup>4</sup> The point is, however, that Telecom had always maintained DRCS was more economic. While the debate will continue as to whether the incremental cost to Australia was greater because of the unused satellite capacity it is largely irrelevant to Aussat's future prospects. The RRAP program will be

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<sup>1</sup>.The Special Broadcasting Service disputes the assertion that 30 watt transponders are needed to receive an acceptable signal. They claim that the small number of remote installations (perhaps two or three hundred) which receive their unencoded SPS transmission have met with a favourable response from viewers .

<sup>2</sup>.Weston, *Op.Cit.* p 2

<sup>3</sup>.Whitlam Turnbull, *Op.Cit.*

<sup>4</sup>. Pratt, Brian. "Integrating Satellite Solutions into Distance Education", Long Distance Education - How Satellite Technology could be used to improve the education of Australians living in remote communities, Alice Springs, March 29-31 1989.



completed by the launch of the second generation so that Telecom's future use will not alter Aussat's financial performance. In reality the only way the satellite would have been used in the Australian context for a range of remote telecommunication services was with Government subsidies. In 1989 Bell Canada renewed its contract with Telesat to serve northern communities.<sup>1</sup> The contract valued at \$50 million over five years is another way in which the Canadian Government financially supports satellite communications. Bell has a guaranteed return because of use by the Canadian Federal Government. If Telecom immediately switched to the satellite option it would not receive the same support and with second generation transponders having increased capacity it will, at most, only require a single transponder in the future.

### **(c) Second Generation**

As discussed in Chapter Six, despite its patent failure to attract a viable base of private sector clients Aussat designed a staggering increase in second generation capacity. Whereas the combined A series had three satellites with 12 x 30 watt & 33 x 12 watt transponders, the second generation has two satellites with a combined 30 x 50 watt and 2 x 150 watt transponders for mobile communications. One estimate puts the increased capacity at 72%.<sup>2</sup> Aussat says the second generation is three times more powerful than the existing series. As the operating life of A3 and the second generation overlaps by about five years Aussat will have massive additional capacity.

Aussat's argument that the current design represents greater power for a modest increase in price is difficult to sustain. The following table compares the capital expenditure of the first and second generation of satellites.<sup>3</sup>

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<sup>1</sup>.A major difference between Canada and Australia is that remote users are mainly situated in clusters in Canada (i.e. small townships with perhaps 100 families) rather than much smaller groups or individual families in the outback. This is one reason why it is difficult to draw comparisons between the technologies chosen to deliver remote services. Refer House of Representatives Standing Committee on Expenditure, Inquiry into Telecom's zonal and charging policies in rural and remote areas", Telecom Evidence, Hansard 28 May 1986 pp 1323-1324 Another important factor is the climatic differences. Telecom's DRCS runs on a very low power solar technology appropriate to Australia but not to Northern Canada.

<sup>2</sup>.Australian Credit Ratings, Aussat Assessment, 1988.

<sup>3</sup>.Aussat originally planned to recover part of this cost (\$59m) from NZ but this did not come to fruition. These estimates are drawn from 1987 data and do not include the metropolitan beam modifications. Although they include the cost of A3 they were produced before the actual launch.

<u>1st Generation</u>	\$Am	<u>2nd Gen (China Launch)</u>	<u>2nd Gen Western</u>
<u>Launch</u>			
(With A3 launched)			
Satellites	157	(inc launch & insurance) 537	687-97
Launches	62	-	-
Insurance	64	-	-
Control Stations(TTC+M)	28	20	20
MCES	74	(MCES Mods) 8	8
Microwave	15		
Other	7		
		Mobile (Ground) 20	20
		CFE 3	3
		Pgm. Mon. 2	2
Totals	<u>407</u>	<u>590</u>	<u>740-50</u>

Whereas Aussat built, launched and insured the three A-series satellites for \$283m the equivalent costs for two new satellites could be \$697m. The figures presented in this table regarding the second generation costs are drawn from 1987 Aussat estimates, and do not reflect the actual price from the successful tender. While the final figure is commercial in confidence Aussat has suggested in an interview with the author that the actual cost is lower than its original estimates.<sup>1</sup> Industry sources have suggested to the author that the actual figure is significantly greater than original estimates because of modifications to allow spot beams to cover Australia's major cities. How much of a reduction or increase would determine whether Aussat had to seek additional equity in the case of a western launch.

In its original borrowing plans Aussat had made a provision for \$100m against the contingency of a western launch with borrowings of \$695m in place. Aussat has advised the Ralph Willis the Minister for Transport and Communications that a western launch would cost an additional \$150-160m.<sup>2</sup> With a capital cost of \$750m Aussat would be over \$50m short. However this would be offset by the difference between Aussat's 1987 estimates and the actual Hughes price. When the second generation was approved in 1987 Aussat specifically told the government it would not need a capital injection from shareholders, which would appear necessary irrespective of the eventual launch option, because of Aussat's financial predicament.

<sup>1</sup>.Aussat, Interview with Author, Sydney November 1989

<sup>2</sup>.Willis, Ralph. Minister for Transport and Communications, "Letter to Senator Richard Alston", 17 August 1989



The problems experienced in obtaining a Chinese launch with US built technology clearly demonstrate that Australia's technological dependency has increased because of the advent of Aussat.

Yet apart from possible increased launch fees, given that the terrestrial infrastructure (excluding mobile) is already in place, the rise in capital costs attributable to increased capacity, (even if offset by a longer operating life) is difficult to count as a modest increase. While most people would accept that the cost per circuit will fall on the second generation, (based solely on the satellite construction figure), they are not coming down enough to compete with fibre optics. To that extent the planned capacity increase is unwarranted. In this respect Aussat acted against the wishes of its major customers. Despite the rhetoric of industry consultation, Aussat's homogeneous high powered transponder design was not what broadcasters wanted.<sup>1</sup> Their main objection to the high powered homogeneous design was that they believed they would have to purchase the more expensive transponders to perform functions that were being adequately carried out by 12 watt transponders. Aussat's reply to this criticism was that customers using existing 12 watt transponders could expect tariff continuity. Yet how the system could perform viably under these conditions was not explained. Does, for instance, tariff continuity translate into the standard 10% escalation imposed on first generation customers? What has occurred in fact is that Aussat has produced a design incorporating expensive capacity that the industry neither needs or wants and which has to be paid for regardless of any notion of tariff continuity. The Special Broadcasting Service believes that to use the second generation effectively (with the carriage of two signals for different time zones) it would need to lease a 50 watt transponder with a consequent price rise.<sup>2</sup> Aussat's final 1987 design, with standard 50 watt transponders, was patently far from the wishes of its major customer.

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<sup>1</sup> One Special Broadcasting Service executive claimed that organisation was not adequately consulted over the second generation design, and stated "What we are going to get and what we want are the antithesis. We are most unhappy".

<sup>2</sup> If customers currently using 12 watt transponders wish to continue their service on A3 this would impact on the Second Generation's revenue potential. Who will decide which of Aussat's current 12 watt customers continue with that service if the demand exceeds the 11 transponders available?

