Chapter 6

The Future

Technical developments and convergence

6.1 Telecommunications is an area characterised by rapid technical development and convergence. During the short period that has elapsed since the Committee's final hearing and the preparation of its report there have been several developments which will significantly change the telecommunications environment in Australia. In particular:

- Telstra has announced that new testing showed that transmission limits for ADSL can be increased. Telstra estimated that this will extend ADSL availability to an additional 400,000 telephone services by the end of March 2004.

- Telstra announced that it will upgrade its CDMA mobile network to allow access to data services, including the Internet, at speeds of up to 144 kbps.

- Telstra signed an agreement which will allow it to develop a nationwide broadband service using two way satellite technology through a Thai owned ipstar satellite. Telstra claims that the new service will be cheaper than its current ADSL network.

- Foxtel will upgrade its pay TV service to digital in the first half of 2004 allowing it to offer a greatly expanded range of services.

6.2 The pace of development in telecommunications in the current regulatory environment raises issues about the availability and accessibility of new services. Earlier chapters of this report outline the concerns of people in rural and regional areas that they were being left behind the standard of service enjoyed by urban residents. Similar concerns were expressed by organisations representing people with disabilities. For many people in remote, rural and regional Australia the improvements in ADSL, CDMA and the Foxtel cable service outlined above are meaningless because they do not have access to these services anyway.

6.3 There are two avenues through which these concerns could be addressed. By retaining control of the Telstra network, or by taking a leadership role in the development of infrastructure, the Government could ensure that new services were made available to all Australians on an equitable basis. An alternative approach would be to recognise the importance on new technology in the regulatory regime by fully recognising the importance of data services. Unfortunately neither of these approaches is being pursued by the Government.

6.4 The proposed full privatisation of Telstra will remove it from Government control and expose it to even more pressure from the financial markets to put profits

ahead of services to its customers. In this environment there will be strong pressure on Telstra not to invest capital in providing services in remote, rural and regional areas where there will be a low return on investment.

6.5 Similarly the current regulatory regime fails to ensure that new services will reach all Australians. While it ensures that all Australians have reasonable access to voice services through the USO, it does little to ensure that people in remote, rural and regional areas have reasonable access to data services such as the Internet. It is not surprising that people in these areas are apprehensive about whether they will again be left behind as other new technologies and services become available.

Investment in the network

6.6 A key question relating to the future of the Australian telecommunications network is whether the current and projected levels of capital expenditure (capex) will be sufficient to maintain adequate levels of service. Throughout the Committee's inquiry concerns were raised about Telstra's falling levels of capital expenditure.

> What we are aware of however, is the fact that some two years ago, on a national scale, Telstra's CAPEX budget was some $5 Billion. In the current 2002/2003 Financial year, the national CAPEX budget is some $3.5 Billion and the CEO is on the public record as suggesting CAPEX in 2003/2004 to fall "below $3 Billion." (See Attachment 1)[1]

6.7 In response to a request from the Committee Telstra provided the table below which outlines its capital expenditure from 1998 to 2004. The table shows a decline in capex from $3,754 million in 1998 to an estimated $2,900 million in 2004. This represents a fall from 21.7% of revenue in 1998 to 15.5% in 2003.

Telstra Capital Expenditure[2]

				Year Ended 30 June			
	2004	2003	2002	2001	2000	1999	1998
		(in $A millions)					
Switching		376	661	735	647	626	756
Transmission		378	416	429	693	602	584
Customer access		959	929	1,004	1,315	898	778
Mobile telecommunications networks		449	255	390	628	616	340
International telecommunications infrastructure		193	233	172	125	138	143
Capitalised software		555	559	737	599	502	237
Other		454	553	677	722	926	986
Operating capital expenditure		3,364	3,606	4,144	4,729	4,308	3,824
Less Non Domestic Capex spend		187	172	93	70	70	70
Core Domestic Operating Capex (incl Cap Interest)	**Around 2,900**	**3,177**	**3,434**	**4,051**	**4,659**	**4,238**	**3,754**

1 CEPU Tasmanian Communications Branches, Submission 133.

2 Telstra, Submission 107d.

6.8 The Australian Telecommunications Users Group submitted that this decline in capex was the result of pressure from the financial markets since the partial privatisation of Telstra:

> The interest of the financial sector in the industry since 1997, when T1 was issued, has had significant influence on industry directions. It has also created unforeseen tensions between the interests of the shareholders and the interests of the end users. In 2001/02 the capital market is saying: reduce capex, improve earnings and cut costs. The impacts on users will be higher prices, reduced levels of service and possibly delayed innovation.[3]

6.9 Telstra advised the Committee that the falls in capex have had some specific causes, such as the decline in the construction of new mobile networks:[4]

> Prior to 2000-01, our capex expenditure on the access network was approximately $942 million. That was actual capex expenditure in the narrowband component of our access network. If you recall, that was the year that Sydney hosted the Olympics That was a substantial increase in our investment that year and for all the right reasons: diversity, security et cetera of approximately 10 per cent from the year before, which was the 1999-2000 year. The year after that, which was 2001-02, we did have a reduction of 11 per cent, to $838 million, and in 2002-03, this current year, we have a one per cent reduction in access narrowband. Obviously, we have also had a major increase in that time in the broadband network. To do that we have gone from $30 million in year 2000-01 to $130 million this year. So it has been a quite significant investment in our growth. How have we done that I think that is one of the questions you were alluding to and why has there been a reduction in one? That is the balance of trying to get growth and maintenance programs aligned. At the end of it we are certainly looking at an outcome for the customer, and that outcome needs to be driven by the investment but also the overall customer service.[5]
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> For example, in the last five years Telstra has committed close to $5 billion in upgrading and developing its network what we describe as the CAN. As I said, our capex over that period has been around $5 billion. To put that into context, that is pretty well more than the New South Wales government spent in six years on staging the Olympics. This expenditure on upgrading the technology used in our network and on the delivery of a more robust network has allowed Telstra to deliver significant consumer benefits in the form of substantially lower telephone call charges and I think that has been

3 Australian Telecommunications Users Group, Submission 89.

4 Mr Bill Scales, Group Managing Director, Regulatory Corporate and Human Relations, Telstra, Committee Hansard, 19 May 2003, p 770.

5 Mr Anthony Rix, Executive General Manager, Service Advantage, Telstra, Committee Hansard, 19 May 2003, p 770.

> well recognised and is on the record as well as reduced maintenance requirements and lower costs in general.[6]

6.10 Notwithstanding these reassurances from Telstra the Committee remains concerned that Telstra has little incentive to invest in infrastructure in light of its dominance of the network and the pressure on it from the financial markets to minimize capex. The reduced investment in infrastructure is likely to impact on innovation, the development of new services and the maintenance of existing infrastructure. This is likely to have its biggest impact in regional and rural Australia where the returns on capex are likely to be lowest and would be further exacerbated by the full privatisation of Telstra. One submission to the Committee expressed the concerns of rural Australia in this way:

> Privately owned telecommunications systems are unlikely to invest in low return areas such as rural Australia, where, arguably, the need for excellent telecommunications is greater than that in cities.[7]

6.11 There is clearly a need for long term government involvement and leadership in telecommunications infrastructure, particularly in relation to rural and regional Australia. The future development of Australia's telecommunications network is too important to be left solely to the decisions of profit driven private businesses.

Demand aggregation

6.12 Demand aggregation is a general term to describe the process under which the users of telecommunications services combine to offer a single contract for the supply of all of their telecommunication needs. By combining their demand they gain greater bargaining power with telecommunications providers and may be able to offer a large enough customer base to a carrier to justify the provision of new infrastructure. The principle of demand aggregation, and its advantages for remote communities, were outlined in the submission from Optus:

> There are some policies that governments can use which minimise distortions in private sector investment. One such policy is through the aggregation of public sector demand, which creates a market sufficiently large to provide an incentive for private investment in regions where normally it may not be profitable. While this demand aggregation policy has a national as well as regional basis, initiatives at the regional level are the most common in most countries. In such an initiative, the government enters into a partnership and shares the cost with the private sector to build the network supported by public sector demand. Yet, the government has to

