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Abstract

The Australian Government's proposed public private broadband partnership is the latest dramatization of the constantly shifting roles of the private and public sectors in communications. Over the last century-and-a-half, the sector has been a steady source of new institutional models around the world. This article examines the experience of Australia's main wireless company, AWA, as a private public partnership for nearly 30 years. Reconstructed as a joint enterprise in 1922 to establish direct wireless telegraph services between Australia and Britain and North America, AWA remained co-owned by the Commonwealth and private shareholders until 1951. Several features of this experience seem relevant to the proposed national broadband partnership—the level of political support for the structure; the implications of changes in the use of wireless technology over the life of the investment; the management of market power; financial performance; and the duration of the arrangement.

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A 50/50 Proposition: Public Private Partnerships in Australian Communications

About 85 years before Kevin Rudd announced his National Broadband Plan (ALP, 2007), Australian Prime Minister Billy Hughes laid out a scheme for the federal government to invest a half share in a company that would build and operate a direct wireless telegraph service between Australia and Britain. The service was a great success. For nearly 30 years, the Commonwealth kept its investment.

The communications sector has been a constant source of institutional innovation, from monopoly public postal and telecommunications corporations, to government-shaped or regulated private monopolies and near monopolies (Eastern Telegraph, Cable and Wireless, AT&T), publicly-owned, international corporations (the Pacific Cable, Intelsat, Inmarsat) and national public broadcasters (ABC, SBS, BBC, TVNZ). Australia's National Broadband Network, like Billy Hughes' wireless partnership and the country's largest telecommunications company, Telstra, during its decade of partial-privatization from 1997-2007, will be a kind of public private partnership.

The experience with wireless between the 1920s and the 1950s shows how a partnership between the state and a private communications company might succeed, stretch, strain and finally snap. This article examines that experience, seeking clues to inform future decisions about communications infrastructure and enterprises, especially the National Broadband Plan. Several features seem relevant to the proposed national broadband partnership—the level of political support for the structure; changes in the use of the technology over the life of the investment; the management of market power; financial performance; and the duration of the arrangement.

Getting together

During the First World War, German telegraph messages from the powerful wireless station outside Berlin were received on the west coast of Australia. ('Wireless Company's Meeting', 1918) Just before the armistice, Australia's main wireless company, Amalgamated Wireless (Australasia) or AWA, received a telegraph message from the Marconi station in Wales at an experimental station in Sydney. ('Wireless. First messages from England', 1918) Managing Director Ernest Fisk worked hard to convince the Prime Minister that a commercial service on this route was desirable and feasible, direct between two places almost as far apart as it is possible to be on earth.

Telegrams had been exchanged between Australia and Britain for nearly half a century. The Overland Telegraph Line opened in 1872, connecting at Darwin with the privately-owned Eastern Telegraph group's submarine cables to Europe. From 1902, competition for international traffic was provided by a state-owned Pacific Cable connecting Australia

to New Zealand, the west coast of North America and then Europe via the Atlantic cables. (Harcourt, 1987: 46-68, 145-75; Barty-King, 1979: 3-41, 113-40) In the language of contemporary telecoms policy, AWA's direct wireless service would be a disruptive, facilities-based competitor for these wireline duopolists.

Economics, defence, politics and emotion all favoured the AWA scheme. Its lower expected costs allowed it to promise to reduce the submarine cable companies' rates by a third. Direct wireless would require expensive new transmission and reception stations at each end, but cable operators had to maintain thousands of miles of undersea cables with vastly less capacity than the optic fibre used for today's submarine systems. Long distance wireless communication was vulnerable to atmospheric disturbance but not to severing by hostile powers in a military conflict. A direct link with London promised deeper political engagement and resonated strongly in a Dominion distant from the heart of the British Empire. ('Communications of the British Empire', 1921; House of Representatives, *Debates*, 5 October 1921 and 7 December 1921; Fisk, 1923)

The capital cost of a direct wireless service was estimated at £500,000 [\$30 million today], more than twice AWA's paid-up capital of £180,000. Hughes and Fisk hatched a plan for the company's capital to be increased to £1 million to support this investment. The Commonwealth would contribute £500,001; private shareholders would contribute a further £320,000 on top of the existing £180,000. The Commonwealth's investment would give it a bare majority of the shares. Hughes described the partnership as a way of ensuring the recapitalized company would be run on commercial lines by its existing management, but ultimately controlled by the Commonwealth. (House of Representatives, *Debates*, 5 October 1921) Fisk saw it as a way of bringing the state inside his enterprise. He hoped this would end the campaign to extend state control of wireless into areas where he saw AWA's future growth opportunities.