Aussat appears to have upped the power and modified beams gambling on the decision to allow it to be used as a medium for Pay-TV. It claims it has not pre-empted government policy on the grounds that these beams could be used for business services in the event that satellite delivered Pay-TV was not the Government's preferred option. The problem with this is that these are the same markets served by Telecom's fibre optic network. As noted earlier similar systems designed for business in the United States, such as Satellite Business Systems and the Federal Express 'Zap Mail' service have been dismal financial failures. In December 1988 the Canadian Task Force On Telecommunications received a report from Coopers and Lybrand which concluded that satellite technology's

popularity with communication network planners is dropping quickly. Today, satellite circuits are most attractive to those who want to bypass the common carriers. The issue could well be more a question of current pricing practices than basic cost issues...All of the foregoing points to a dim future for satellite technologies in the long distance telecommunications arena for urban service.<sup>1</sup>

The inclusion of the high powered transponders for mobile services is another Aussat gamble. Unlike Telesat which has a Canadian Government commitment from the outset to utilize MSAT and heavy direct financial support in the form of a \$176m package<sup>2</sup>, Aussat has no such guaranteed market. In addition Telesat's financial viability studies of MSAT have been predicated on finding a United States partner to provide assistance in launching the capital intensive MSAT and putting into place the costly ground segment. The MSAT financial studies revealed that a stand alone Canadian system would not serve a large enough market to be financially viable. The importance attached to providing coverage of the United States market is evident in the contradiction it has created between the system's financial and social objectives. In shaping satellite beams to include the United States, MSAT services will be of a marginal quality in the remote northern parts of Canada.<sup>3</sup> As a joint venture, MSAT will take seven years to recover space segment

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<sup>1</sup>. Federal-Provincial-Territorial Task Force on Communications, Competition in Public Long-Distance Telephone Service in Canada, Consulting Report 3, December 1988. p 111-10 & 111-11

<sup>2</sup>. "Historic Landmark for MSAT", MSAT News, No 7 February 1989. p 1

<sup>3</sup>. Koebberling, Op.Cit. p 392

costs although the Canadian planners noted financial and technological risks are present.<sup>1</sup> Even though the space segment cost to Aussat is less than Telesat faces, in that MSAT will be dedicated to the provision of a mobile service rather than being an add on package (as with the second generation), it would also be true to say that Australia's satellite carrier has a far more limited market. Aussat's mobile service will have to operate in a market in which Telecom will have saturated the east coast with cellular by the second generation launch. At the end of 1988/89 Telecom had covered 71% of the total Australian population with a cellular service. Unlike the United States with an even spread of capital cities across a land mass comparable in size to Australia, the value of satellite mobile communications for example to a trucking company is questionable. For instance even if a head office was in direct contact with a truck traveling between Perth and Adelaide where is the volume of orders going to emanate from in between these cities, required to warrant the cost of satellite mobile communications?

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<sup>1</sup>.Canadian Department of Communications, MSAT PHASE B. Final Report, 1987. p 131

While Aussat has not announced mobile charges the following table illustrates the cost differences between projected MSAT prices and existing cellular systems in Canada, NZ and Australia.

	MSAT	Cantel	Cellnet	NZ	Telecom(Aust)
	(Can \$)	(Can \$)	(Can \$)	(NZ\$)	(Aust \$)
Access Charge (per month)	50	15	9.95	70	53.25
Call Charges (per minute Standard)	1.50	.50	.55	.72	.39
					.57 (over 745 km)
(per minute Economy)	1.50	.34	.37	.50	.15
					.23 (over 745 km)

Calls made to points outside Cantel local calling area incur Cantel long distance charges. A \$36 Annual Renewal Fee applies for the Cantel service.

Telecom's National Marketing Manager of Iterra has projected a usage fee for the Australian satellite mobile service of \$1.50 per minute.<sup>1</sup> The projected MSAT and Aussat system rates will not be competitive with terrestrial cellular charges in the countries surveyed, suggesting a narrow market for the Australian service given the saturation coverage provided by Telecom. Thus like MSAT a substantial cross subsidy will have to be initiated for satellite mobile communications in Australia. The Canadian assessment of the potential for MSAT cautioned, "...a significant misinterpretation of the existing potential could prove to be catastrophic for the space segment provider due to the large initial investment involved."<sup>2</sup>

In addition mobile satellite users in Australia will also have to purchase receivers conservatively estimated at \$6,000. As Australia would be the first service in operation, domestic users could not expect the economies of scale, and therefore would face higher costs at a time when early take up would be essential to financial viability. While Aussat

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<sup>1</sup>.Pratt, Op.Cit.

<sup>2</sup>.Canadian Department of Communications, "MSAT PHASE B, Final Report" Op.Cit. p 50

has suggested there would be an opportunity for Australian manufacturers to export dishes, the space industry is not run along normal commercial lines. Even if Australia could produce receivers at a lower cost based on having the first operational system, huge market distortions exist because of government assistance in other nations. The Canadian Government is not providing \$176 million for MSAT because it is going to provide an economic mobile service but as part of an industrial strategy centred on continuing a domestic space technology manufacturing capability. In 1989 Canada's Department of Regional and Industrial Expansion awarded Spar Aerospace \$7 million as its contribution to ensure that company was in a position to design the space segment system for Telesat Mobile Incorporated.<sup>1</sup> The Canadian Department of Communications absorbed the complete \$20 million cost of the Phase B planning process and sponsored 150 organizations to undertake specific trials and experiments including the initial cost of airtime and leasing of equipment.<sup>2</sup> Nations do not massively subsidize space manufacturing and then not carry this support through to receiving equipment. These are not questions which have been addressed by DOTAC.

The second generation planning process took place between Aussat and a Commonwealth Department which lacked the expertise to understand Aussat's planning process in the international context of the satellite industry and even in terms of Australian communications history. There are few senior DOTAC officials with long standing experience in the communications portfolio. This was graphically illustrated when DOTAC allowed Aussat to claim it could provide 14 Pay-TV channels on the second generation.<sup>3</sup> If carried out in practice this would have entailed a customer purchasing two satellite dishes or expensive repositioning equipment. This paralleled the similar Aussat initiative documented in Chapter Two when the satellite company attempted to have the ABC remote broadcasting on A-1 and the commercial services on A-2, which again would have entailed remote Australians wishing to receive both signals purchasing two dishes. Without an adequate review by DOTAC Aussat has produced a second generation

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<sup>1</sup> "Historic Landmark for MSAT", Op.Cit. p 5

<sup>2</sup> "MSAT Phase B", Op.Cit. pp 11 & 80

<sup>3</sup> Future Directions for Pay Television in Australia, Volume 1, Op.Cit.

satellite system which is over designed and under scrutinized.

### **Institutional and Regulatory Environment**

As noted in earlier chapters the question of ownership was one of the most keenly contested issues in the evolution of Aussat. Given that one of the objectives for introducing the satellite was to provide an alternative to Telecom, the national carrier was not favoured by the Fraser Government. Yet it would also be true to say that Telecom (as opposed to the ATEA) on no occasion lobbied to be given the project. The national carrier always made clear that it would manage the project if that was the government's decision but on that basis the Federal Government should provide funding. Had Telecom gained the satellite it would now be having to absorb the costs of the system instead of the myriad of public financial support which exists.

One of the justifications for making the satellite a government company was to take advantage of an 'entrepreneurial spirit' to develop the 'unique possibilities' of satellites rather than house it in Telecom, where its use would be curtailed by the carrier's terrestrial investment (as has been argued occurred in Canada). Politically, Aussat exists as a separate entity because of Department of Finance(DOF) intransigence noted in earlier chapters. Without DOF opposition the satellite system may well have been housed in OTC. DOF were vigorous opponents of the satellite system, yet if it proceeded they wanted a government sell off. Aussat was formed at a time when the Fraser Government fully intended to sell off 49%.

Because Telecom did not have the introduction of a domestic satellite system as a priority the Government turned to OTC. Australia's overseas carrier had lobbied long and hard not to be incorporated into Telecom based on the majority view of the Vernon Committee. In 1978, unlike Telecom, OTC read the Government's determination to proceed with the project. If as argued one of the reasons for proceeding was to break Telecom's monopoly, OTC felt control of a satellite system would give them a justification for remaining independent of Telecom. As a result Telecom was marginalised in a planning

process controlled by OTC and DOC. Ultimately, due to opposition from the Department of Finance, OTC did not come to control the resulting satellite system. However OTC staff who had planned the satellite transferred from the overseas carrier to form the group which still manages Aussat to the present day.

Over the years other actors have also varied their position on the satellite dramatically. The ABC and other Networks have very different views on using satellites than they did in 1978. Yet perhaps no one has altered its thinking as much as the overseas carrier. OTC's original support for a domestic satellite system, from the time of the White Inquiry, has waned not least because Aussat became a potential competitor. Additionally in the mid 1980's Aussat represented a potential embarrassment at international forums when OTC endeavoured to protect Intelsat markets, while Australia's own satellite carrier attempted to move into the South Pacific. OTC modified its position on this issue as it became clear that private satellite systems, stemming from the policies of the Reagan Administration appeared inevitable, and represented Aussat's interests internationally. It was, however, critical of Aussat for not winding back an over-dimensioned second generation and for not looking for economies through the use of Intelsat VII.

