THE POLITICS OF TELECOMMUNICATIONS REFORM IN AUSTRALIA

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The structure and organisation of many national and international telecommunications networks around the world has undergone considerable change in recent years. These changes have been characterised as part of the global trend away from the traditional regulation of telecommunications towards a so-called 'deregulated' environment. This article looks at the recent history of the process of change and reform which has occurred in telecommunications in Australia. It is argued that the simple notion of deregulation of telecommunications as a process where the government withdraws from market intervention does little to explain the complex nature of change which has occurred in Australia. By linking telecommunications policy to broader changes in technology policy, the paper aims to widen the base of current evaluation of telecommunications policy. This paper observes that it is possible to interpret the 'deregulation' of telecommunications as part of a longer historical process of various Australian government institutions trying to come to terms with economic and technological change. The particular emphasis placed in political rhetoric on technology in general and telecommunications specifically as a source of progress has meant that many important social issues have been neglected or inadequately addressed.

Keywords: politics, telecommunications, high technology, Australia, technology policy.

INTRODUCTION

Changes made to telecommunications policies in recent years in countries such as the United States, Japan and the United Kingdom have been justified on the widely held belief that competition and the free market are the best way to organise telecommunications. This drive to liberalise traditional monopoly regulations in telecommunications has prompted other countries to follow a process that has become commonly known as 'deregulation'. Australia has not been isolated from these overseas trends and over the past five years significant changes in telecommunications policy have been made. Interest in liberalising telecommunications markets in Australia has been of paramount importance to Australian policy-makers.

However, widespread use of the term 'deregulation' to describe the fundamental changes taking place in telecommunications in many

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countries has obscured understanding and analysis of a very complex process of political, economic, technological and social change.[1] The process of telecommunications reform, often typified as 'deregulation', is widely believed to be inevitable, to involve a lessening of the economic role of government and to bestow benefits on consumers.[2] However, 'deregulation' is a very complex idea.[3] 'Deregulation' is a highly political process in which existing regulations are restructured to supposedly allow for a greater role for the market.[4] This point is substantiated by Melody's observations:

> The policy changes that have taken place in many countries to date, and the policy changes that are under consideration in many other countries today, represent changes in the mix of market and non-market forces in the industry. They do not represent a wholesale shift from a condition where industry decisions were based totally on administrative decisions to a condition where they will be based totally on market criteria reflecting only private economic considerations.[5]

The aim of this paper is to widen the base of current evaluation of telecommunications policy by providing a distinctly political focus on the process of telecommunications reform in Australia. The paper complements recent work which sees Australian communication policy from an interest group standpoint.[6] In another sense the paper responds to Mosco's call that "only by a greater appreciation of the political dimension can the discussion of policy issues expand beyond dichotomous thinking — to regulate or not to regulate".[7] Mosco has argued that telecommunications policy research can be often descriptive and concerned with identifying the major participants in the policy arena.[8] The result is that many deeper political issues are never explored in the research. This paper locates the Australian telecommunications reform process within in a broader context of political and technological change. Instead of seeing telecommunications as an isolated area of policy making (which is a view not unrelated to the fragmented policy structure of the Canberra bureaucracy) it is argued that there is value in linking telecommunications policy to technology policy. With this slightly broader perspective, it is possible to identify patterns and trends in policy-making which may otherwise escape notice. This broader perspective allows us to see where aspects of current Australian telecommunications policy may need closer examination. It remains now to reinterpret this recent political history of telecommunications in the context of Australian technology policy.

THE HIGH TECHNOLOGY AND TELECOMMUNICATIONS DEBATES IN AUSTRALIA

For the purposes of this paper, it is convenient to identify three phases in telecommunications policy development over the past 22 years. The first, 1970-75, represents the setting of many of the preconditions which were to influence later events. The second, 1975-1982, is a period where

the Fraser Liberal Government, espousing a non-interventionist approach in the market, grappled with increasing tensions relating to high technology and telecommunications. The final phase, 1983-92, is that of the Labor Government where the traditional monopoly arrangements for telecommunications had undergone considerable change.

