

Telecommunication Indicators and their Interpretation: Lessons from Australian Communications

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The issues that have most preoccupied Australian policy makers over the past several years essentially relate to the introduction of competition in the telecommunication industry. The provision of communication services to remote areas, telecommunication manufacturing and the restructuring of the Australian media have all been caught up in the policies generated by this debate. Movement toward a competitive telecommunication market is likely to continue to influence issues such as privatisation, industry regulation and the introduction of new services. To appreciate these debates and the resulting policy environment in Australia it is necessary to understand the context.

Many of the policy changes in Australia have been crisis driven rather than being the result of clear analysis and planning. While there has been a large increase in the advice commissioned by government, mostly it has addressed immediate fire-fighting concerns instead of fundamental issues. Moreover the quality of this advice has often been questionable and seemingly designed to support predetermined positions rather than informing policy makers.

As South Africa confronts similar issues, the experience of other countries will be marshalled in support of different policy options. Vigorous debate can be expected over issues such as the price, quality and range of services and whether telecommunication providers are effectively meeting customer needs. Much of this debate will focus on telecommunication indicators that purportedly show the state of network development and efficiency. Policy makers are faced with two immediate problems - selecting appropriate measures and finding comparable data - before being able to make an accurate assessment

of national implications.

As the telecommunication capabilities of a country evolve the relevant statistical measures appropriate to assessing national performance change. No single measure is entirely satisfactory in gauging performance. In addition researchers and policy makers invariably face difficulties in finding uniform data. Problems in this area can range from definitional differences to a lack of uniform data collection and management. A specific example is the different accounting practices adopted in various countries. Use of telecommunication indicators must be associated with a contextual understanding of economic, commercial, geographical, political and cultural factors of any nation. International comparisons based on stand alone measures such as access lines per employee can only have very limited application and can be very misleading. National nuances are the bread and butter of the industry's hired guns who can seemingly prove any market structure to be more efficient than another.

Nevertheless telecommunication indicators provide important reference points that must be addressed by policy makers. Because the amounts of money invested by telecommunication companies are astronomical, weighing up the policy alternatives based on an accurate understanding of the evidence is essential. This is also critical for network planning and development. An optimal investment pattern over time depends on the inherited system and the rate of growth in service demand. An optimal expansion plan weighs these factors against the cost of network upgrade and expansion. Future technologies and demand are also taken into account. Faster modernization is not necessarily the most efficient, as South Africa has learnt with network digitalisation¹. This is why research is needed not only on the indicators but on their interpretation.

Apart from certain geographic similarities, Australia and South Africa share relatively small domestic markets and telecommunication equipment industries dominated by subsidiaries of transnational corporations. As in South Africa, state policies played a central role in the emergence of a telecommunication equipment industry². The origins of the Australian telecommunication manufacturing industry are to be found in the Australian Government's post-war policies fostering import replacement³. Prior to World War II 90% of the equipment used in the network was imported.

Encouraged by post war policies, local sourcing increased from around 50% in 1949 to 92% in 1972. One of the objectives was ensuring a security of supply. By 1991 local sourcing still accounted for about 90% of the network's needs although about a third of that is made up of indirect imports. Despite a recent growth in exports, like South Africa, Australia has been running a significant telecommunication equipment trade deficit.

Since 1975, the regulation of telecommunication services market in Australia has taken a distinctly different path from South Africa, when the postal operations were separated from telecommunication through to 1992 with the introduction a second domestic telecommunication carrier and planned full competition in 1997. The aim of this article is not only to provide an overview of Australian telecommunications and the associated changes but to provide an explanation of why these changes occurred and the evidence that was brought before policy makers.

Introducing Australian Telecommunications

Until 1991, Australia had three publicly owned telecommunication carriers, serving a population of 17.1m over a land mass of 7.7m square km. Around 80% of the Australian population is concentrated on the eastern/southeastern seaboard within 300km of the coast, in the states of New South Wales, Victoria and Queensland. Other less populous states include South Australia, Western Australia, Tasmania and the Australian Capital Territory and Northern Territory.

Communication has been a Commonwealth responsibility since federation, and the Parliament of Australia is empowered to make laws relating to postal, telegraphic and other like services. The Department of Transport and Communications (DOTAC) was formed in 1987 from three separate departments, Aviation, Communications and Transport. The portfolio has primary responsibility for policy in the following areas, telecommunication and postal policy, broadcasting, aviation, maritime and land transport.