After the election of Labor in 1983 the decision to sell off 49% was eventually reversed. Telecom was sold 25% of Aussat and the Commonwealth retained 75% ownership. Criticism directed at Telecom's representation on the Aussat Board due to their government imposed shareholding overlooks larger issues. Proponents of this view hold that Telecom has a competitive advantage over the satellite carrier because they are privy to confidential planning. Such a view neglects the fact that long term planning associated with communications infrastructure does not lend itself to market surprises. Thus it is doubtful that foreknowledge allows Telecom to head Aussat off at the technological pass. How, for instance, does a general board level awareness of Aussat's plans for a mobile service impact on Telecom's own cellular plans in a way which would differ under separation? What is significant about board representation is that it has precluded Telecom from publicly offering a critical assessment of Aussat's second generation plans. Against this, if Telecom and the Department had not been represented on the Board, Aussat

management may well have secured approval for an even larger satellite system that they had originally advocated. During the entire planning of the second generation Telecom has not commented publicly on Aussat's plans.

As the Hawke Government has moved GBEs away from the 'authority model' towards the 'enterprise model', further management restrictions have been lifted from Aussat. Proponents of the authority model assert it ensures compliance with government policy; has strict financial control and accountability; and has the added advantage of external supervision by knowledgeable bureaucrats.<sup>1</sup> Critics point out that it fragments control, divorces responsibility and may unduly delay the introduction of programs by officials second guessing 'experts'. Alternatively, it is suggested that the enterprise model gives undivided control and responsibility to the corporations board, which is then answerable for its performance and its compliance with law and policy.<sup>2</sup>

The difficulty with certain publicly owned entities (i.e. Aussat) is that by their very nature they are locked into one technology. That is to say they were created to use particular technologies judged to be warranted for social, political or economic reasons. Yet what happens when a technology has outlived its usefulness (if indeed it was ever warranted), where it is a sunset technology, or when it has provided enough capacity to meet foreseeable demand (ie it may actually be able to contract without diminishing the service it provides)? Will the authority continue to expand like the Tasmanian Hydro-Electric Commission (HEC), building dams when they are patently not needed rather than facing the more difficult question of justifying its own existence? In the case of the Franklin Dam in Tasmania, the HEC was stopped because it was threatening to destroy an area of natural wilderness. The control came from environmentalists exerting pressure on politicians rather than from within the system.

The danger is that in moving to an enterprise model, publicly owned entities may persist in in trying to develop certain socio-technical systems which are contrary to the public interest. In Aussat's case, controls are being lifted at a time when the role for satellite

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<sup>1</sup>.Stretton, *Op.Cit.* p 71

<sup>2</sup>.*Ibid.* Refer Chapter 4



technology should be critically reviewed. The shift to an enterprise model frees bodies such as Aussat from government control but does not replace them with the so called discipline of the market. For instance lending institutions do not regard Commonwealth companies in the same light as private companies. They accept that there is an implicit guarantee when making loans to high risk ventures, such as a satellite system. Paul Keating has placed this commitment on record,

I confirm that the Commonwealth is directly the beneficial owner of 75% of the shares of AUSSAT and indirectly the owner of the remaining shares. Accordingly, a levy will be imposed on AUSSAT's approved borrowings pursuant to the Commonwealth Borrowing Levy Act 1987. Such a levy will be made on account of the expectation of financiers who make funds available to any company, all of whose shares are directly or indirectly owned by the Commonwealth, that such financiers will be repaid in the normal course by the company or the Commonwealth.<sup>1</sup>

Hugh Stretton has argued that public sector corporations can be safely in debt for any portion up to the whole of their capital. Aussat's debt to equity ratio is currently hovering around 10 to 1 (on the assumption that tax credits count as equity). The satellite authority's AA credit rating is solely due to an implicit government underwriting of its borrowings. Thus Aussat can borrow to the hilt, place the largest satellite system it can in orbit and in the process place pressure on government to make use of the system by delivering 'the appropriate policy'.

Ultimately organizations are still subject to Ministerial control but the problem is that these controls may come too late. Aussat's strategy has been shaped by its experience. Given that the organization believes that technology leads policy, it knows that if it can get into a sunk cost situation, the government will face pressures to deliver a policy 'fix'. In 1987 David Hoare, Aussat's Chairman, commented in their *Annual Report* ,

AUSSAT's experience is that new technology creates pressures for the establishment of the appropriate government policy to ensure that the benefits of those new facilities are realized.<sup>2</sup>

Aussat's accounting practices, risk management schemes and social experimentation were designed to defer problems until after second generation contracts signed. The

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<sup>1</sup>.Keating quoted in Australian Credit Ratings, *Op.Cit.*

<sup>2</sup>.Aussat, *1987 Annual Report*, Sydney, 1987. p 5

Government now faces pressure to make communications policy with regard to Aussat's finances and contracted technology.

The charge of anti competitive practices leveled at Telecom is raising interconnect charges and not giving a discount to Aussat. The first point to make is that if Telecom is giving discounts to customers this is not on the public record. If discounts were offered to Aussat, would Telecom be cross subsidizing competitive services? The important point is that satellites can not provide an economic bypass and this would appear to be the reason Aussat customers have mainly chosen not to install terrestrial tails from Aussat earth stations. Under the Aussat act, satellite network terrestrial tails can be interconnected with the Public Switched Telephone Network.<sup>1</sup>

The regulatory environment which is allegedly constricting the use of the satellite system is more liberal than when Aussat carried out its financial planning and categorically stated that it did not need changes to be profitable. In 1983 Aussat advised Michael Duffy, the then Minister for Communications, that it had never planned, contemplated or proposed the need to offer switched services.<sup>2</sup> Aussat has never been subject to the constraints which are alleged to have restricted Telesat.<sup>3</sup> For instance Aussat has always been able to market its own services, users have been able to own their own earth stations, Telecom owns 25% instead of the terrestrial carriers 50% interest in Telesat. Nor has Aussat been denied the ability to lease partial transponder space as was the case in Canada for a number of years.

In which of Telecom's reserved services could Aussat compete if the market was totally deregulated? Private satellite networks have always been permitted but have not proved to be a competitive bypass for the private sector. What Aussat's customers are not permitted to do is resell excess capacity, although sophisticated users lease capacity back to Aussat for resale to their customers.<sup>4</sup> An Aussat user will do the marketing receiving a reduction

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<sup>1</sup>.NIEIR, "Deregulation of the Australian Telecommunications Industry: An Economic Assessment", March 1988. p 42

<sup>2</sup>.Gosewinckel, Graham. "Letter to Michael Duffy", 3 June 1983 Op.Cit. This statement was released as Press Release at the same time.

<sup>3</sup>. Econotec Inc, "Satellites and the broadcasting industry: Alternatives for the future", February 1986.

<sup>4</sup>.Weston noted this in relation to Imparja when he stated "The assumption that has prevailed expects the RCTS licensee to carry the entire burden of soliciting additional users for the excess capacity in order to

in their transponder charge rather than a direct payment. The beneficiary is Aussat through private sector marketing of its services. A change in this arrangement would benefit customers but would be virtually revenue neutral to Aussat, as it would be unlikely to sufficiently alter the economics of the satellite system enough to attract new customers.

Allowing Aussat entry into public switched networks for long distance competition would make little difference because satellite technology is not competitive with terrestrial technology. The overwhelming evidence from United States experience is that the preferred technologies of facilities-based carriers is microwave and fibre optics, with a growing emphasis on the latter.<sup>1</sup> This was evident in the merger between GTE's Sprint and United Telecommunications' US Telecom. Similarly IBM conceded the failure of SBS in 1986 when it allowed MCI to take over the satellite system in return for a stock option.<sup>2</sup> IBM retained SBS's US\$400 million long term debt and MCI inherited a system which had been losing US\$100 million a year.