1970-75: Setting the preconditions

The period 1970-75 can be best characterised as one where the Australian government was being faced by an increasingly uncertain national and international economic environment. The oil crisis had thrown the world economy into recession. The Whitlam Labor Government's tariff cuts exposed much of Australia's heavily protected industries to competition and there was widespread concern that Australian industry was not competitive enough.

Within this context, the sophisticated research and telecommunications systems which had been built up since World War II were also coming under increasing scrutiny. A Minister of Science was appointed for the first time in 1972 and some attention was given to developing a science policy for the nation. At this time, government expenditure on research and development (R&D) accounted for nearly 80 per cent of all R&D in the country and this problem highlighted the distinct weakness of Australian industry compared to other nations. Within policy the emphasis was very much on science and research but the issue of industrial application of that knowledge was not really addressed. This issue was subsumed in an industry policy concerned with the problem of excessive tariff protection. The Paris-based Organisation for Economic Cooperation and Development (OECD) reviewed Australia's science policy in 1974 and this process emphasised science policy as an area of increasing importance.[9] Despite this, the Ministry of Science was small and not influential. The Commonwealth Scientific and Industrial Research Organisation (CSIRO), the most dominant Commonwealth agency in R&D expenditure and performance, was still heavily focussed on agricultural research.

Responsibility for post and telecommunications rested with the Post-Master General (PMG). Since federation Australia had built up a world-class communications network based on a monopoly — a classic Post, Telegraph and Telecommunications (PTT) organisation. It was concerned with delivering what is colloquially known as POTS — the plain old telephone system and providing the telephone as a 'universal' service. For many years the technology underpinning POTS had not undergone radical change but in the 1970s this had begun to change. The growing use of satellite technology by countries such as the US and Canada meant that Australia had to take an interest or be left behind.[10] Also changes to postal and telecommunications management structure in other counties prompted the Government to split the old PMG

Department into two commission which became statutory authorities — Telecom Australia and Australia Post.[11] The creation of Telecom Australia was really an attempt to face up to a rapidly changing technological and economic environment. This trend was evident with the publications of the planning document *Telecom 2000* in late 1975 which identified the increasingly important role that telecommunications was expected to play in Australian society.[12] This far-sighted report did not generate much public interest.

By the mid-1970s, it was evident that the pressures that were prompting changes in the science policy arena were also bringing change to telecommunications. The political interests of the bureaucracies dealing with science policy and telecommunications policy were still largely separate domains. Telecom Australia, although, had a general policy of supporting Australian industry and this formed part of the Government's broader industry policy framework.[13] Telecommunications research was the preserve of Telecom Australia and not considered within the context of science policy at this time.

By the end of 1975, the preconditions for much of subsequent change had been set. Science policy mechanisms (primarily the Department of Science and CSIRO) were becoming integrated and responsive to trends overseas.[14] The telecommunications network was faced with the prospect of rapid technological change (e.g.,computer switching and optical fibre) in existing networks and new networks themselves through the growth of satellites. It is important to note that telecommunications technology was portrayed throughout this period as a symbol of progress. An example from *Telecom 2000* indicates this:

> The role of telecommunications will continue to expand beyond its traditional boundaries. Future telecommunications could offer substantial economic and environmental benefits . . .[15]

Progress was in part defined by the achievement of a universal service and the success with which the telecommunications monopoly meet other government-defined social objectives.[16]

1975-82: Grappling with change

The period 1975-82 was characterised by a turbulent interaction of technology and politics. With the election of the Fraser Liberal Government in late 1975, there was a concentrated effort by the government to deal with setting the right economic conditions for business. It was under Fraser that technology began to take a more significant role within the context of a free market ideology.

The establishment of Telecom Australia in 1975 with monopoly control over the network and related services brought it into increasing conflict with business. As Moyal has pointed out, the 1970s were characterised by the transformation of POTS to "a highly evolved electronic system of expanding variety and change. To 'POTS' had been

added the 'PANS' — the peculiar and novel services".[17] A manifestation of this change came with a proposal from Kerry Packer in August 1977, then chief executive of Television Corporation Ltd, to operate a private national satellite system.[18] The proposed satellite was to offer a broad range of services including television, digital data transmission and telephone links. However, after much deliberation the Government decided that a publicly-owned national satellite system as opposed to a private system should be launched. The failure of private interests to weaken Telecom's monopoly at this time was not without effect as there was a growing body of private companies keen to exploit new telecommunications technologies. The decision to press ahead with a national satellite system (now called AUSSAT) has been well documented as a case of technology policy-making where financial concerns where over-ridden by political will and the symbolic promise of new technology.[19]