The Australian Telecommunications Commission was created in 1975 with the separation of domestic telecommunication from the postal operations of the Postmaster - General's Department (PMG), and was established as the Australian Telecommunications Corporation from 1989. OTC Limited, was an Australian Government business enterprise established in 1946 and converted to a

wholly-owned company in 1989. Until 1991 all public telephone, telex, facsimile, data, and video communication in and out of Australia was handled by OTC.

Traditionally, Telecom had primary responsibility for domestic telecommunication, OTC the carriage of international traffic and AUSSAT the domestic satellite system. Until 1989 the government-owned Telecom combined the functions of national carrier and industry regulator. In 1989 a new regulatory structure was introduced the key elements of which included: a new definition of reserved services of the three carriers; the opening of the Value-Added Services (VAS) market to full competition; and the creation of an independent regulatory authority⁴.

The Australian Telecommunication Authority (AUSTEL) commenced operations in July 1989 as the new industry regulator. While AUSTEL is independent from the carriers, it remains subject to direction from the government. The main functions originally given to AUSTEL included: regulating the boundary between reserved and competitive services and facilities, regulating relations between carriers, promoting fair and efficient conduct in competitive markets, promoting carrier efficiency, technical regulation and consumer protection. The other major area of AUSTEL activity has been in relation to the establishment of standards.

While the 1989 changes represented a degree of market liberalisation, the reserved services of the carriers were essentially reinforced, including their respective monopolies over domestic and international switched traffic and satellite services. Over the years a prime policy objective in Australia had been the expansion of network capabilities toward the provision of universal service. Some argued that retaining carrier monopolies allowed long term planning horizons for national network development and the ability to cross subsidize unprofitable services from more lucrative telecommunication routes. The corollary being that a competitor would only target only those routes that were profitable, something known in the industry as 'cream skimming'. Consequently the incumbent would either cease to provide a cross subsidy or face a loss of market share. Under such circumstances, the argument held, the ability of the national carrier to meet universal service obligations would be diminished.

Critics maintained that as cross subsidies were not transparent it was not known whether they were efficient in meeting policy goals.

While it was generally acknowledged that a cross subsidy did exist, the actual amount and the precise areas in which it applied were vigorously debated. Part of the problem in such calculations is the allocation of costs. As much of the network performs more than one function, how costs should be allocated to respective services becomes somewhat arbitrary. A further problem was that the information needed to make such calculations was not available. Under a monopoly environment Telecom had no incentive to collect the information required to determine the level cross subsidy or those areas in which it was collected and dispersed. Until the level of cross subsidy could be determined and alternative funding options developed, it was seen as an impediment to further competition. As such the Australian Government initiated a study into the cost of universal service obligations and Telecom an alternative investigation to inform that process. Predictably the two studies came up with widely differing amounts, in part based on alternative methodologies, with the government figure being low and Telecom's high⁵. Irrespective of the actual cost of meeting universal service obligations the issue was effectively removed from the forefront of debate over the introduction of competition.

During this time a further problem related to universal service obligations, specifically the problems surrounding the domestic satellite system, re-emerged to haunt the government. AUSSAT Pty Ltd was a company incorporated in November, 1981, by the Commonwealth of Australia for the purpose of procuring and operating a national satellite telecommunication system for Australia⁶. It was jointly owned by the Commonwealth (75%) and Telecom (25%). The Government's main objective for the satellite system included improving communication in remote areas, although its introduction had perhaps more to do with introducing 'backdoor competition' via a process of political compromise. One of the principal aims in acquiring a satellite system was to provide an alternative to Telecom, and to the extent AUSSAT was used for private networks that objective was achieved. Until 1991 AUSSAT was not allowed to offer public switched services. This limited the satellite carrier to around 10% of the domestic communication market. AUSSAT's first two satellites commenced commercial service in October 1985 and January 1986. A third satellite was launched in September 1987.

By 1989, despite assurances that convinced the Australian Government to proceed with a second generation of satellites,

AUSSAT's market had plateaued. In the satellite company's core market broadcasters were examining offers from Telecom to use land lines for program distribution. AUSSAT advised the government that a \$300m capital injection, provided in three equal lots from 1990 onwards, would see it return a profit by the middle of the decade instead of a substantial loss⁷. At that stage AUSSAT's projected debt was expected to be around A\$1b within three years. The government was warned that AUSSAT was technically bankrupt with a debt to equity ratio of 22:1.