The new public private AWA not only got its big Commonwealth investment, but also acquired the Commonwealth's coastal wireless network, promising to modernize it and operate it as a feeder network for the international services. This 'privatisation' gave AWA a local distribution network, positioning it as a rival to the Post Office in domestic telegraphy and a more effective competitor to the international submarine cable companies. The state was funding a competitor, just as it had done when it set up the Pacific Cable at the turn of the century to compete with Eastern Telegraph, except this time, it would be competing with itself.

A public private partnership was chosen for the direct international wireless service rather than a wholly public or private entity for several reasons. Patents covering the technology and any future developments of it were controlled by the London-based Marconi company and its exclusive Australasian licensee, AWA, in which it was the largest shareholder before the Commonwealth investment. Bitter experience as Attorney-General a few years before, when Marconi sued the Commonwealth for patent infringement in its coastal stations, had taught Hughes how hard it would be to make anything happen in wireless without the involvement of the patent-holders. (Curnow, 1963: 59-70)

Hughes was also no fan of the Post Office, the most likely operator of a state-owned wireless service. He wanted ‘men with scientific training and business capacity’ running the proposed international wireless system, not the post office bureaucrats who many thought had resisted wireless technology in Britain and Australia because of its potential impact on their extensive cable networks. (House of Representatives, *Debates*, 7 December 1921, p. 13977)

By the early 1920s, Hughes had migrated comprehensively from the political left to the capitalist right, where he had new friends to retain. (Fitzhardinge, 1979; Hughes, 2005) On this side of politics, a commercially-managed partnership between the public and private sectors seemed more attractive than the nationalization of wireless being urged by a Labor Party that had just adopted a ‘socialist objective’.

The state, however, could afford the big capital injection AWA needed and the business case showed it would earn good dividends. There were deep suspicions about the global ‘Marconi octopus’. AWA, according to one MP, was not ‘a true blue Australian business’ but ‘merely a joint in the tail of the Marconi Trust’. (House of Representatives, *Debates*, 14 July 1922, p. 501) The capital injection would give the state a bare majority stake in Australia’s main wireless enterprise and ensure it was publicly controlled. Hughes, the nation’s chief executive, loved control and had always been comfortable with the idea of state enterprise, memorably acquiring and establishing commercial businesses during the First World War. (Fitzhardinge, 1979: 108-12, 137-44)

There were also recent precedents for public private partnerships to develop the emerging technology of oil power. A bare majority stake in Anglo-Persian Oil (later Anglo-Iranian, and British Petroleum, or BP) was acquired by the British Government in May 1914. The company’s product had disruptive technological implications for the military, industry and the public. British naval and industrial power had long relied on dependable supplies of coal, as they had on a global cable communications network. Oil, like wireless, offered some advantages to public and private users, but it required huge investment to convert existing power supplies or to build new oil-fired ships and factories. It also required new transport and storage facilities in Britain and overseas.

Securing access to cheap oil became an important goal for the First Lord of the Admiralty before World War One, Winston Churchill. Churchill championed the investment in Anglo-Persian to maintain the independence of a cash-strapped company in a global market dominated by Standard Oil and Royal Dutch-Shell, and to secure part of the Royal Navy’s oil supplies. The state effectively financed a competitor, but then bought goods or services from both the public private enterprise, Anglo-Persian, and its wholly private competitors. (Ferrier, 1982: 158-261)

The public private Anglo-Persian Oil entered into a further partnership with the Australian Government, the Commonwealth Oil Refineries. In Parliament, Hughes referred to this precedent as a model for the wireless partnership, but there is no evidence of any serious analysis of it within government. The song of partnership between the public and private sectors was sweet harmony—public responsibility and control, private

expertise and enterprise—but no-one was really listening to the music. A public private wireless partnership was a pragmatic response to a technological opportunity by the private company best placed to grasp it and a government with cash.