While the AUSSAT debate had presented the state with the problem of how best to set the economic conditions of competition in telecommunications, the persistent problems of science policy were taking on a more technological focus. The Department of Productivity had been established in 1976 with the aim of improving the level of productivity in Australian industry. Its emphasis was on productivity and technological change. The Department, which existed from 1976 until 1980, can be seen as one of the first attempts by the Australian government to systematically deal with the conditions of technological innovation in industry.[20] After 1980, the focus for these concerns became a newly-created Department of Science and Technology which promoted high technology as a symbol of progress and the key to international competitivieness.[21] Science policy at this time was only just beginning to concern itself more with technology issues. Science and technology policy only gave scant attention to telecommunications technology.[22]

While the Department of Productivity was attempting to promote technology, there was a growing concern within the union movement that automation could threaten jobs.[23] One of the most significant industrial disputes in 1977 was between Telecom Australia and its main union — the Australian Telecommunication Employees' Association (ATEA). The dispute centred around the application of new switching equipment in the telecommunications network. The spectre of a 'computer holocaust' of jobs, which was given popular coverage during the ensuing intense national dispute, was in opposition to the progressive image of technology being portrayed by the Government. For example, the Prime Minister said at the time of the dispute ". . . if the Australian public are to be denied the benefits of improved technology I would regard that as something that the government can't accept and will not accept".[24] The image the Government wanted to portray of technology emphasised its positive side:

> Overall, historical experience in Australia and elsewhere has been that the beneficial effects of technology have outweighed the harmful effects. Technological change has been accompanied by increased productivity, rising living standards and no net job loss.[25]

In order to moderate the potential conflict, the Government responded by establishing a Committee of Inquiry into Technological Change (CITCA) chaired by Sir Rupert Myers. The Myers Report, completed of 1980, effectively steered the debate away from the undesirable effects of new technology by asserting the inevitability of technological change and its employment generating effects.[26] The tone of the Myers Report was optimistic:

> The introduction of new [communications] technology generally leads to a reduced requirement for installation, operation and maintenance labour, but is can also lead to a requirement for additional staff having different skills, sometimes in a different location.[27]

Despite this optimism, the Myers Report was widely criticised as being too technologically-deterministic.[28] The battle over AUSSAT and the threat of the computer revolution to jobs effectively meant that two strands of policy activity — science policy (which was increasingly concerned with technology) and telecommunications policy (which was starting to address the issue of Telecom's monopoly) — were being forced onto common political terrain whether the bureaucracies responsible for these policy areas were prepared for it or not. As Moyal has pointed out:

> Telecom as a statutory body committed to high productivity and financial solvency was bound to go ahead with new technology as the decade [of the 1980s] advanced. A failure in its efficiency would open the doors wide to competitive private enterprise...In Australia's capitalist society, where Government ideology was geared increasingly to free enterprise and the market-place, such propositions [of protecting employment] rang hollowly in Telecom's ears. The challenge of computerisation was here to stay.[29]

The challenge of computerisation in telecommunications was one of the reasons for prompting the Government to commission international consultant McKinsey and Company in 1980 to look at Telecom's capital requirements.[30] The report heralded change in that it recognised that Telecom would need to increase its borrowings in order to meet its statutory requirements. It also advocated that Telecom should immediately enter lucrative high technology markets.[31] This report was a clear indication that the government may face difficulties in the future in trying to fund Telecom's capital needs.