Apart from AUSSAT's parlous financial state the Australian telecommunication industry was seemingly in good shape. OTC and Telecom continued to announce record profits and prices were generally falling. The chief complaints from large users were that they were not able to share private networks and resell excess capacity. However the industry arrangements did contain other problems. OTC, which was essentially in the resale and VAS businesses, realised that without direct access to customers it was in a very vulnerable position as international service provision was liberalised. This created friction between Telecom and OTC in the domestic market, and investment by all three carriers was often far from being in the overall national interest.

While in theory co-operation was meant to be the rule between the government owned carriers, in practice the regulatory framework created incentives for individual corporate goals to take precedence. Instead of searching for economies for a common owner the three carriers made questionable investments often duplicating one another's capabilities. Examples include OTC adding a third of the distance to an undersea cable to avoid paying Telecom to carry traffic domestically; Telecom's minimal use of the domestic satellite system after its establishment; and AUSSAT's over investment in satellite capacity.

In Telecom's case the satellite system was not used for redundancy purposes on major trunk routes even after its establishment because planners preferred to develop alternative terrestrial systems. Telecom also opted to develop a terrestrial digital radio network to serve remote users rather than using the satellite system⁸. Whatever of the merit of the original satellite investment and the economics of alternative technologies, AUSSAT represented a sunk cost to Telecom's owner that was never integrated within overall network planning.

Similarly OTC could have used the existing Telecom network to carry traffic along the eastern coast of Australia but chose to extend the length of an undersea cable so as to avoid payments to the domestic carrier. The same motivation drove the international carrier to duplicate switching facilities so as to minimize payments to Telecom. OTC was also opposed to AUSSAT offering regional services in competition with Intelsat, the international satellite carrier in which it was Australia's signatory. Minimal use of the satellites by Telecom and OTC was in the context of Australia having more satellite capacity per capita than any other country⁹. As AUSSAT was limited to a single technology the company contracted as much satellite capacity as possible, despite being fully aware of the intentions of the other carriers. All three represent examples of the carriers not working co-operatively because of distorting regulatory incentives.

In response to the AUSSAT crisis the Government injected A\$100m in equity into the satellite carrier in May 1990 while an urgent review on the structure of the telecommunication industry was undertaken. This review came to be known as ROSA (Review of Structural Arrangements). During ROSA the financial magnitude of AUSSAT's problems quickly became apparent. AUSSAT had remained in operation by bringing forward revenue from future years. The financial arrangement that made this possible involved a two dollar company wholly owned by the Commonwealth Bank, paying AUSSAT a management fee to supervise the acquisition of a second generation of satellites. In future years this money would be repaid, by AUSSAT leasing those satellites back from the bank. The financial merry-go-round also included the debt laden satellite carrier receiving interest on money it had borrowed from and on-loaned to the banks. Between 1988-1991 AUSSAT brought around A\$115m onto its books as revenue through management fees and interest. This had the effect of boosting current revenue at the expense of long term liabilities, but more significantly burying issues that needed attention.

AUSSAT's bankers were also doing their sums. As part of the leveraged lease arrangement with AUSSAT, the Commonwealth Bank's nominee company was required to contribute the equity equivalent of twenty per cent of the in orbit cost of the second generation of satellites, so as to be at risk for at least part of the plant. While they had been eager to extend loans to AUSSAT, backed by a government guarantee, the last thing the bank wanted was to

actually go into the satellite business. Nor did they necessarily want to continue these arrangements with new owners not backed by taxpayers. Fortunately for the banks, they had insisted on default clauses being built into the loan arrangements covering changes to AUSSAT's operating environment. This meant just about whatever policy option the government chose to deal with AUSSAT's predicament it had to assume all its financial liabilities. As the liabilities and past investment stood at well over one billion dollars, AUSSAT represent a significant factor that had to be taken into account in any final equation.

Indicators and the Telecommunication Review

During the industry review the existing carriers directed competitive efforts towards Canberra. Realising that ROSA had been precipitated by AUSSAT's financial crisis, the three carriers constructed options to provide a political solution within their own institutional agendas. Telecom forwarded a merger of the three carriers and market liberalisation, reversing a long held position on monopoly services by suggesting competition against a qualified external consortium. OTC rallied to remain independent of Telecom and take over AUSSAT, creating a second carrier. Neither Telecom nor OTC wanted AUSSAT but were willing to take it on - Telecom to win OTC and the overseas carrier to stay independent of Telecom. AUSSAT kept its head down and waited, conscious that its authority to counsel government had been dimmed by ROSA's genesis. The satellite carrier's official position was that it should be allowed to form the basis of a second carrier with free reign compete for Telecom and OTC's existing markets.