### **Policy Options**

The prime policy consideration, if satellite operations are deemed necessary to continue in Australia, is how to remove distorting incentives so that efficient decisions can be made. The options discussed below are some that have been canvassed and are offered as part of this concluding chapter.

#### **(a) No Institutional or Regulatory Change**

This option would not appear to be viable given Aussat's deteriorating financial position and it would not address the fundamental structural issues raised in the current work. In

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reduce the transponder costs directly incurred by the licensee." Weston Op.Cit.

<sup>1</sup>.Federal-Provincial-Task Force on Telecommunications, Competition in Public Long-Distance Telephone Service in Canada, December 1988. p 146 Thomas makes the point that although there are about 30 domestic satellites in the United States with plenty of spare capacity, lack of transparency makes them less desirable for telephone communications than terrestrial networks. Brownlee Thomas Competition in Public Long-Distance Telephone Service in Canada, Consulting Report 1, Federal-Provincial-Territorial Task Force on Telecommunications, December 1988. p 208

<sup>2</sup>.Thomas, Op.Cit. p 48 & 87

respect to a western launch of the second generation, the government will have to make a decision on how to fund the additional cost not covered by Aussat's line of credit by June 1990. As to its operations, the satellite carrier can no longer annually increase prices at 10% while terrestrial charges are falling. In terms of the second generation, massive over-capacity and financial loss appear likely unless ill-conceived policies are introduced to ensure the satellite system is used in preference to terrestrial technology. One such policy would be allowing Aussat to have Pay-TV in the hope that it can generate enough revenue to keep its head above water. The problem with this option is that it is doubtful that Pay-TV services are viable via quasi-DBS in Australia, particularly in view of the high VCR penetration. As Aussat would be bearing a substantial risk related to these services (ie phased increases in transponder prices to lessees during the establishment years) the government may be courting a larger financial problem. The Canadian experience has shown that a large number of the initial Pay-TV operators will fail.<sup>1</sup> Dissatisfaction could also result from consumers having obsolete satellite equipment when operators shifted to fibre optics.

The Government should not give Aussat an equity injection within the current regulatory and institutional environment. Given the satellite company's financial position this money would be used to hold tariffs below projected increases rather than taking them closer to costs. What this would do is effectively defer Aussat's financial problems, while acting as a further public subsidy to users. One option for debt reduction which has always been open to Aussat is to scale back the second generation. Telesat 'downsized' its present fleet in response to chronic overcapacity.<sup>2</sup> If this is not undertaken, the community is entitled to ask how the demand for equity injection can be justified when Aussat has designed a system for which it has had to put \$695m worth of loans into place and may need an additional \$60m? Nevertheless an equity injection at some stage is essential. Given the present Government's reluctance to put money into profitable public enterprises to modernize infrastructure it would seem difficult to justify injecting further

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<sup>1</sup>Hardin, Herschel. Closed Circuits: The Sellout of Canadian Television, Douglas and McIntyre Ltd. Vancouver, 1985.

<sup>2</sup>Telesat Canada, "Response to Interrogatory Telesat (CRTC) 4 Aug 98-11", September 27, 1989. p 9

equity into Aussat. There would also be fierce opposition to an equity injection from the Department of Finance.

Nor should technological diversification be considered. Allowing Aussat to diversify its technological base (ie use fibre & cellular) would counter the entire justification for having a separate satellite organisation. This strategy has been adopted by Comsat, but the problem is that while this may be advantageous to Aussat, expensive duplication does not make sense if Telecom's infrastructure is a 'natural monopoly'. Allowing Aussat to lease facilities from Telecom for resale would serve those who would like to see competition evolve between Australia's domestic carriers but would preclude others entering these markets because of the need to protect Aussat's ability to cross subsidize its satellite operations. Whether Aussat resale would be competitive based on its need to cross subsidize satellite operations is questionable, even without the fact that the direction the technology is taking favours the dominant carrier.

#### **(b) Cancel the Second Generation**

Politically this option would make a lot of people look very foolish which is why it is most unlikely to occur. It is, however, necessary to consider this option because it raises a number of important questions.

The first question to be asked is which users would be affected by such a decision? For broadcast and communications distribution satellite technology could be replaced by terrestrial services. The role of Intelsat in the provision of replacement services should have been high on the Government's agenda as it considered Aussat's second generation plans. Over 30 countries lease or have purchased Intelsat capacity for domestic services.<sup>1</sup> In 1988 Joseph Pelton noted,

National telecommunications agencies have often found that they can lease from Intelsat for 5% of the cost of creating a fully dedicated national satellite system (e.g. \$7.5 to \$20 million for a leased system vs. \$150 million to \$400 million for separate satellite systems)

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<sup>1</sup>.Pelton, Joseph N. "Intelsat: The Universal Satellite System for the Asia-Pacific Region," Paper presented at PTC Mid-Year Meeting, Sendai, Japan, June 1988. p 7

contrary to the past situation an INTELSAT lease can provide effective national communication service as well as the latest in digital telecommunications services and television distribution to small, low cost earth stations. In the Asia Pacific region for instance, China...created a National TV University...This system now supports a network of 53 interactive telecommunications earth stations that links all parts of China together into a National Satellite Telecommunications Network. This same system is also used to send television to over a million students through 5,000 small earth station receive terminals. The INTELSAT space segment capacity and all of the earth station terminal, including the 5,000 receive only terminals totalled in the region of \$20 million dollars. This is far less than a dedicated system would require. In fact it would require in the order of \$400 million dollars.<sup>1</sup>

In Australia remote broadcasting could continue by leasing Intelsat capacity.<sup>2</sup> As noted in Chapter Six Intelsat was originally willing to design extra Ku band capacity on Intelsat VII for this purpose and even to design a special add-on Aussat package. The first of the five Intelsat VII satellites being built by Ford Aerospace will be delivered in November 1991 with subsequent deliveries at five month intervals. As they are presently configured the Intelsat VII satellites could offer a range of replacement services using some of the 10 K-band 35-50 watt transponders (14/11 and 14/12 GHz) and 26 C-band 10-30 watt transponders (6/4 GHz). The existing planned Intelsat VII K-band spot beam could provide up to six HACBSS quality television channels over South Eastern Australia (Appendix B). If minor modifications were made the available services via Intelsat would be substantially improved with a full coverage of Australia (existing dishes would need only slight repositioning). One possibility is to request Intelsat to shift a larger beam from North East Asia over Australia which would allow up to nine television channels to be broadcast across most of the continent with every chance of reduced tariffs to users. However the Intelsat timetable does not leave the Australian Government time for lengthy deliberations. Intelsat's Board of Governors and advisory committee meetings are taking place between 7th November - 13 December 1989 at which time modifications will be considered. OTC would need to be quickly apprised of the Government's requirements if modifications were to be made.

The Government has a six month window of opportunity to utilize the Intelsat option. This could be achieved by incorporating design changes to subsequent satellites in the

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<sup>1</sup>. *Ibid.* p 8

<sup>2</sup>. Remote broadcasting via Intelsat was employed prior to the launch of Aussat under the Remote Area Television Scheme.

Intelsat program. Intelsat is currently considering the acquisition of more Intelsat VII's for deployment in the 1995-96 timeframe. Although these purchases are unrelated to Australia's actions, possible use for domestic services would be an important consideration for Intelsat. Thus the possibility exists to utilize A-3 in tandem with the initial Intelsat VII series and incorporate design modifications to subsequent satellites from the mid 1990's. The possibility of using Inmarsat III to provide mobile communications from 1993/94 for which the Australian Government has twelve months to plan, should also be fully explored. A spot beam on Inmarsat III could provide a service of equivalent quality to Aussat's second generation and allow Australia to export receivers to the maritime market.