The economic recession of 1981-82 further concentrated demands for change. The Government began to place increasing pressure on Telecom's monopoly by restricting its market entry into new telecommunications services such as facsimile and videotex. This pressure came to a head with the announcement of the Davidson Inquiry into

telecommunications services in Australia in 1981.[32] The result was a deliberate attempt to abolish Telecom's monopoly in order to create an opportunity for business interests (in particular the Business Telecommunications Services lobby group) in a growing lucrative telecommunication services market.[33] Previous technological decisions (namely that of AUSSAT) were to play a key role in the outcome as the Davidson Report argued:

> The introduction of a domestic communications satellite under the management of AUSSAT will make competition in telecommunications inevitable for the future.[34]

A related report by the Australian Broadcasting Tribunal on cable and subscription television services (pay-TV) at about the same time provided conflicting advice to the Government on Telecom's role in the provision of this service.[35] The conflict between the two reports probably delayed consideration of the key issues during the dying days of the Fraser Government.[36]

In summarising the period 1975-82, it can be seen that technology had become an integral part of policy making for promoting economic development. The way in which technology was being addressed within the arenas of science policy and telecommunications was, however, undergoing a transformation. Within telecommunications, technological change in the form of the satellite and pay-TV was placing increasing stress on the traditional monopoly arrangements. Within science policy, there was an increasing and effective lobby growing around high technology (viz. information technology) and the government was forced to address the impact of science and technology on industry more seriously than ever before. In addition, as telecommunications and information technologies became more pervasive in industry and society, social and economic issues now had to be factored into policy development. For instance, the Myers Report can be seen as a mechanism for moderating the increasing social concerns about technological change which were evident from the mid-1970s.

1983-92: the Labor Government, High Technology and Deregulation

The period 1983-92 has been characterised by concern with high technology development and active attempts to reconstitute the existing monopoly arrangements for Telecom. The Labour Government was elected in March 1983 on a platform of national reconstruction of the economy. A Wages Accord was struck with the Australian Council of Trade Unions (ACTU) as the basis for returning the country back to prosperity.[37] High technology was an important element in the Hawke Government's first term of office. The process of reconstruction was to be partly based on support for these high technology 'sunrise industries'.[38] High technology became a symbol of future prosperity and progress and this was emphasised by Prime Minster Hawke:

> The development and application of new technology must be embraced as one of the driving forces behind the process of economic change with important consequences for the competitiveness of industries. There is no escaping the fact that industrial innovation is essential to Australia's future economic well-being, not only in industries producing glamorous new products, but throughout established industries as well.[39]

While there was great emphasis on the benefits of high technology, state governments were also quick to develop technology policies in the early 1980s. One outcome of state government activity was the proliferation of technology parks as mechanisms to promote high technology industries. These real estate initiatives, ultimately of dubious policy and economic value, were established on the simplistic belief that if the conditions promoting the growth of certain high technology centres overseas (notably, Silicon Valley in California) could be replicated then other regions could share in high technology.[40]

The political difficulties of selecting high technologies and key industries for special attention soon became evident and the high ground won by the Department of Science and Technology (DST) in 1983 was soon regained by more moderate interests. In 1984, DST's technology responsibilities were absorbed into the new Department of Industry, Technology and Commerce (DITAC). The creation of DITAC represented an elevation of technology in the policy-making hierarchy. However, DITAC's major concern was industry policy rather than technology policy. At about this time, DST under the guidance of its Minister Barry Jones, actively tried to promote the notion of information policy. Bureaucratic interests which were threatened by the idea failed to support DST's initiatives.[41]

In telecommunications, the erosion of Telecom's monopoly planned during the final years of the Fraser Government epitomised by the Davidson Report, was shelved for a short period under the Hawke Government. The considerable opposition to any threat to Telecom's monopoly from the union movement meant that government would continue to play a major role (at least rhetorically) in national reconstruction. However, the deregulation of financial markets under Treasurer Paul Keating in 1984 led to an explosion of credit which was to finance this recovery. Regulated government industries such as telecommunications and airlines began to seek more capital to finance investment in new equipment and upgrade networks. The launch of AUSSAT-1 in 1985 with limitations on its ability to compete with Telecom for the lucrative telephone market was to create a further capital drain on the government as the projected revenues from the satellite soon failed to materialise.