All sides of the debate attempted to use telecommunication indicators to influence policy directions. Attention mainly focused on carrier efficiency in supplying services rather than Australia's telecommunication infrastructure. There were a number on contributory reasons for the telecommunication network not being prominent in discussion. The first was the prevailing view that Australia had a leading network by world standards. A second factor was the industry's culture. The carriers had traditionally been imbued with engineers who shared good technical relations and were not usually inclined to disturb the professional 'omerta' by being critical of each others performance. The third and most important reason was the debate was really about determining a new industry structure

that would compete over a common network. That being the case the issues most prominently debated were indicators such as carrier staff levels.

Those in favour of OTC forming the basis of a second carrier sought to show that it was a lean efficient organisation, Telecom being inefficient and AUSSAT dismissed as 'space junk.' Two examples demonstrate the misuse of telecommunication indicators taken out of context in regard to carrier employment. A common criticism levelled at Telecom was that it was over-staffed compared with international best practice. To attack Telecom's performance, critics honed in on the number of access lines per employee. While the actual figures do appear to show Telecom has performed badly in this area a number of factors were conveniently ignored.

For instance comparisons would mostly ignore the employees working for wholly owned telco subsidiaries servicing the main operating company, or those of the independent operating companies serving the same markets. Nor were allowances made for the number of employees performing activities Telecom had historically been required to provide, (eg servicing broadcasters) or allowances made for Telecom's R&D employees as against those telcos who have largely passed that responsibility to others. Moreover allowances were often not made for the outsourcing practices that typify many telecommunication markets but have not developed in Australia.

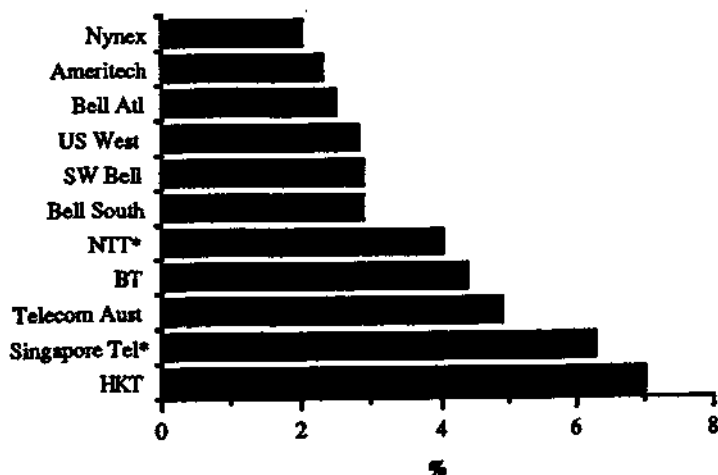
Those seeking to portray OTC in a favourable light chose measures such as revenue per employee. One commentator compared the respective performance of Telecom and OTC to the experience of Canada. Like Australia, Canada has traditionally had a separation between domestic and overseas service providers. The analysis unfolded in the following way. As Memotec (Canada's overseas carrier) earned around 5% of Bell Canada's revenue, it might be expected that a similar relationship would exist in Australia. Yet their 1989 annual reports reveal OTC exceeded this expectation by a great deal. Accordingly dividing revenue per employee showed OTC employees were earning far more compared to Telecom employees than would have been anticipated. This led to the conclusion that the difference was accounted for by exceptionally good performance by OTC and exceptionally poor performance by Telecom.

This analysis overlooked several factors which render it completely erroneous. The difference is largely explained by a change in OTC's accounting practices. Prior to 1988 OTC's sales revenues

were reduced by payments made for the use of network facilities operated by overseas administrators. From 1988 such payments were included under the expenditure category Network Costs. This change has no financial impact on Operating Profit but does increase Total Revenue and Total Expenditure. In the year of introduction this boosted Total Revenue and Total Expenditure by \$490m or roughly doubled OTC's Total Revenue. Alternatively Memotec used a net accounting method (net of payments to overseas operators) invalidating unadjusted comparisons between Australia and Canada.