Living together

Several aspects of the 30-year experience of AWA's private public partnership are relevant to the contemporary possibility of a broadband partnership. The structure was never universally endorsed. Technology changed and the uses of wireless expanded into areas where the Commonwealth was less enthusiastic about being a major shareholder. Wireless did not, however, prove to be as cost effective as expected in all areas. AWA's control of patents gave it market power more comfortably wielded by a private company than on behalf of its public major shareholder. Financial performance was hard to evaluate against the original targets, given the changes in the nature of the business and amendments made to the initial agreement to deal with new information and changing circumstances. The partnership endured despite its limited support and was only ended by dogged, co-ordinated action.

Political support

From the beginning, the structure was controversial. The Prime Minister announced it as soon as he got back from the Imperial Conference in London in late 1921. This was 'in some ways the zenith of Hughes' career'. (Fitzhardinge, 1979: 497) It was a big, nation-building, empire-binding initiative, and Hughes urged MPs

to take their courage in both hands, and to have a little faith in the future of this country. It was not in any timid, shirking spirit that our pioneers went out and made Australia what it is. They had faith though they had far less reason for its exercise than we have. (House of Representatives, *Debates*, 7 Dec 1921, p. 13982)

His enthusiasm for the idea of direct wireless was widely shared. Britain was used to dominating submarine cable telegraphy and hence international electronic communications. London was the place that the Italian Marconi chose in the 1890s to host and finance what became a multi-national company to commercialize his wireless inventions. But British governments had bickered and dawdled. The Empire had become a long-distance wireless backwater, overtaken by Germany, the United States and France. (Headrick, 1991; Hugill, 1999)

Even Hughes' strongest supporters, however, were worried by the details of the scheme and the way the Prime Minister wanted to drive it through the Parliament. They were especially troubled that directors representing the private shareholders would have a majority on the board of the recapitalized AWA. This would undermine the public control that was supposed to flow from the Commonwealth's bare majority stake.

Eventually Hughes was forced to back down about this (see *Wireless Communication—Report of Parliamentary Committee*). He solved the problem of finding an independent seventh director, to sit alongside the three each representing the public and private shareholders, by taking the seat himself. His political authority declined through 1922, and he was forced to resign as Prime Minister early in 1923, but he stayed on the AWA board for the rest of his long life, even after the Commonwealth shareholding was sold in 1951. (NLA MS 1538 Series 31 and see Fitzhardinge, 1979: 497-517)

The critics thought the public private AWA, like Hughes' politics, was a 'half-breed', a 'cross-breed', a 'hybrid'. 'The people will find the money and the company will run the show', predicted Labor leader Charlton. (House of Representatives, *Debates*, 14 July 1922, p. 499) There were complaints when supporters of Hughes' Nationalist Party were appointed as the Government's representatives on the board and constant tension about the way the company used its freedoms under the contract with the Commonwealth to act in ways that jeopardized government policy. This was particularly the case in the 1930s when AWA wanted to pursue international commercial opportunities while nation states were turning inwards and to their imperial families to deal with economic catastrophe and strategic turmoil. (Harcourt, 1987: 227-49)

The most crucial problem about the structure of the partnership, however, was that it had no end. There was no termination date in the contract between the Commonwealth and the company, no shareholder agreement setting out what would happen if one of the major shareholders wanted to get out. A resolution to wind up the company was unlikely to get past a board where Hughes held the casting vote. Even if it did, the support of 75% of ordinary shareholders at a general meeting would be required. That would need half the private shareholders to side with the Commonwealth, hardly likely if the result was going to be a substantial decline in the value of their shares. John Curtin tried to roll Hughes off the board in 1943, but the matter went to arbitration and the arbitrator chose Hughes' party-hopping independence ahead of the Government's political nominee. (AWA 'Seventh Director')

Technological change

The public capital investment in AWA was a clear exercise in trying to pick a technology winner. This was high-risk. No commercial wireless service was operating over anything like the distance between Australia and Britain. In the long-term, it worked. But the proponents were lucky, or smart, or perhaps both.