By 1992 Telecom will have completed its RRAP program. The third Aussat satellite could provide interim continuity for the east coast if footprints could not be reconfigured to cover national beams. A3 could be used to provide continuity to the CAA who have perhaps gained more than any other user from the satellite system. The CAA could also make use of Intelsat VII. Most customers using Aussat would have depreciated their ground equipment over the seven years and would have about an equivalent period from now to adjust.

The small aerospace lobby would protest but they have gained very little from the first generation. Of the space segment capital costs, a token 1% was for Australian content.<sup>1</sup> The Australian Space Office projects that of the two second generation satellites costing \$450 million, local content will be \$21 million.<sup>2</sup> It should be pointed out that even with a far more determined effort and massive public subsidies, even Canada's Spar Aerospace

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<sup>1</sup>The Australian Academy of Science asserted that only \$250,000 worth of components were contracted to Australian industry from the \$225 million paid to the prime US contractor (i.e. Hughes). Ready For Launch. Space Science in Australia, Australian Academy of Science, Canberra March 1989. However it is not entirely clear how either figure was arrived at, as according to Aussat the first three satellites cost \$157 million. The space segment comprises three spacecraft (\$157 million) and two Tracking, Telemetry Command and Monitoring stations, and a Satellite Control and Operations Centre (\$28 million). Earlier figures provided by Aussat placed the total value of the Australian content in the space segment of the existing series of satellites at five million dollars. On the \$5 million figure refer Graham Gosewinckel "Present and Future Opportunities for Australian Industry in Space Communication Manufacture", Op.Cit.

<sup>2</sup>Middleton, B.S. "Australia's Space Program: From Woomera to Cape York", Australian Space Office, September 1989. p 5

can still not independently manufacture a satellite bus.

The unknown factor in this option is the terms of the Hughes contract. This would have a bearing on any future option. For instance, the possibility of delaying the launch of one second generation satellite until A3's working life expired, may ensure the latter would be effectively used. This would not only defer a major second generation cost it would also allow time for the demand for two high powered satellites to be assessed. This would only be possible if the Hughes contract did not stipulate that the full costs be paid even if Australia reduced its initial requirement to a single replacement satellite. In short sunk costs would need to be analysed against projected expenditure for all options. However, ending the contract with Hughes would not be without precedent in the industry. When Comsat decided its proposed DBS service would not be financially viable it terminated a contract with RCA for the construction of two satellites. It is not uncommon for satellites to be sold to third parties. In 1989 General Electric sold a direct broadcast satellite it had originally built for Comsat's direct broadcasting subsidiary to NHK the Japanese government-owned broadcasting organization.<sup>1</sup> Intelsat recently considered purchasing an Arabsat satellite.<sup>2</sup>

It would be normal commercial practice in the industry for a satellite authority to have a termination clause in its contract so that if Hughes later onsold a satellite to a third party Aussat would receive credit against cancellation costs.

### **(c) Privatisation**

Privatisation is an option Canada is studying in respect to Telesat . This follows the end of the transfer payments made by the members of Telecom Canada when Telesat revenues failed to meet operating requirements for an accepted 13% rate of return.<sup>3</sup> The

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<sup>1</sup> Satellite News, February 27, 1989. p 1

<sup>2</sup> Although this did not come to fruition Intelsat did acquire C-Band capacity from NASA on its TDRSS satellites in the Atlantic & Pacific, and the Satcom K-4 K Band satellite from GE Astro Space (on ground satellite).

<sup>3</sup> Video World Inc Communications Consultants, "The Role of Satellites in the Canadian Broadcasting System: A Study Completed for the Task Force on Broadcasting Policy", February 1986. p 33



Canadian situation is slightly different from Australia in that Telesat already approaches a level of 50% private ownership.<sup>1</sup> In this sense privatisation is effectively placing Telesat in the hands of Canada's telcos (unless they were forced to divest their shareholding). As in Canada the question immediately arises as to who would buy a domestic satellite system?

While the Federal Opposition's policy stipulates the privatisation of Aussat it would be fraught with difficulties. Firstly who would want to take on massive debt and risk? With regard to Aussat's high gearing ratio the government would have to pump in equity before it could consider selling the system and then not expect an equivalent return. Would any government risk the political odium of a \$1 price tag after the public has financed Aussat's establishment? The reality is that the financial loss to the Commonwealth would be substantial. It has been suggested that open competition be allowed in the provision of basic services between domestic carriers but Aussat could not compete head to head with Telecom based on cost even if permitted. As noted in Chapter Six this situation has existed since 1984 and since then the economic gap between terrestrial and satellite services on trunk routes has widened.<sup>2</sup> Writing off Aussat's debt in the course of privatisation would provide competition but it would mean satellite tariffs did not reflect actual costs. Competition would be bought at the tax-payers expense.

If investors could be found that would take over Aussat they would no doubt demand policies which the government might not otherwise consider. This occurred with certain media contracts for first generation transponders which were taken on the condition that the appropriate legislation would be forthcoming. Aussat's problems should not be the basis on which the overall policy framework for Australian communications is made. An additional problem would be whether potential buyers would insist that public sector users be locked into the system. Would, for instance, public sector users be bound by legislation as no investor would look at Aussat without its largest market being

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<sup>1</sup>. For an ownership breakdown refer Michael J. Quayle, "An efficient Industrial Structure for a Domestic Satellite Telecommunications Network: The Canadian Case," A thesis submitted in fulfilment of the requirements for the Degree of Doctor of Philosophy, Department of Economics, University of Queensland, 1986. p 46

<sup>2</sup>. Walsh, Peter. Op.Cit.

guaranteed? The ABC would not sustain its current usage if it was not government policy and would Defence entrust communications to a private firm (perhaps partially foreign owned)? As Aussat's major market group, public broadcasters (ABC & Special Broadcasting Service) would no doubt be wary of a private operator offering competitive services with them as captive customers. The Canadian Satellite Users Association (CSUA) noted in an October 1989 submission to the CRTC,

CSUA is also concerned that the major cost increases have been caused by Telesat's move into competitive telecommunications' markets. CSUA members are required to use Telesat's monopoly space segment and have formed the bedrock market for Telesat's services...Telesat's move away from the carriers' carrier position was the foremost reason for the significant increases in costs. However, Telesat is unable to quantify the increases in costs between the broadcast (monopoly) use of the 6/4 service and the competitive services. CSAU submits that it is clear that the customers for the monopoly space segment have carried the costs of Telesat's move into competitive retail markets.<sup>1</sup>

Questions would also be asked about whether public sector customers would commit major new investment to a private satellite system if its continuance depended on the balance sheet performance alone.

A further complication is that private investors would have to fund the second generation and would therefore expect higher returns. The difficulty is that Aussat's clients would be reluctant to bear the true cost of providing satellite capacity under a user pays system. Without state subsidies to services with a social component acting as a general subsidy to private customers they would be unwilling to pay the full cost of using the satellite.

The privatisation of Aussat would also place the satellite company in default of its second generation loans with its bankers. A private company would have to renegotiate a possible \$750m dollar loan in a high risk industry which bankers have generally spurned without a government guarantee. In their study of the potential of privatisation of GBEs, Barclays de Zoete Wedd Australia Ltd (BZW), argued that the liability guarantees relating to privatisation candidates be terminated immediately, albeit with existing guarantees remaining in place until maturity.<sup>2</sup> In Aussat's case it is difficult to envisage the

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<sup>1</sup>.Braden, Don. Executive Director CSAU, "Submission to CRTC - Re Public Notice 1989-35, Review of Rates for 6/4 GHz Satellite Service", Ontario, October 27, 1989.

<sup>2</sup>.Mews, Richard and Barney Berold., "The Coalition Privatisation Policy - an Equity Fund Raising View", Privatisation and Corporatisation Capital Raising Conference, Sydney September 1989.

Australian government continuing to guarantee the loans of a privatised satellite operation. It should be pointed out that Aussat was not among the major candidates identified by BZW as possible privatisation candidates not least because a sale over the three year period canvassed would result in a substantial financial loss rather than gain to the Commonwealth.