The prevailing belief that Australia's future depended on its ability to compete internationally (especially in the rapidly growing South-East Asian market), further underlined the need for the state to establish

the necessary economic conditions for this to come about. By the mid-1980s, deregulatory changes to telecommunications systems in the US, UK and Japan were being recognised as a cue for Australia to do likewise.[42]

During 1986 and 1987 economic conditions deteriorated further. The prosperity of high technology offered in 1983 became unstuck with the stock market crash of October 1987 and a series of financial disasters in different states (e.g., the Victorian Economic Development Corporation) further shook the high technology bandwagon. As a result, the Hawke Government was forced to restrict expenditure growth and speed up the process of economic restructuring. The program of restructuring became known as microeconomic reform — "the structural adjustment of key industries, and the relationships between them, with a view to establishing and sustaining longer-term growth".[43] Telecommunications was to form a central part of the reform process. Microeconomic reform was to replace the 'reconstruction' platform of 1983.

The mega-departments of Transport and Communication (DOTAC) and Industry, Technology and Commerce (DITAC) were created in July 1987. Both DOTAC and DITAC took initiatives which attempted to restructure industry towards new technology and international markets. At this time the Bureau of Transport and Communications Economics (BTCE) was created as an 'independent' source of economic advice within government to the Minister for Transport and Communications. BTCE together with its DITAC counterpart, the Bureau of Industry Economics (BIE) became convenient vehicles for legitimising government decisions.

DITAC's key policy initiative at this time was the Information Industries Statement in September 1987.[44] A central instrument here was the Partnerships for Development (PfD) Program which was a refurbishing of the unsuccessful Civil Offsets Program. The PfD Program involved the government entering into agreements with transnational companies to promote higher levels of exports and R&D. This Program represented a less direct, but no less significant, form of state intervention.

On the other hand, one of DOTAC's key initiatives was to restructure the operation of Government Business Enterprises (GBEs) to make them more commercially-oriented. The move to restructure GBEs (which included the telecommunications GBEs) was not too far removed from related attempts in technology policy to make organisations such as the CSIRO more responsive to industry needs.[45]

The reshaping of the GBEs was the precursor to more substantial reforms in telecommunications announced in May 1988.[46] As Senator Gareth Evans, Minister for Transport and Communications pointed out at the time:

> Global events have strengthened the conviction of the Government that the Australian economy requires fundamental restructuring if we are to ensure the maintenance, let alone enhancement, of the high living standards Australians have traditionally enjoyed.[47]

In telecommunications, the Government saw technology as the major force for regulatory change:

> There will inevitably be an increasing integration of computer and communications technologies so that the differences between these industries will progressively, but rapidly, disappear . . . Developments in technology mean that the current arrangements for industry regulation are no longer effective.[48]

Despite the opening up to competition of some components of the telecommunications services market in May 1988 (e.g., Small Business Systems and PABX's), Telecom's monopoly of the network was still intact. One of the most significant features of the May 1988 Statement was the announcement that an independent regulator, the Australian Telecommunication Authority (AUSTEL), would be created. While greater competition was being introduced, the Government (through AUSTEL) was laying-down the foundation for 're-regulation' rather than 'deregulation'.

The May 1988 Statement paved the way for the BTCE to report on the costs and cross-subsidies in Telecom meeting its social policy objectives, now termed community service obligations.[49] In this way the justification for Telecom's monopoly was undermined as "the independent regulatory agency [AUSTEL] . . . will be charged with developing and overseeing appropriate measurement of and accountability arrangements for the future financing of community service obligations".[50]

The explicit identification of community service obligations as a cost meant a separation of Telecom's role in meeting the social policy objectives (e.g., Community Service Obligations-CSOs) from its role in responding to market demands.

In a subtle way, the language of the May 1988 Statement represented a legitimation of a gradual shift from monopoly to competition and in doing so, glossed over many political issues:

> . . . the Government will not jeopardise the sustainability of its ongoing universal service policy objective by adopting policy measures that could undermine the necessary cross-subsidy funding mechanism. This decision alone means that monopoly provision of the infrastructure of the basic network — and of some services — will continue. To the extent that this is required, it will also need to be accompanied by new mechanisms to protect consumers . . . Finally, the Government will establish measures within the independent regulatory authority to ensure that the carriers are fully responsive to the needs of their customers.[51]

The growing emphasis on consumers (as opposed to subscribers) and the drive for efficiency (epitomised by the identification and costing of

CSOs) helped to weaken the justification for universal service in its broadest sense and hence, legitimise the shift to competition. It enabled the serious question of telecommunications industry structure and ownership to be put on the political agenda.