Initially, the plan was based on long-wave transmission. Within two years of the Australian Government's decision, Marconi was demonstrating directional short-wave transmission over very long distances. This 'beam' system had several advantages. Less power was needed, so capital and operating costs were lower. Directional transmission made it harder for unintended recipients to eavesdrop. It also reduced interference, so more wavelengths could be used simultaneously. Shorter waves (higher frequencies) meant Morse Code could be transmitted and received faster, enabling much higher traffic

capacity. (Baker, 1970: 216-25) The service that opened in 1927 could carry about twenty times the minimum traffic agreed in 1922. (Dowsett, 1929)

Fortunately for Australia's public private partnership, it was AWA's technology partner Marconi that came up with the breakthrough. Plans could be modified quickly once the Australian and British Governments had approved the use of this even newer, untried technology, though not without tearing up contracts already tendered for long-wave facilities. The cost of the whole project fell dramatically, and the full amount of the Commonwealth's capital contribution was not required to launch the international services that opened to Britain in 1927 and North America the following year. (AWA Annual Reports, 1921/22-1928/29)

Another critical technical and commercial development of wireless occurred just as the public private AWA was being created—radio broadcasting. This new medium boomed in the United States in 1922, the same year the British Broadcasting Company (later Corporation) was formed. (Briggs, 1961: 20-1, 58-68, 123-42) A conference to consider the best way to develop the medium in Australia was held in early 1923. The first licensed services began later that year. (Mackay, 1957: 19-20)

Suddenly, the Commonwealth found itself a supposedly controlling shareholder in a burgeoning media business, competing with newspapers, recorded music and cinema, and an aspirant manufacturing business, producing small, easy-to-operate wireless receivers for the retail trade rather than big, complex high-technology equipment for shipping, the military and high-speed telegraphy.

The last of the Commonwealth's capital contribution was not called up until the early 1940s, when a big share of AWA production capacity was turned over to the war effort. (AWA Annual Reports, 1939/40-1944/45) By then, wireless was being used for international telephony and still-picture transmission as well, and the BBC had opened—and shut—a television service.

Originally intended for international telecommunications, redeployed to the entertainment industry, finally required for defence, the public investment in AWA showed just how sharply the uses of technology and the business strategies of organisations that use it can change.

Despite the expansion of wireless into areas not specifically anticipated by the 1922 partnership, one application that was an important element of the initial plan did not develop as expected. The Government coastal wireless network sold into the partnership was upgraded, as promised, but it was never turned into a high capacity feeder network for the international services. AWA set up receiving counters for telegrams in the central business districts of Sydney and Melbourne and teams of messengers—'Beam Boys'—to collect and deliver messages in the suburbs. Beyond that, it relied on the Post Office messengers and landline telegraph system as the local distribution network for international telegrams sent 'Via Beam'. Wireless didn't become a fully-fledged, national 'facilities-based' competitor to the Post Office cable network.

Market power

The public private AWA's power and aspirations in several markets created conflicts for its major shareholder. In broadcasting, the company controlled patents that were initially vital for aspiring manufacturing rivals. The Commonwealth was both a shareholder benefiting from their aggressive exploitation, and a policy-maker, called upon to ensure open, affordable access to assets that were critical to the future of a vital new industry and social activity. It achieved this by requiring AWA to make its patents available to all-comers but granting it a share of the licence fee paid by each listener for the right to operate a radio receiver. (Inglis, 2006: 11)

AWA also wanted to own and operate radio stations and even aspired to be *the* national broadcaster, like the BBC. It promoted its hybrid public private structure as the ideal way to mix the strengths of the two sectors in broadcasting as in international telecommunications. (Fisk, 1932) The Government was far too interested in a BBC all its own to be tempted by a public private national broadcaster. It established a new, wholly-public ABC while retaining licensed commercial stations, combining the strengths of the sectors in a dual system rather than a dual organisation. AWA managing director Fisk eventually endorsed the idea. After interviewing him, the *New York Times* reported that Australia offered listeners an 'Ethereal Utopia'. ('Australia's Plan', 1935)