#### **(d) Merge OTC and Aussat**

The option to merge OTC and Aussat has been considered on several occasions during the satellite system's history. The first proponent of OTC controlling domestic satellite operations was Tony Staley, when as Minister he encountered Telecom's reluctance to launch a satellite. Later during the planning process the only thing that stopped OTC gaining ownership was fierce opposition from the Department of Finance who wanted to sell off part or all of Aussat. The proposal was again raised during the planning for the second generation within DOC when it emerged that one option for continuing services was to lease Intelsat capacity instead of acquiring a second generation. In 1988 the suggestion for OTC to take over Aussat was again made by Consolidated Press Holdings (CPH) to the Hutchinson Review. CPH contracted the Merchant Bank Whitlam Turnbull to carry out a financial study of the merged entity's viability (dubbed The Venture). CPH's submission argued that by merging OTC and Aussat a new venture could operate commercially, paying more taxes to government and reducing the considerable losses of Aussat as it is presently constituted. The problem with this proposal is that you are not in fact reducing the losses of Aussat but instead hiding or cross subsidizing operations from the profitable OTC. A merger in itself would do little to increase the fill factor of Aussat, other than OTC routing international traffic via satellite until connection was made to the local network (something OTC would be doing now if it made technical and economic sense). This would be a decision not based on the cost of either option but merely a desire to increase the satellite fill and would entail users accepting unavoidable delays associated with the technology. If the thrust of current policy through the establishment

of Austel is to make carriers more accountable for pricing this would seem to be a retrograde step. Whereas much of the industry is moving away from an economic bias towards any particular technology, OTC would have an incentive to cross subsidize satellite operations. In Brazil's case, its highly profitable long distance telephone company Embratel spends 10% of its revenues to cover the losses incurred by Brazilsat. Aussat concedes that a merger with OTC would result in 'massive cross subsidization'.<sup>1</sup> However if the potential for network efficiencies exists this option should be fully explored. Possible use of Intelsat VII would be a strong argument for OTC taking over Aussat, and continuing services warranted by social objectives.

If the objective is to try to introduce competition to Telecom via Aussat, allowing OTC to cross subsidize satellite services would mean greater costs to the community. Is there any real advantage to the community in allowing OTC to compete with Telecom for business services given the potential of both to cross subsidize operations? There would be little advantage in putting into place a structure which encouraged OTC to use satellite over terrestrial technology when the cost of the former is becoming less competitive. Based on the US experience it must be doubted whether any competitor could provide a profitable long distance service in competition to the dominant carrier in the Australian market under a regime of cost based pricing (especially if handicapped by having to use satellite technology). Of AT&T's competitors prior to 1989, only MCI was breaking even.<sup>2</sup> US Sprint had losses of between \$700-900 million a year before interest and taxes since 1984 and Western Union \$300-400 million annually. Western Union by its own admission can not afford to install a fibre network.

While the CPH submission showed an OTC/Aussat merger would be viable, the suggestion was made as a prelude to privatisation. This viability rested on the performance of OTC rather than Aussat. The CPH offer to take Aussat on board in a privatized OTC was an invitation based solely on their wish to buy the overseas carrier.

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<sup>1</sup>. Cranswick, Kester. "Aussat rejects call to merge with OTC", Australian Communications, September 1989.

<sup>2</sup>. Competition in Public Long-Distance Telephone Service in Canada, Consulting Report 3, Op.Cit. pp IV-10 - IV-20

Taking on Aussat was a concession designed to resolve the political embarrassment to the government of Aussat's financial performance. From the Federal Opposition perspective merging OTC and Aussat would complicate their privatisation plans for the overseas carrier. Would the consortium of banks extend Aussat's borrowings if the satellite system rested in a privatised OTC?

It is interesting to note that one of the reasons suggested for Brazilsat's dismal performance is that a special agency along the lines of Aussat was not created. Australia's experience would indicate that it would have made little difference given that we are now contemplating a similar model to Brazil.

In addition although OTC was originally enthusiastic about a domestic satellite they have very much reversed their thinking and would have to be compensated or reluctantly dragged into a merger.<sup>1</sup> If the technological development proceeds as planned, will the political appeal of merging Aussat with another carrier for government be that it will closet losses?

The fundamental question that needs to be addressed is whether the technology would be scaled down to a realistic level if it was housed in OTC? Given that the desire to compete with Telecom influenced the design of the second generation, would an OTC satellite operation be under the same type of distorting pressure? If the technology was scaled down a real advantage may be greater use of Intelsat as suggested by OTC during the second generation planning process. Yet if OTC controlled the satellite system it may opt to keep the existing design, sure in the knowledge that the while they are not responsible for its excessive capacity, they could plead for government assistance in terms of ensuring the system was used. OTC would no doubt use the need to cross subsidize satellite operations as a justification retaining its monopoly on international services.

The political advantage of a merger for OTC is protecting its international monopoly from possible competition directly from Aussat. Against this must be weighed the disadvantage of a financial drain on overseas carrier. An immediate ramification of a decision to

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<sup>1</sup>. From a merger of Aussat with either of the other two carriers, one with OTC would probably be most resisted by the management of both because of the antipathy between OTC and Aussat. This is obviously not an insurmountable problem.

implement this option would be that OTC would have to buy Telecom's 25% shareholding, before facing the debt servicing and a second generation price of perhaps \$750m. With OTC challenging Telecom in its reserved services, the latter would expect a trade-off. Justifiably Telecom would want to be able to compete in the provision of international services and would be a far more formidable adversary to OTC than Aussat. Alternatively OTC like Teleglobe would fight to preserve its monopoly. When the Canadian Government privatised Teleglobe its new owners were assured of a monopoly on international services until at least 1992.

One argument likely to be forwarded in support of OTC being asked to take over Aussat is their long experience in managing satellite communications. Yet whoever is asked to take over operations would no doubt absorb Aussat staff (they would have no choice given Australia's industrial relations structure). Perhaps in this context a knowledge of the domestic market may be the more important consideration.

#### **(e) Telecom Merger**

Although this option would be resisted by actors with an interest in securing a more competitive market for telecommunications, what needs to be understood is that satellite technology is not an appropriate vehicle to fulfil this function. Aussat services are not competitive with Telecom's network. Although there are areas where satellite technology is the most cost effective option in achieving social objectives this does not mean that these services are financially viable without subsidies or that Aussat is economic as a stand alone carrier. Services offered via Aussat are going to need an ongoing cross subsidy. The question that needs to be addressed is how this can best be achieved. Telecom has the ability to sustain satellite losses without a harsh a penalty on existing users. Within Telecom the satellite system could be under the ambit of the CSO framework with separate accounting procedures to identify costs and subsidies to ensure that unjust costs are not passed on to public telecommunications users. The ability to cross subsidize satellite operations is one of the reasons for the suggestion in Canada that

the terrestrial carriers be allowed to buy out the government share of Telesat. However it is extremely doubtful that Telecom would want Aussat or would make greater use of the satellite system for which it would incur substantial cost penalties, for instance in the provision of remote telephony. Whatever the chosen option it is likely that Telecom will come under increasing political pressure to use Aussat capacity regardless of cost, so that at least some technological rent can be extracted from idle capacity. With respect to mobile satellite services, Aussat and Telecom have entered into an agreement to integrate their products.<sup>1</sup> Aussat may become the carrier's carrier for mobile services. A second cellular operator would not be able to afford to cross subsidize Aussat's mobile operations as Telecom would through a merger. Without such subsidies the social objective of providing improved communications via mobile satellite services to those areas not served by terrestrial technology will not be achieved. This is a strong argument for a domestic carrier merger to ensure the public interest.

The main advantage of a merger with Telecom could be a review of the second generation design and scaling the technology down to an appropriate level which was truly complementary to the national network. This could involve either purchasing only one second generation satellite (i.e the halving of capacity as suggested by the Ten Network and with high power beams which could be reconfigured to serve remote areas) or using Intelsat capacity instead of a second generation. The advantage of either option is that it would be far less expensive and still achieve social objectives. This would allow a reduction in second generation borrowings.