By September 1988, the deteriorating financial position of AUSSAT, the proposed privatisation of Telecom New Zealand and increasing demands from industry put further pressure on the then Minister for Transport and Communications, Ralph Willis, to speed-up the reform process.[52] AUSSAT's debt and the prospect of a second generation of satellites, due in 1992, costing $450 million, drew particular attention to industry restructuring as a means of unburdening the Government of this capital problem.

The final battle for the structure and ownership of Australia's telecommunications system took place during 1989-90. DOTAC established a Review of Structural Arrangements (ROSA) which eventually recommended a greater degree of competition. After a long battle with the unions involving the convening of a special national conference of the Australian Labor Party in September 1990, it was agreed that a second network competitor would be permitted in a duopoly arrangement with a merged Telecom Australia and Overseas Telecommunications Authority (OTC) until July 1997. After 1997 the market would be fully open to competition. AUSSAT was to be sold to the successful bidder for the second carrier licence. The emphasis was on creating the correct market conditions for Australia to participate in the growing global telecommunications industry. Telecommunications was seen as essential to Australia's future prosperity as the then Minister, Kim Beazley subsequently explained:

> With our reform of telecommunications we are positioning Australia to provide the most competitive and efficient telephone services in the world. Not just for business but for every Australian household.[53]

In announcing the new structure in November 1990, Prime Minister Hawke used rhetoric similar to that of the high technology era in 1983:

> We will see massive new private investment in the Australian economy: and expansion — not a contraction — of total jobs; a fall in STD prices on major trunk routes by as much as 40 per cent; and the creation of substantial and enduring export opportunities.[54]

Despite the high-minded rhetoric, the unions remained sceptical of the benefits of the Government's reforms. Throughout the 1980s, policy discussion was increasingly focussed on the advantages and disadvantages of deregulation.[55] There was a great deal of open policy discussion during this time.

Telecommunications, as a symbol of progress and efficiency, provided the justifications for major changes in the nature of state involvement. Just a few years earlier, high technology played a similar role in that

it was used as a symbol which justified attempts to free up capital markets and introduce greater flexibility into work practices.

Since the major reform announcement in November 1990, much activity has been devoted to the selection of the second carrier. Optus Communications (a consortium comprising BellSouth, Cable and Wireless, Mayne Nickless, AMP, National Mutual and the Australian Industry Development Corporation), was eventually announced as the successful bidder in late 1991. The independent regulator, the Australian Telecommunications Authority (AUSTEL), established in 1989, has been involved with setting the fine details of competition, such as resale, interconnect, licences and more recently numbering and privacy issues. The very existence of the duopoly arrangements indicate that the state still plays a significant role in moderating the outcome of competition. Despite this obvious role of the state, the critical issue of how network competition works in practice has been apparently de-politicised by referring it to the 'independent' regulatory authority AUSTEL. Competition and the value of less regulation were the justifications for telecommunications reform but the result has been a duopoly where competition is restricted and a single competitor is effectively cross-subsidised through interconnect arrangements and other regulations.

While telecommunications has taken a high profile in the microeconomic reform process, DITAC has taken a lower level profile in technology. With the selection of the second carrier, DITAC focussed on strategies for developing the Australian telecommunications industry.[56] Even through DITAC and DOTAC showed little interest in information policy, a report by the House of Representatives Standing Committee for Long Term Strategies (chaired by Barry Jones) reported in May 1991 on the need for an information policy in Australia and this helped to add further emphasis to these issues.[57] Its significance seems not to have been grasped by the Australian bureaucracy.[58]

In summary, during the period 1983-92 high technology, and more recently telecommunications, have been symbolised as progressive and part of the Labor Government's agenda of recovery and reconstruction (during 1983-4) and microeconomic reform (during 1987-92). Telecommunications was effectively transformed from the traditional POTS to be more closely linked to economic competition. The present competitive arrangements in telecommunications are a reflection of the central role that innovation and new technology are perceived to play in this strategy. The process of reform is much better described by 're-regulation' rather than 'deregulation'. It is a process involving a reformulation of the structure and organisation of telecommunications so as to incorporate the demands of international economic conditions, declining national economic fortunes, pressures from industry and other social demands (e.g., maintaining employment).