Financial performance

Financially, the public private partnership performed well after the barren early years when it was building the infrastructure for the wireless services and paying no dividends. In the first full year of operation of the international services to Britain and Canada, wireless took nearly half Australia's international telegraph business away from cable, and AWA started paying close to the 10% return on capital Hughes had promised. Traffic slumped in 1930/31 but then returned to growth. The young broadcasting business defied the global Depression and appears to have contributed much more to profits at this time. (Given, 2007: 405-6 and Appendix 3)

The market value of the Commonwealth's shares grew 3.1-fold from the time of the recapitalisation in 1922, to January 1945. This was better than Australian stock prices generally, which grew 2.8 times over the period. (Given, 2007: 406) Hughes and the company made much of this financial performance but it is impossible to tell from the available data whether it was generated by the international wireless services that had motivated the original Commonwealth investment, or the new areas of the wireless business that opened up after it. (Given, 2007: 405-6 and Appendix 3)

Ending the arrangement

The Labor Party never altered its view that international wireless should be a public monopoly, like domestic telecommunications. Soon after the international wireless telegraph services opened, the conservative side of politics came to this view as well and

it appears to have been bipartisan policy during the 1930s, though not implemented. Menzies' Cabinet rejected a plan for the Post Office to take over the services in 1940, agreeing only to 'the principle of co-ordination of communication services during the period of war'. (External Cable and Wireless Services)

Public private ownership of Australia's international wireless communications only ended after the governments of Britain, its Dominions and India agreed to re-establish the imperial communications system after the war by nationalizing their various private and part-private companies, including AWA in Australia and Cable and Wireless in Britain. It took a determined, co-ordinated campaign in several countries with Labor governments and a very large cheque from the Australian Government to buy the relevant assets from AWA. (Harcourt, 1987: 227-49) Even then, Labor kept the bare majority shareholding in what became purely a manufacturing company. Menzies' Liberals sold it in 1951, but kept international telecommunications (OTC) state-owned. ('Government to sell', 1951)

Throughout the 1930s, AWA resisted every effort at nationalisation of the international wireless services that public investment had been designed to support. Its main weapons in this long campaign were personal, legal, promotional and fiscal. Fisk at AWA was close to the Attorney-General in the Lyons administrations, Robert Menzies, who appointed the AWA chief to a war-time economic co-ordination role when Prime Minister in 1939-40. AWA insisted massive compensation would have to be paid if the Commonwealth unlawfully terminated its contract with the company, thereby depriving it of valuable rights. Although half of that deprivation would be suffered by the Commonwealth itself as the bare majority shareholder, the rest would be suffered by private shareholders. On their behalf, AWA made it clear it was up to any fight the Commonwealth wanted to start. In the meantime, amid the gloom that was the 1930s, it relentlessly promoted its achievements as Australia's National Wireless Company and cranked out dividends to grateful, conflicted treasurers.

The National Broadband Network: history's child?

The public private AWA was highly successful by most measures but permanently fraught. There are striking similarities between its political and industrial origins and those of the National Broadband Plan—a political, technical and fiscal opportunity, a Prime Minister with freshly-endorsed power, a perception of complacency or crisis in Australia's uptake of a new technology with big economic and social implications, dissatisfaction about the process used to award a large public subsidy to fix the problem, and concerns that, if successful in its bid, Telstra, like AWA, might get the better of the government in the negotiations: 'the people will find the money and the company will run the show'.

After its election in November 2007, Kevin Rudd's Labor Government invited proposals for the National Broadband Network in April 2008. The Government will contribute up to \$4.7 billion as debt or equity to an open access fibre-to-the-node or fibre-to-the-premises network offering minimum download speeds of 12 megabits/second to 98 per

cent of Australian homes and businesses within five years. (Conroy, 2008b; and see Policy Briefs, 2008) Proposals are now due in late November 2008. (Conroy, 2008a) The policy marked both acceptance and a sharp shift in the direction of telecommunications policy set by the Coalition Government. It had sold a sixth of the Commonwealth's shares in Telstra in 1997, a third in 1999 and a further third in 2006, transferring the remaining sixth to the Future Fund in February 2007. From the proceeds of privatization, \$2 billion was set aside for a Communications Fund to finance future investment in communications upgrades. Labor will notionally apply this money plus a further \$2.7 billion from the sell-down of the 2 billion Telstra shares held by the Future Fund and worth \$8.5 billion at 30 June 2008. (Future Fund, 2008) It said the old objective of improving telecommunications services was 'difficult to achieve purely through the passive, residual ownership of Telstra'. The public capital still invested in Telstra 'will achieve more economic benefits for the Australian people through direct investment in broadband'. (ALP, 2007)