While the above example represented at best a poor analytical understanding of Australian telecommunications, indicators that placed these employment figures in context were ignored. Staff levels in Telecom have resulted from national policies aimed at the provision of universal service. OECD figures for the period 1978-87 show Australia's percentage increase in main lines was second only to France compared to the Group of Seven Nations (G7)¹⁰. By June 1991 Australia's 8 million access lines served around 95% of households. This had increased from 60% in 1975. The expansion of the Australian network is continuing at a faster rate than comparable networks (Figure 1) impacting accordingly on the amount of labour required.

Figure 1: 1990 Access Line Growth



Source: Annual Reports

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A significant percentage of the Australian expenditure involved expansion of the network. According to the National Telecommunication and Information Administration (NTIA), Australia trailed only Germany in average annual expenditure per main line over the 1980's compared to the G7 nations¹¹. (Table 1)

Table 1 Comparative Telecommunication Investment*

Country	(US\$) Average Annual Investment per Main Line** 1980-1989	Rank
Germany	305.15	1
Australia	277.70	2
Italy	274.72	3
Japan	243.99	4
Canada	242.28	5
France	239.06	6
US	217.89	7
UK	160.58	8

* Capital investment by public telecommunications operators excluding land and buildings. Unadjusted for differing treatments for labour and CPE inclusion. Constant 1989 US\$ (adjusted for inflation and exchange rates)

** Main lines are defined by the ITU as a telephone line connecting subscribers terminal equipment to the PSTN and which have a dedicated port in the telephone exchange equipment. This is different from access lines that include connections, such as trunks or lines, to either PABXs or centrex like services.

Source: NTIA 1991

Australia's geography has been an important factor in the cost network development and needs to be taken into account in any inter-country comparison. Australia has been able to achieve high levels of telephone penetration with a widely dispersed network. (Table 2)

While Australia had the provision of universal service as a primary objective, expansion of the network was reflected in investment and labour levels. The Australian experience would suggest that if South Africa decides to rapidly expand universal service levels it will require higher levels of staff relative to the other countries in Table 2.

Table 2 **Number of Main Lines per Square Kilometre and per 100 Inhabitants:
Selected OECD Countries & South Africa 1990**

	Lines per sqKm	Lines per 100 inhabitants
Japan	143.9	42.2
Germany (FR)	118.2	46.3
UK	104.1	41.4
Italy	70.5	34.9
France	48.7	45.2
USA	14.1	49.0
NZ	5.7	43.2
South Africa	3.2	8.9
Canada	1.4	53.4
Australia	1	46.6

Source: CIRCIT 1991, Siemens 1991, NTIA 1991.

National networks reflect past investment priorities. Around 1980, Saudi Arabia perhaps had the most advanced network in the world, but still has less than 10 telephones per 100 people. Similarly South Africa has a sophisticated network but a poor penetration level. One of the trade-offs facing network planners is between modernisation and expansion.

The NTIA has constructed a methodology that seeks to determine what percentage of a nation's total investment in telecommunication infrastructure is being directed at modernisation or expansion¹². While this methodology simplifies reality in that these activities are not mutually exclusive, it does allow qualifications to some measures. For instance, the United States and Portugal spend around the same amount per main line but are at very different stages of development. While far from perfect, the NTIA model allows some indication of expansion and modernisation. To quantify network expansion the NTIA multiply growth in main lines over a period (1980-1989) by an average 1989 cost of US\$1500 per new line. This figure is then subtracted from the cumulative public telecommunication investment total, yielding a proxy figure for network modernisation. (Table 3)

A major problem with the NTIA methodology is that for countries such as the US and the UK, expenditure by secondary carriers (e.g. MCI, US Sprint and Mercury), falls into the category of

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modernization, because they establish few main lines in comparison to 'end to end carriers' or the Regional Bell Operating Companies. While it could be argued 'second carrier' networks represent modernisation, in that they use state of the art technology, running several fibre networks around any country seems more akin to network expansion, at least where it represents a duplication of capabilities.

However, because of Australia's geography and population density the cost of main lines may be greater than the uniform assumption of US\$1500 made by the NTIA. If that is the case the Australian figure for expansion may be understated.