It remains now to identify some of the major themes from this brief historical overview.

IDENTIFYING SOME MAJOR THEMES AND ISSUES

It is possible to identify a number of themes and issues arising from the above historical analysis. First, the complexity of change in Australian telecommunications indicates that telecommunications and technology in general have an important role to play in organising society. Attributing reform to government policy changes alone may not lead to insightful policy analysis. The changes which have occurred in Australia have often encompassed more than government policy as other aspects of government or official activity (e.g., Telecom Australia and AUSTEL) were influential in effecting reform. Therefore, interpreting reform as part of the " . . . centrality of organised political power in modern societies" may be a useful perspective[59]. In such an approach the 'Australian state', a concept which is broader than 'government', would be the focus of attention. Mosco has outlined some considerations in applying theories of the state of telecommunications policy and this theoretical approach may provide new insights into Australian policy problems.[60] For example, it may be possible to see Australian telecommunications policy as a response to the need for the state to provide the necessary conditions for capital accumulation or the need to legitimate its position in times of economic crisis.

Second, an appreciation of telecommunications reform in broader historical perspective allows for seeing deregulation and the evolution of technology policy as part of a specific stage of the economic development of Australia. The current concern for technology (a form of information) and telecommunications (a way of transmitting information) is a reflection of the growing economic significance of information activities in the Australian economy.[61] State governments are now very active in telecommunications policy. For example, Castells points to the dominance of the "information mode of development" in modern capitalist societies where "knowledge intervenes upon knowledge itself in order to generate higher productivity".[62] The convergence of change influencing telecommunications and technology policy in Australia could well be a reflection the differing ability of state institutions to accommodate this new mode of development. However, the state is not monolithic and therefore varying degrees of adaptation will arise depending on national circumstances. Hence, Australia's high technology sector has not performed well (even with 'help' from governments) and now Australian governments are involved in a further process of 'learning' to reorganise telecommunications as well as create technological opportunities. The level of success achieved here will vary from country to country and contribute to differing levels of productivity. The recent history of Australian technology policy indicates the limitations of government action. The stock market crash of 1987 and the collapse of the nation's high technology boom indicates that there is a tendency to raise expectations beyond that which can be realistically delivered. If applied to telecommunications as an area of

technological endeavour, then Australia can expect some disappointment. Deregulation overseas has not delivered many of the perceived benefits and it would not be surprising to see Australia follow a similar pattern.[63]

Third, Australia has followed overseas trends in progressively shifting telecommunications policy from the standard PTT monopoly framework towards one with greater emphasis on technological innovation, market opportunities based on new services and international competitiveness. The rhetoric of reform emphasises that the telecommunication carriers have to be responsive to customer needs. But it is far from clear how effectively the regulatory system will deal with different customers (e.g., individuals as opposed to large corporate interests) with unequal financial and political power. Government appears to be now less concerned with responding to community interest group pressure since it can concern itself with setting the conditions of innovation and competitiveness. One consequence of these changes is that the symbolic role of technology, a feature of high technology policy in Australia over the past 10 years, can be identified with telecommunications policy as well. In its broadest sense, this means that popular symbols (e.g., technology) can be commanded by governments and other institutions to achieve political objectives. The legitimate concerns of, say, workers threatened by technological unemployment could be swept aside by repeated references to the benefits of technology. Those disadvantaged by technology do not necessarily see the benefits and often resist the introduction of new technology. The state simply redefines its involvement and the conditions of the debate (e.g., CITCA Inquiry in 1980). This seems to have been the case with universal service in Australia as well. One consequence of this symbolism has been the relegation and redefinition of important issues associated with the social aspects of technology. For example, during the CITCA era, important discussions about social aspects of technology were redefined in terms of 'technology assessment' and in doing so important contradictions (e.g., technology as threat) were mitigated.[64] Likewise, there exists considerable work on the social aspects of telecommunications but these have not really been thoughtfully incorporated in policy-making in Australia.[65]