6 Mr Bill Scales, Group Managing Director, Regulatory Corporate and Human Relations, Telstra 19 May, p 584.

7 Ms Roslyn Joseph, Submission 32.

> be careful when it 'asks' private companies to provide regional network in order not to reinforce the dominant position of incumbents.[8]
>
> However, overall, achieving scale is promoted by encouraging partnerships between carriers, industry and communities, rather than making funding available to individuals or small groups. Such a strategy will:
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> > deliver better outcomes for remote communities, lower prices and greater choice;
> >
> > put alternative providers in a stronger competitive position to compete against the incumbent and expand their service offerings; and
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> > drive broadband services further into remote communities. As service costs reduce through scale and scope, the potential for these services to be delivered to even more remote, less economic communities increases.[9]

6.13 Some examples of successful aggregation projects were brought to the attention of the Committee. One example is the Reefnet established in Queensland with the support of the Queensland Government. This development has increased infrastructure competition on the main telecommunications backbone on the Queensland coast as well as lowering prices on that route:

> The Queensland government has pursued a very strong policy of demand aggregation, not just to get cheapest costs in telecommunications but to achieve better infrastructure outcomes. …. By marshalling your purchasing power you can actually achieve some good infrastructure outcomes. One example thus far is the Reefnet. There is now competitive fibre up the coast of Queensland between Brisbane and Cairns. There was not a business case to do it, I might add, in the absence of government support. Optus and Leightons with AAPT have built the Reefnet. To support that, $23½ million a year over five years is being spent. How much does that cost taxpayers? Zilch. No money has to be used to build that infrastructure; it is money that we would have already spent. We spend $172 million year on telecommunications in Queensland. All we did was marshal some of that spend and after five years we will go and spend the money somewhere else.[10]
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> …. the primary reason we did the Reef Network was for competition. As the minister pointed out, there was no competition; there was only one carrier, Telstra, when we put that in place. There are now five carriers on there. As to the specific question of the two-thirds reduction, that is a real

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8 OECD, quoted by Optus in submission 91.

9 Optus, Submission 91.

10 The Hon Paul Lucas, Minister for Innovation and Information Economy, Queensland, Committee Hansard, 30 April 2003, p 531.

> figure. In some cases it is actually more than that. That is an average. I know that two or three years ago a two-megabit link from Cairns to Brisbane cost about $125,000 a year. It is now $25,000 a year for the raw bandwidth. Sure, you have to add the extra costs for the tails onto that, which maybe takes it up to $40,000 or $50,000, depending on where you are, but that is where that figure comes from. It is actually even better than that in some cases. I realise that not everybody wants to buy two-megabit links, so that cost saving is primarily concerned with the larger bandwidths, which are really what we are trying to get into the state anyway. It will take some time for those cheaper bandwidths to flow through into individual telephone calls and data services, but the primary point of having the competition there was so that they would eventually flow through.[11]

6.14 The Queensland Government has also used a similar approach to promote improved mobile phone infrastructure:

> Mobile telephony is another issue that is important in a state like Queensland. We used to have 100 mobile telephone plans operating for public servants. I imagine taxpayers in Queensland would not have been too keen to know that in other words, when anyone wanted a phone they just got whatever the plan was. We have now been able to go to the carriers to ask them what they will do in terms of pricing, and we will end up with four pricing plans. Four carriers have submitted their proposals, and a number of them will involve some infrastructure outcomes. So, again, by marshalling our spend and the process is not finalised yet the question was what additional mobile telephone towers can we get in places. Putting aside the question of the $30 billion that they got from the sale of Telstra, there is no question in principle why the federal government cannot use its spend to do that as well. Frankly, I do not care how they pay to give fair coverage to people between Mount Isa and Townsville; it is just the fact that they do it.[12]

6.15 The Queensland Government is also looking at a similar proposal to aggregate demand in rural and remote communities:

> Our SmartNet proposal is about aggregating demand for bandwidth in rural and remote communities. If you like, instead of having a small pipe for the hospital, a small pipe for the police and a small pipe for the school, you get a big fat pipe that benefits of all of them, including the local community.[13]

6.16 The importance of aggregation as a means of promoting infrastructure development was emphasised in the submission from Optus. It cited both the Queensland Government's Reefnet project mentioned above and demand aggregation

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11 Mr John Spinaze, Director, Infrastructure Development, Queensland Department of Innovation and Information Economy, Committee Hansard, 30 April 2003, p 531.