Table 3 Public Telecommunication Investment* and % Devoted to Expansion and Modernization 1980-1989

Country	Total Investment (US\$M)	Growth in Lines Expansion (000)	Investment in Network Expansion %	Investment in Modernisation %	Rank
US	217,509	19,398	13.4	86.6	1
Germany	76,057	7,865	15.5	84.5	2
Japan	107,251	11,335	15.9	84.1	3
Canada	28,244	3,941	20.9	79.1	4
Australia	16,964	2,850	25.2	74.8	5
Italy	46,785	8,249	26.5	73.5	6
NZ	1,742	349	30.0	70.0	7
France	51,002	11,044	32.5	67.5	8
UK	33,586	7,667	34.2	65.8	9

* Capital investment by public telecom operators excluding land and buildings. Unadjusted for differing treatments of labour cost and CPE inclusion. Constant 1989 US\$ (adjusted for inflation and exchange rates)

Source: NTIA 1991

Clearly the positions alter from Table 1 to Table 3, but rankings should not be interpreted in terms of good or bad performance. They can only provide imperfect guides to the state of network development and how regulatory and policy frameworks have altered investment incentives and objectives. The figures in Table 3 reflect Australia's past emphasis on expansion relative to several other countries and

are consistent with high network growth rates. The NTIA view is that investment incentives change as network penetration matures favouring modernisation over expansion.

One of the most contentious areas of debate surrounding inter-country comparisons is in the area of switching. The number of lines served by digital exchanges has become a standard measure of network modernisation programmes. Most of the G7 nations and South Africa are ahead of Australia in the digitalisation of the network. (Table 4)

Table 4 Percentage of Digital Switches by Subscriber Lines 1984 & 1994

Country	% Digital Lines	1989 Rank	% Digital Lines	1994 Rank
France	70.7	1	86.5	3
Canada *	51.4	2	87.5	2
South Africa	*50.0	3	NA	NA
United States	42.5	4	68.2	5
United Kingdom	38.0	5	92.0	1
Japan	31.0	6	76.0	4
Australia	*23.0	7	48.5	6
Italy	16.1	8	NA	NA
Germany	2.6	9	38.0	7

+ Includes data for Bell Canada, BC Tel and Alberta Telephone.

* 1990 figures

Source: Kaplan, 1990, NTIA, CIRCIT 1991

This can also be important in the context of maintenance, in that older technologies are generally more expensive to service. To develop and maintain the network has been one factor contributing to Telecom's employment practices.

If the NTIA is correct the emphasis on investment in Australia will shift to modernisation, because the nation has a relatively high penetration rate and investment by a second carrier will show up under the category.

The changing balance in network development is likely to bring forth major reductions in the number of Australian telecommunication employees and shift skill requirements.

Unfortunately these issues were not high among the priorities considered during ROSA.

ROSA Results

The same day that DOTAC completed the ROSA report, the Labor Government's Caucus communications committee met to thrash out a deal. The press speculated as to whether anyone at the meeting had actually read the report. Perhaps this neglect was to be expected given the way DOTAC had traditionally carried out such reviews - collecting opinions from competing interests behind closed doors rather than undertaking research and presenting policy makers with evidence¹⁸.

Political commentators started to analyse the decision in terms of the government's commitment to micro-economic reform and the leadership aspirations of various ministers. The bottom line for Treasury became how to extract the maximum amount of cash from the telecommunication industry. As a result privatisation, which should have been a secondary issue, came to the forefront of matters being discussed.

Within the Labor Government there appeared to be divisions inside Cabinet and between senior ministers and the Caucus. The divisions were fairly much along carrier lines with different Ministers supporting versions of positions of Telecom or OTC. At this point attention had largely turned from the structure of the telecommunication industry to the mechanics of Labor government in Australia. Speculation mounted on whether the government would overturn seemingly implacable party policy against privatisation. The telecommunication unions prepared to fight increased competition and the left wing of the Labor party came out strongly against privatisation. Toward the end of 1990 a special Labor party conference changed policy to accommodate privatisation should that be the Government's preferred outcome.

Thus in November 1990 a reform package was announced with the stated intent of ensuring that Australia had the most efficient telecommunication system possible by introducing competition¹⁴. By 1992 Telecom and OTC would be merged to form the Australian and Overseas Telecommunication Corporation (AOTC) and AUSSAT sold as the basis of a second telecommunication carrier competing across the board. This policy was shaped by the Government's desire to 'solve' the AUSSAT problem by privatisation and a push for the

introduction of competition. Tension between these objectives was created by the fact that maximising the value of AUSSAT meant placing restraints on the level of competition. In other words the more competition an AUSSAT-based carrier faced the less valuable the licence and the lower the sale price. That price was the ultimate goal of the policy rather than industry efficiency was reinforced by the Government decision, later blocked in the Australian Senate, to charge Telecom and OTC a fee proposed to be A\$1b for merging. Not only would this have been a fee paid to a common owner but it would have placed greater financial pressure on the publicly owned carrier as it faced competition for the first time.