Fourth, successive Australian governments have been involved in a learning process with respect to technology and telecommunications policy. Since 1970 governments have concerned themselves with ensuring that the market and economic conditions for capital accumulation were adequate. In more recent years the concern has been with conditions for innovation. In determining market conditions for high technology in the early 1980s, Australian governments seem not to have been very successful. Telecommunications has become the latest area of technological fascination for governments. The ability of governments and industry to learn from and exploit these changing conditions will determine success in the international marketplace. At the bureaucratic

level, it would appear that the connections between telecommunications policy and technology policy are still somewhat tenuous in Australia. For example, the House of Representatives Standing Committee on Long Term Strategies reported that

> [Australian] Governments have been extraordinarily slow to grasp the significance of the growth of information, a quality transforming factor, with a unique capacity to change work, personal performance, leisure and quality of life. Within government, both politically and bureaucratically, information issues are the subject of fragmentation . . . DITAC equates information with IT [information technology] . . . The Department of Transport and Communication (DOTAC) sees information as the provision of communication systems . . .[66]

This fragmentation in outlook could hinder the extent to which the telecommunications sector could be reformed. However, Telecom Australia has built up over decades connections with local and international business but it is not evident if this industry structure is appropriate for the changing environment. The successful shaping of telecommunications industry policy as part of the learning process will be vital if government objectives are to be met.

Fifth, unintended consequences seem to have influenced Australian policy in a significant way. For example, the escalating debt of AUSSAT contributed to putting structural change in telecommunications high on the political agenda. The tendency of Australian bureaucrats to use simplistic models in technology policy may be another matter of concern. Technology parks had their origin in beliefs on how Silicon Valley came about. The parks have not made a significant contribution to high technology policy development in Australia. Likewise, unfettered belief in the benefits of deregulation and an uncritical willingness to follow other countries could be seen as adherence to other simplistic models. Indeed, this reliance represents an inability of the various institutions of the Australian state to adequately cope with developing a sophisticated national response to technology. There is greater scope for Australia to adopt the experience of other countries in such a way that accentuates distinctive Australian telecommunications characteristics in innovative ways. Reliance on simplistic notions of 'deregulation' denies this opportunity for novelty. For example, if other countries are developing responses to technological competition by establishing national systems of innovation then Australia may need a more sophisticated approach to policy making.[67] Indeed a more sophisticated approach to developing national industries and securing international markets may be in order.

Finally, the centrality of telecommunications highlights the importance of centralised political power and the role that technology can play in promoting it. Information and telecommunications technologies are powerful technological networks and symbols for centralised political power.[68] One of the key roles played by high

technology and telecommunications in the economy is to demonstrate the usefulness of these technologies for other sectors of the economy.[69] The restructuring of the economy to incorporate telecommunications in a less regulated framework with an emphasis on innovation removes it from direct conflict with many groups which would demand a better deal on issues such as universal service and employment. The increasing ability of governments to monitor and control activities such as banking transactions, telephone communications and transport is enhanced in such an environment. Fragmentation of responsibilities for the regulation of these activities helps to promote this. The recent AUSTEL public inquiry into telecommunications privacy highlights the inability of the regulatory structure to put the issue into a broader context than just telecommunications.[70] The privacy and technological issues in this debate too have been obscured by technology as a symbol of progress.

CONCLUDING REMARKS

The above analysis has provided a perspective on the process of telecommunications reform in Australia. Technology is a persistent theme which run through telecommunications reform and Australia is experiencing a 'learning process' in dealing with telecommunications and technology. The level of integration at this point in time between the two areas of policy is not that great. This could prove costly to Australia. In focussing on technology, important aspects of communications policy (e.g., broadcasting, publishing and transport) have not been incorporated as part of the brief historical overview. These areas need to be integrated into this broader framework. Only then can the full scope of state involvement be appreciated. This is almost certainly a role for information policy even through this field is underdeveloped in Australia.[71] Up until now, information policy has been sadly neglected but this could well change in the future.

The potential of telecommunications to be a tool for social control needs further investigation in Australia. This aspect may indeed be one of the key research issues facing Australian society today. The reformulation of government involvement in telecommunications is not adequately explained by the term deregulation and failure to recognise this could be costly, both economically and socially. More sophisticated approaches are needed if the real role of telecommunications in modern Australian society is to be fully appreciated.

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