One way the merger should not be approached is hiving off Telecom's rural and remote services to Aussat. This has been suggested on the basis that as Telecom would no longer be encumbered by the need to provide CSO's, competition could be introduced on the national trunk line market.<sup>2</sup> The problem with the argument as it is put is that the author contradicts himself by proffering that the new entity (Aussat & Telecom's rural and remote services) would have to be supported by Telecom paying interconnect fees for

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<sup>1</sup>.Pratt, Op.Cit.

<sup>2</sup>.Rowell, Douglas M. "Australia's outback deserves better telecommunications", Australian Communications, September 1989. p 29

traffic flowing between the two. The author then hastens to suggest the new level of cross subsidy would be equal to Telecom's existing CSO cost. In reality the level of cross subsidy would be existing CSO costs and satellite subsidies. Yet whatever the eventual level of subsidy Telecom paid it would be at a competitive disadvantage on certain trunk routes. The alternative would be massive price hikes for regional subscribers.

### **Chapter Conclusion**

The Government must act in relation to Aussat to ensure the public interest is protected. The incontrovertible fact of Australian communications is that satellite prices are rising (in accord with original planning and reflecting the industry's cost structure) while terrestrial costs are falling. At the same time that Aussat is seeking additional equity it has been allowed to put into place massive borrowings to finance an over designed second generation satellite system. Its major customers disapprove of the design and have not had access to an appropriate review process. Its core business is under siege from the introduction of a domestic fibre optic network. In whatever form Aussat's operations continue they will need an ongoing subsidy to maintain the worthwhile social objective of the provision of remote broadcasting. It is clearly not in the public interest to proceed as planned. Yet nor should there be a poorly thought out solution foisted onto Aussat's problems. Australia's overall communications planning should not be dictated by trying to solve Aussat's predicament. For instance if liberalization is desired a decision should be made at a policy rather than a technological level. In particular the provision of long term structural policy regulating Australian telecommunications specifically relating to liberalization should be separated from the Aussat issue.

The Aussat problem as defined in the current work requires a rigorous analysis of all policy options. A starting point could be an independent assessment of the second generation design in consultation with prospective users. Aussat should be required to justify the design of its second generation to an inquiry (possibly under the auspices of Austel but with priority status). Unlike the first generation design which went to the



secret Carver Committee, when complaints were received from one potential customer, this inquiry should be able to take submissions from all interested parties. Such an inquiry should include,

- \* an examination of contracts for cancellation or resale
- \* an assessment of the construction stage reached
- \* consideration of the need for increased transponder power and capacity
- \* a study of the demand for a satellite mobile service
- \* the potential to use Intelsat and Inmarsat capacity for domestic services

Until this information is obtained it is impossible to cost the various options canvassed and assess which best serves the public interest.

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## Glossary

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Aspinal, David. Executive with Swan Television Pty Ltd.

Beard, Bill. An Engineer with P&T Department's Broadcasting Engineering Division (BED)

Berzins, G. Deputy Director of SPADG

Block, David. Sydney Merchant Banker

Bond, Alan. Australian Businessman and owner of Bond Media.

Bond, Donald S. Former RCA employee commissioned by Kerry Packer to report on the possible use of satellites in Australia.

Bourke, T.K. ABC Controller of Engineering

Bowen, Lionel. Post Master General (Whitlam Government)

Brett, Rollo. Telecom Representative on the White Inquiry.

Brown, D.D. Aussat Deputy Chairman.

Brown, Neil. Minister for Communications (Fraser Government)

Button, Senator John. Shadow Minister for Communications (Hayden Opposition) and later DITAC Minister (Hawke Government)

Cain E.N. Assistant Secretary, Telecommunications Inquiry Branch DOC

Campbell, Graham. ALP Member for Kalgoorlie

Carver, J.H. (John) Professor, Chairman of the Carver Committee, Australian National University.

Chipp, Senator Don. Leader of Australian Democrats.

Cocks, D.K. (Don) Aussat Chief Finance Executive.

Coleman, J.P. (John), Department of Finance Representative on the White Inquiry.

Cooper, Colin. President of the ATEA

Curtis, J.H.(Jack) Managing Director of the Australian Telecommunications Commission.

Davidson, Ken. Economics Editor of The Age

Davies, Merryn. DOC Officer

Dawkins, J. Minister for Finance (Hawke Government)

Deacon, C.W.(Chris) PBAA and Department of Communications.

Dick, Nigel. Spokeperson for the regional television industry.

Duckmanton, T.S. (Talbot) General Manager ABC.

Duffy. The Hon M.J. M, Minister for Communications. (Hawke Government)

Ellis, W.R. CSD Officer, DOC

Evans, Bob. IBM Executive

Evans, Gareth. Minister Transport and Communications (Hawke Government)

Evans, Geoff. Senator Button's Office and then joined the ABC.

Farrell, Leighton. Aussat Corporate Relations Manager

Fraser, Doug. Paliamentary Library Researcher

Fraser, Malcolm. Prime Minister of Australia. (Liberal Party)

Free, Les. PBL Research and Development Department

Gosewinckel, W.G. Aussat Managing Director and Chief Executive

Graham, Robert. Director of PBL

Green, Fred. Secretary of the P &T

Green, Peter. ATEA Official

Guilfoyle, Senator Margaret. Minister for Finance (Fraser Government)

Gunn, M.W. (Morris) Professor, Aussat Board Member and Dean of the Faculty of Engineering, University of Queensland.

Guster, A.F.(Alan) First Assistant Secretary , SPO (DOC)

Guster,Alan. First Assistant Secretary, Satellite Policy and Co-ordination Division,

Halton, Charles. Secretary Department of Transport and Communications

Hartley, John. ABC Director of Corporate Affairs

Hawke, Robert. Prime Minister of Australia (ALP)

Hayden, Bill. Leader of the ALP in Opposition

Hazlehurst, C. (Cameron) First Assistant Secretary, Communications Strategy Division (CSD- DOC)

Heinrich, H.G. Principal Advisor, Transport and Industry Division, Department of Finance

Hoare, David. Chairman of Aussat



Holmes a Court, Peter. Managing Director Business Telecommunications Services (Australia)

Howard, John. Federal Treasurer of Australia (Fraser Government)

Hundley, Ian. APTU Official

Innes. E. Shadow Minister for P&T (Hayden Opposition)

Jackson, Peter. Communications Strategy Division and Communications Systems Technology Branch (DOC)

Johnman, B.W. DOC Corporate Policy and Projects Division

Johnson, R.C.(Richard) Task Force Secretary and later Aussat General Manager

Kane, V.J. (Vin) First Assistant Secretary, Space, Telecommunications & Postal Policy Division

Kater, Sir Gregory. Chairman of the Commercial Banking Company

Keating, Paul. Federal Treasurer of Australia

Lacey, Lloyd. Department of Education, Queensland.

Langdale, John. Academic, Macquarie University

Lansdown, R.B.(Robert) Secretary DOC

Maclean, J.D.(John) Assistant Secretary STAPP Division, DOC

Mansfield, William (Bill) Secretary of the ATEA

Maughar, Len. Chairman of FACTS

McCracken, Ken. COSSA Director

McGarrity, Ian. ABC Executive

McGuinness, P.P. Editor of Financial Review and Journalist

Mere, R.P. Assistant Secretary, Planning and Co-ordination Branch and then Communications Development Division, DOC

Morgan, Kevin. Senator Susan Ryan's Office and ATEA National Research Officer

Moriarty, G.E. ABC Director, Engineering and Property

Moyal, Anne. Academic and Telecom Historian

Moyes, A.G. Managing Director IBM (Australia)

Myer, Kenneth. Chairman of the ABC

Nowland, Wayne. Aussat Manager of Communications Division

O'Brien, Brian. Communications Consultant

Owens, Stan. Chairman of Aussat

Packer, Kerry. Australian Businessman and owner of PBL

Payne, E.E.(Hugh) P&T and DOC Deputy Secretary

Perkins, Brian. Executive with the Herald & Weekly Times and then AAP

Pollock, W.J.B. (Bill) Chief General Manager of Telecom

Rayner, Bill. Golden West Chief Executive

Reinecke, Ian. Journalist with the Financial Review and commentator on Aussat.