At the same time because competition had come to be seen as a goal rather than a instrument of public policy, associated policy changes were also significant. Apart from a new across the board carrier, greater flexibility in using the telecommunication network would be permitted for users and third parties. Previous restrictions on domestic and international resale were removed. Three mobile telephone service licenses would be issued, two of which will be awarded to Telecom and AUSSAT. A third mobile carrier was planned to be licensed in 1992, for service in 1993. In addition the government announced the network duopoly would end from June 1997, whereupon there would be open network competition. In the months that followed the policy announcement the government anxiously waited to see whether there would be buyer interest.

The primary reason for concern was the realisation that policy forged by a combination of political compromise and Canberra econocrats, had not only failed to formulate an optimal industry structure but was in danger of collapsing under the weight its own contradictions. The most overt sign of policy malaise was a rapid dwindling of interest from an initial field of over thirty registered parties down to two consortiums. Moreover in the days leading up to the lodging of final bids one of those consortiums fell apart.

Fundamentally there were two reasons for the diminishing interest amongst potential investors. Obviously, the level of competition the new policy entailed became a serious consideration for overseas telcos, many of whom have virtual monopolies in their own markets. Whereas Telecom had traditionally rallied against competition, it was now potential second licensees that were urging the government to roll back market liberalisation. Additional competitive pressure on the new entrant had been created by

Treasury and Finance's desire to gouge further revenue from the telecommunication industry and DOTAC's belief that if competition is good, more competition must be better.

If the government could not back away from the sale of AUSSAT or significantly roll back competition the only other option was to inject value into a second licence within the constraints of the new market structure. The solution was for AUSTEL to set favourable interconnection arrangements prior to the awarding of the second licence, enabling potential bidders to be virtually certain of grabbing a large share of the most lucrative traffic. To further retain interest several policies were clarified by the Government. AUSTEL would review and make recommendations on the resale of telecommunication capacity. A third mobile licence would be issued 'at a later date' and 'subject to review' full network competition be introduced in 1997.

While the favourable interconnect determination offset the deflated value of a second licence and other concerns were ameliorated by policy clarification, this did not address the second reason causing hesitation amongst possible investors. That reason was the on-going question of the value of AUSSAT. Potential entrants had to weigh up whether, given the availability of alternative avenues into the market, the limited time from which they may be forestalled from the full competition anyway, and other rapidly evolving opportunities arising from technological innovation, they wished to buy AUSSAT. That being the case the Government now needed to find ways of injecting not only value into the licence but value into the satellite system.

This problem was compounded by the fact that the second generation of satellites was going to vastly increase capacity with little sign that it was entering a propitious market. In part the Government could subsidize AUSSAT's market by guaranteeing to continue to subsidize some of the existing services. However this did not address finding new markets for the satellite. The crux of the dilemma involved AUSSAT designing the new satellites to deliver Pay-TV, ahead of Government policy to introduce such services. In 1987, AUSSAT's Chairman, commented, "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."¹⁵ It was a statement which policy makers should have taken note before committing to a second generation of

satellites. Although the satellite company had advised the Government that the new high powered beams focused on Australia's major population centres could be used for business services should the existing moratorium on Pay-TV not be lifted, DOTAC advised that 25% of its capacity would have no other use without the introduction of Pay-TV. At first the Government did not want to face up to the situation opting to defer a decision. Part of the hesitation resulted from strong opposition to Pay-TV from existing commercial broadcasters. The Minister for Transport and Communications later referred to the Pay-TV decision in the following terms, "I think it was reasonable to say it was overwhelmingly knocked over (in Cabinet); it wasn't close and there were a lot of Ministers who had a view on it. That view was subsequently tempered by arguments concerning AUSSAT and so you got a different decision the next time around."¹⁶ The resulting decision to proceed with a satellite based Pay-TV service was made just before bids closed for AUSSAT. This raised the question of why Australia was creating a private communications monopoly at a time when public monopolies were being dismantled?¹⁷

The decision to introduce Pay-TV mirrored earlier policy making by the government in the area of television networking based on satellite considerations. The Labor Government's decision to introduce television networking in the mid-1980's was primarily based on the need to utilize AUSSAT. Australia's future Prime Minister Paul Keating would later recall,