The National Broadband Network will be a deliberate public private partnership constructed out of the remnants of a residual one. There is no danger that this broadband partnership will not have an end date, or detailed provisions for termination if either side fails to fulfill its obligations. Termination provisions have been critical for state governments that are held publicly responsible for the continuing delivery of services when public private partnerships go wrong. But the AWA experience highlights the importance of the duration of the partnership. The longer it goes, the more likely it is that the activities of the subsidized enterprise shift beyond the scope of the original arrangement and perhaps even conflict with it. If the reason the Government is providing the subsidy is because it has decided that this infrastructure is going to be a bottleneck or 'natural monopoly', how long is it expected that this monopoly will last? If part of the arrangement is a prohibition on over-building, how long should that endure? The last 'natural monopoly' in the fixed customer access network has been going for a century and its continuing rude health is the reason the whole deal is happening in the first place.

Technology choices are critical to the broadband partnership just as they were to AWA's international wireless services. Networks extending fibre closer or all the way to customers' premises are already being deployed on a small scale in parts of Australia and on a large scale overseas, so they may not seem to require the kind of bold technical gamble taken on Marconi's untried short-wave technology in the 1920s. But the particular equipment and network architecture chosen and the speeds they deliver are no less capable of embarrassing the broadband partners than the Beam System. In the long-term, trans-ocean wireless telegraphy and telephony were destroyed by competition from improved submarine cable technology. Some argue that the fibre customer access networks being built around the world are already redundant. 'Who's worried about fibre to the node or home anymore?' asks the CEO of wireless internet company, Unwired, David Spence. 'It's to the individual or the device. The home is history.' (Fell, 2008)

Market power is a major reason the Government is prepared to spend \$4.7 billion on a new broadband network. It assumes a national fibre-to-the-node network will be a natural monopoly. Billy Hughes gambled the Commonwealth's money in the 1920s on the idea

that electronic communications was *not* a natural monopoly, that the new technology of wireless could sustain a disruptive competitor to the cable companies across the oceans, and to the Post Office at home. He gave the money to an entrant rather than the incumbent Post Office, though it was an entrant with good, if mistrusted, international connections.

Financial performance is a trap for public private partnerships. Perform well, and they are criticised for milking their privileged positions. Perform badly and they are belted for wasting taxpayers' money. The long duration of the AWA arrangement helps the historic evaluation of it, because returns improved so much after the early years when the infrastructure was being built and no dividends were paid. With nearly half its shares publicly-traded, AWA's overall financial performance was always scrutinized by the market, but the contribution of the activities that were supposed to justify the Commonwealth's shareholding, the international wireless services, was never clear. If the partnership needed to be defended, the company and its political architect could point to sound overall financial performance in tough economic times, lower rates for overseas telegrams and popular services. The public backer of the broadband network in the 21st century might also choose to emphasise the wider service coverage and lower prices that its subsidy generates ahead of the rate of return on its funds, but a contemporary Audit Office is likely to make the scrutiny much more intense.

Conclusion

Since the late 1990s, fast, affordable broadband has become a major product for the telecommunications industry around the world and an important policy concern for governments. The new-ish technology of fibre customer access networks has galvanized rethinking about the institutional forms that will be best able to deliver better broadband. Public private partnerships have come into vogue in other sectors of economic and social policy since the 1980s, and are being contemplated for broadband infrastructure. The Australian Government is committed to an arrangement of this kind, although the details are not yet settled.

AWA's experience as an enterprise jointly owned by public and private shareholders for three decades suggests that such partnerships can be simultaneously successful by most measures and fraught.

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