Revill, Stuart. ABC Executive

Robinson, Eric. Minister for P&T and then Finance (Fraser Government)

Ryan, Senator Susan. Shadow Spokesperson on Communications (Hayden Opposition)

Saunderson, John. MP. Member of the ALP Caucus Communications Committee

Schaetzel, Stan. Executive with Hawker de Havilland

Schmidt, Bill. Managing Director OTC

Schneider, Philip. Vice President of Western Unions's Satelle Systems and Services

Sinclair, The Rt Hon Ian. MP, Minister for Communications (Fraser Government)

Skelton, Phillip Graeme. Director, Office of Communications, Western Australian Department of Computing and Information Technology

Smith Roger Acting First Assistant Secretary Broadcasting Policy division, DOC

Snow, Deborah. Journalist with the Financial Review.

Somervaille, R.D.(Robert) Chairman of the Australian Space Board, OTC and the ABC.

South Pacific Bureau for Economic Co-operation,

Staley, A.A. (Anthony) Minister for Post & Telecommunications

Stone, John. Secretary of the Treasury

Stone, Ken. Regional Television Association

Svensson, H.C. A.A. Staley's Office and an officer with the SPO

Treweeke, R.H. (Rory) President of the ICPA

Vahtrick, Cyril. OTC Executive

Vernon, Sir James. Head of the Vernon Commission

Vinen, V.E. PBL Research & Development Department

Waller, Laurie. OTC Representative on the Second Generation Advisory Committee

Walsh, Max. Journalist with the Sydney Morning Herald

Walsh, Peter. Telecom Executive

Walton, Ken. Assistant Federal Secretary ATEA

Ward, Melvyn K.(Mel) Telecom Managing Director

Warren, Eric. ABC Engineer

Wellard, T.C. PBL Research & Development Department

West, Keith. Telecom Executive

Westerway, P.B. First Assistant Secretary, SPCD and later with the ABT

Weston, Dion. Imparja Station Manager

White, Harold. Head of the White Inquiry and General Manager of OTC

White, Peter.B. Academic

Whitehead, Geoffrey. Managing Director of the ABC

Wilenski, Peter. Secretary Department of Transport and Communications

Wilkinson, E.J.(Jim) P&T and SPEC Advisor

Willis, Ralph. Minister for Transport and Communications (Hawke Government)

## **(2) A Guide to Key Organisations and Institutions in the Aussat Policy Process**

AAP, Australian Associated Press

ABC, Australian Broadcasting Corporation (Commission)

ABT, Australian Broadcasting Tribunal,

ACTU, Australian Council of Trade Unions

AFTS, Australian Film and Television School

ALP, Australian Labor Party

APO, Australian Post Office

ASB, Australian Space Board

ASG, Australian Spaceport Group

ASUG, Australian Satellite Users Group

AT&T, American Telephone and Telegraph Company

ATEA, Australian Telecommunications Employees Association

ATPOA, Australian Telephone and Phonograph Officers Association

ATUG, Australian Telecommunications Users Group

Aussat, Australia's Satellite Company

Australian Telecommunications Corporation, Telecom

BBC, British Broadcasting Corporation

BPD, Broadcasting Policy Division, P&T

Brazilsat, Brazil's Domestic Satellite System

BSB, British Satellite Broadcasting Pty Ltd.

BTS, Business Telecommunications Services (Australia)

CAA, Civil Aviation Authority

CAAMA, Central Australian Aboriginal Media Association

Carver Committee, National Satellite System Committee of Review

CDD, Communications Development Division (DOC)

CITCA, Committee of Inquiry into Technological Change in Australia (Myers Committee)

Commonwealth Government Task Force on NCSS, (The White Task Force or White Inquiry)

Comsat, Comsat General Corporation  
 COSSA, CSIRO Office of Space Science  
 CPH, Consolidated Press Holdings  
 CSD, Communications Strategy Division (DOC)  
 CYSA, Cape York Space Agency  
 DITAC, Department of Industry Technology and Commerce  
 DOC, Department of Communications  
 DOF, Department of Finance  
 DoT, Department of Transport  
 DOTAC, Department of Transport and Communications  
 ESA, European Space Agency  
 FACTS, Federation of Australian Commercial Television Stations  
 FCC, Federal Communications Commission (United States)  
 FDU, Forward Development Unit, DOC  
 FPS, Finance Policy Section, DOC  
 Golden West Pty Ltd. RCTS Licensee Western beam  
 Hill Samuel Australia Limited, Aussat's Financial Advisors  
 Hughes Aerospace, Manufacturers of Aussat's A and B series of satellites  
 IBM, International Business Machines (Australia)  
 ICPA, Isolated Children's Parents Association  
 IDC, Inter departmental Committee  
 Imparja, RCTS Licensee central beam  
 Inmarsat, International Maritime Satellite Organisation  
 Intelsat, International Satellite Organisation  
 MITEC, Microwave Technology Development Centre, University of Queensland  
 Morelos, Mexico's Domestic Satellite System  
 NASA, National Aeronautic and Space Administration  
 NCSS, National Communications Satellite System  
 NSSD, National Satellite System Division (OTC)

NTS, Northern Star Holdings

Office of Communications, Western Australian Department of Computing and Information Technology

OTC, Overseas Telecommunications Corporation (Commission)

P&T, Department of Post and Telecommunications

PAC, Policy Advisory Committee

PBAA, Public Broadcasting Association of Australia

PBL, Publishing and Broadcasting Pty Ltd.

PICs, Pacific Island Countries

PMG, Post Master-General's Department

Policy & Co-ordination Branch, Division of the Satellite Project Office

Portfolio Planning Committee

QSTV, RCTS Licensee North Eastern beam

RFDS, Royal Flying Doctor Service

RTA, Regional Television Association

SBS, Satellite Business Systems

SBS, Special Broadcasting Service

SPADG, Satellite Planning and Development Group

Spar Aerospace, Canadian Space Manufacturer

SPCD, Satellite Policy and Coordination Division

SPCD, Satellite Policy and Coordination Division

SPD, Satellite Policy Division

SPEC, South Pacific Economic Community

SPO, Satellite Project Office

SSMU, Satellite System Management Unit

STAPP, Space Telecommunications & Postal Policy Division

TAC, Technical Advisory Committee

TAFE, NSW Department of Technical and Further Education

TCC, Technical Coordination Committee

TIB, Telecommunications Inquiry Branch, DOC

Telesat, Telesat Canada,

Whitlam Turnbull, Australian Merchant Bank

Working Group, An Inter Departmental Working Group which reported on the NCSS

WU, Western Union

### (3) Glossary of Terms

ATS, Applications Technology Satellite

C-Band, a frequency of 6/4 Gigahertz

DBS, Direct Broadcast Satellites

DRCS, Digital Radio Concentrator System

HACBSS, Homestead and Community Broadcast Satellite Service

Iterra, Telecom's satellite service

K-band, a frequency of 14/12 Gigahertz

MAC, Multiplexed Analogue Components

MCES, Major City Earth Stations

MSAT, planned Canadian mobile satellite system

National beam, the satellite antenna beam designed to cover the whole of Australia

PAL, phase alternating line

RATS, Remote Area Television Scheme

RCTS, Remote Commercial Television Service

RTG's, radioisotope thermoelectric generators

SCPC, Single Channel Per Carrier

Spot beam, the satellite antenna beam designed to cover a particular region of Australia

SPS, Special Program Services

SPTDP, South Pacific Telecommunications Development Program

Transponder, the combination of receiver, frequency down converter and transmit amplifier

TTC&M, Tracking, Telemetry, Command and Monitoring Stations

TVRO's, television receive only earth stations

VAEIS, Video and Audio Entertainment and Information Services

VSAT, very small aperture terminals

WARC, World Radio Conference