"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."¹⁸ The commercial television networks had applied pressure to the Government throughout 1985 by threatening not to use the satellite. 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. Unfortunately the lesson that technological planning should not run ahead of policy had not been learned. The only difference being that in 1991 the decision went against the networks based on satellite imperatives.¹⁹

By November 1991, there was one bidder left in the race for AUSSAT. Accordingly Optus Communications became the purchaser of AUSSAT for an amount that coincided with AUSSAT's then

liabilities. The Optus consortium members included Bell South and Cable and Wireless and several Australian investors. When Optus was announced the successful applicant for a second telecommunication licence, what was conspicuous in its absence was a policy for the development of Australia's telecommunication equipment industry. In contrast to broadcasting decision taken hastily to inject value into AUSSAT the government was less willing to engineer policies to ensure the future of the equipment industry.

The ROSA debate centred on service efficiency through changing industry structure. Less evident was discussion of the telecommunication equipment industry and the role it plays in economic development. Essentially the issue was whether the two carriers would purchase locally in a competitive market. The trade deficits recorded by the US, UK and New Zealand following deregulation suggested that a more carefully managed deregulation that involved coordinated industry policy would have been the wiser course for Australia. Yet because of the pressure surrounding the sale of AUSSAT Australia was left with little in the way of industry policy except the largesse of Optus and Government ownership of AOTC.

Conclusion

The major lesson that can be drawn from Australia's communication experience over the past several years is that telecommunication reform should be preceded by a careful examination of the available evidence. The ROSA report presented Australians with a list of policy edicts but contained no evidence to show that the industry structure selected would maximise efficiency. The central flaw in Australia's policy making process has been to compound initial mistakes trying to justify earlier decisions. Major decisions have been taken that will affect industry efficiency for many years based around the short term objectives related to the sale of AUSSAT. Alternatively fundamental research to successfully manage the transition to a competitive market has not been undertaken. As such Australia faces the prospects of receiving all the costs but not all the benefits of introducing a new industry structure via a duopoly. Policies will now be orientated toward making the introduction of a second carrier successful even at the expense of customers, other potential market entrants and AOTC. Future policy initiatives, such as privatising AOTC, seem inevitable because of the Government's failure to seriously address the company's capital structure in the new market.

Footnotes

1. Kaplan, David. **The Crossed Line**, Witwatersrand University Press, Johannesburg 1990. p57.
2. Ibid. p27
3. Houghton, John and SR Paltridge, *"Telecommunication Equipment Manufacturing in Australia: Opportunities and Policy Options"*, Policy Research paper No 15, CIRCIT, Melbourne, June 1991.
4. *Australian Telecommunications Services: A New Framework*, Statement by the Minister for Transport and Communications, 25 May 1988. AGPS, Canberra, 1988.
5. Bureau Transport and Communications Economics, **The Cost of Telecom's Community Service Obligations**, Austalian Government Publishing Service, Canberra, 1989.
6. Paltridge, SR. *"Australian Satellites: Promise, Performance and the Next Generation"*, Policy Research Paper No 1, CIRCIT, Melbourne, December 1989.
7. Paltridge, SR *"AUSSAT - will DOTAC catch the falling star?"*, **Australian Communications**, June 1990.
8. Telecom Australia, **Which Technology and Why**, January 1986.
9. Kalori Communications Group, *"The Investment Opportunity in Australia"*, Information Release, November 1991, p3.
10. OECD, **Performance Indicators for Public Telecommunication Operators, Working Party on Telecommunication and Information Services Policies**, January 1990. p147.
11. NTIA, **Telecommunications in the Age of Information**, US Department of Commerce, October 1991.
12. Ibid. Chapter 5.
13. Paltridge, SR. *"Reform Process Stalled by Political Infighting"*, **Australian Communications**, September 1990.
14. Beazley, Kim. *Micro Economic Reform: Progress*, A Statement by the Minister for Transport and Communications, November 1990.
15. AUSSAT, **1987 Annual Report**, Sydney, 1987
16. Peake, Ross. *"Government move may mean pay-TV by the end of year"*, **The Age**, 22 January 1992.
17. Paltridge, SR. *"The Second Licence - Another South Sea Burble?"*, **Australian Communications**, April 1991.
18. Carew, Edna. **Keating: A Biography**, Allen and Unwin, North Sydney, 1988. p179.
19. The trade off for the commerical television industry was that no advertising would be permitted for a period of five years.