12 The Hon Paul Lucas, Minister for Innovation and Information Economy, Queensland, Committee Hansard, 30 April 2003, p 537.

13 ibid., p 540.

by the Northern Territory Government as being examples of where it was able to invest in infrastructure because of demand aggregation by governments:

> The Northern Territory Government, for example, in its awarding of most of its business to Optus has embraced both the demand aggregation approach, and the approach of supporting new players to improve the competitive environment. The Northern Territory aggregated all of its IT&T spend into a whole of government arrangement for telecommunications and Internet through a five year contract worth over $110 million. Optus has committed to major infrastructure improvements in the NT and a range of value added services and industry development initiatives.[14]

6.17 Optus also cited the Commonwealth National Communications Fund program, which provided funds for the development of new infrastructure where aggregation could play a role:

> There is one recent Government funding initiative that has adopted this approach - the National Communications Fund (NCF). The NCF was developed as part of the Government's implementation of the Besley Inquiry recommendations. It provided for $50 million for telecommunications health and education services. Successful proposals needed to have matching funding from alternative sources, eg. state or territory governments and industry. The funds were available on a competitive basis, but allocated to the proposals that demonstrated they would be viable and deliver community benefit.
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> The NCF has been offered in a way that provides greater opportunity for alternative providers to compete against Telstra. The reason for this is that:
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> Unlike NTN, carriers were able to take the lead with proposals (in partnership with other agencies such as government departments) and by doing so develop proposals that deliver economies of scale and scope for competing against the incumbent;
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> Selection was based on wider benefits to communities, rather than the lowest cost. This created opportunities for new technologies that are more designed for delivering a range of services to a wide range of users. (Indeed existing technologies face greater hurdles cost effectively meeting broader community benefits.)
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> A good example of a proposal that has been successful under the NCF was Optus' proposal to deliver education services to New South Wales and Northern Territory School of the Air (SOTA), TAFE and indigenous communities explained earlier.[15]

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14 Optus, Submission 91.

15 ibid.

6.18 Another interesting example of demand aggregation is the Coorong project. The Coorong Communications Project saw the development of new end-to-end infrastructure for broadband data and voice services delivery into the Murray Bridge and Coorong regions of rural South Australia. Networking the Nation funding was used as a catalyst for the project which aggregated voice and data demand from the local municipal council, small businesses and consumers with the purpose of achieving lower charges and enhanced access to broadband. New broadband microwave infrastructure was built by Agile Communications between Murray Bridge and Adelaide, and by the Coorong District Council with the region encompassing Meningie, Tailem Bend and Tintinara.[16] Agile submitted that:

> The Coorong Communications Project is a nationally significant example of the successful creation of a new, sustainable, alternative to Telstra for Telecommunications service delivery in the bush. Sadly it is one of the few such examples that exist, despite the financial magnitude of the NTN grants process.[17]

6.19 Although the Coorong network was originally built around the provision of voice services and data services for local government, the new infrastructure has enabled Agile Communications to provide wireless and fixed line broadband services in areas where they were previously unavailable:

> There is a township called Murray Bridge in the Coorong area; we are delivering broadband services to a school in that area today, on trial, that exceed the speed of an ADSL service, using wireless systems. It all works fine and we are going to build more of it. Similarly, we are about to become the first company to deploy the Telstra style of ADSL on copper lines in a rural community that has no Telstra ADSL today. The township of Meningie, another community in the Coorong area, will have that going by about the end of June. That means that Meningie will be the first place in Australia to have faster broadband than that which Telstra provides, on the same copper lines that Telstra uses. That, for us, is a very positive example that the Coorong network is working.
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> The reason we have been able to afford to broadband enable that town is that the Coorong network connects that town back to Adelaide. So, having built a backbone that is sustainable, we can use it to deliver broadband services at the edges of that network[18]

6.20 Agile Communications' Managing Director, Mr Simon Hackett, told the Committee:

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16 Agile Communications, Submission 136.

17 ibid.

18 Simon Hackett, Managing Director, Agile Communications, Committee Hansard, 8 May 2003, p 579.

> We have put in nodes of that network simply by leasing capacity from other carriers in Sydney, Melbourne and Brisbane. In these places the business model is able to work. Ballarat and Bendigo are big enough to make a broadband model work, but Berri and Renmark are marginal. The townships in the Murray-Mallee area are so small that, really, they always get left out of this sort of situation. It is still the case that, once you manage to bootstrap them, you can keep them running….In our experience, for the sort of model we deploy, the limit of viability below which you cannot make it work without subsidy is around 25,000 to 30,000 people in a township.[19]

6.21 A further example of demand aggregation is the Norlink e-town process. Norlink is a community based company involving eight community partners based in the northern rivers region of NSW. It intends to provide broadband, voice and virtual private network services using wireless local loop technology.[20] Its CEO, Mr Keith Davidson, advised the Committee that:

> In 2001, Norlink received federal funding to establish an alternative local loop trial in the Northern Rivers using wireless and taking it to full commercialisation. This trial is being conducted in four communities in the Northern Rivers—Mullumbimby, Maclean, Kyogle and Lismore, which was added with the support of the New South Wales state government. To do this, we have developed what we call a prototype regional telco model that incorporates local ownership, partnerships, complementary use of existing infrastructure and community development—what we are calling the Norlink e-town process.
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> We believe that local community ownership is the key—particularly to identify real infrastructure needs, to reinvest locally and to build communities through the ownership and development of community development initiatives. We also recognise that communities cannot do this alone and the development of extensive partner relationships is important to success. These partnerships can include relationships with vendors, backbone providers, building partners and other carriers for other service offerings. Income from existing and new infrastructure will not deliver sufficient returns to the entity in the short term to ensure sustainability; therefore, the need to offer services over existing infrastructure is important, providing a strong base from which to grow. Most importantly, reinvesting in the community is key. Identifying areas of social and economic development can be enhanced by better telecommunications and by investing in these areas—for example, investing in IT skills and in the deployment of infrastructure to remote or more difficult access sites.[21]

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19 Simon Hackett, Managing Director, Agile Communications, Committee Hansard, 8 May 2003, p 581.

20 Norlink Communications Ltd, Submission 132.

21 Mr Keith Davidson, Chief Executive Officer, Norlink Communications Ltd, Committee Hansard, 30 April 2003, p 520.

6.22 Canada, a country with similarly vast distances and isolated communities, has shown the way with its Broadband for Rural and Northern Development Pilot Program (BRAND). It is essentially a program aimed at helping communities without broadband access to develop a community-based strategy for acquiring the technology.

6.23 The Committee was also advised of some practical difficulties and limitations on demand aggregation.

> The most difficult part of this whole process to achieve aggregation is: what is the process? Nobody has come up with a model on how to work it out. Who do you talk to local government, local businesses? Who is the driver of this process? Basically this comes back to one of the recommendations from the Broadband Advisory Group's report to encourage a brokerage system where people are specifically targeted to bring together all these community needs. But at what level you can do this government or individual business I really do not know.[22]

6.24 In advertisements in the national media in January 2004, the then National Office for the Information Economy called for applications from eligible regional, rural and remote organisations for funding for Community Based Broadband Demand Aggregation Brokers. The advertisement stated that funding for Demand Aggregation Brokers is a key element of the National Broadband Strategy, developed in response to the Regional Telecommunications Inquiry.

6.25 Witnesses also gave evidence about the practical limitations on demand aggregation. For example, Professor Eric Wainright, stated:

> There are some real barriers to university, government and business aggregation. The Queensland government, for example, is presumably going ahead with its SmartNet arrangements to allow Queensland government departments access to a better deal, no doubt, than they can get at the moment. But they cannot collaborate with us, because we are across the border. We cannot go into their deal; they cannot come into our deal. When you look at it on a city-by-city, town-by-town basis Innisfail, Ingham, Mareeba, Atherton; all the places around with a capacity of 10,000 to 20, 000 none of those communities can gain at the moment. And none of us can guarantee that in all of those smaller places we have sufficient demand to persuade Telstra, an energy company, Optus or anybody else to invest. At the end of the day, prices stay very high, even though a lot of the capacity is in the ground already. From an individual carrier point of view, they say, 'Show me five years of growth in demand and income coming in.'[23]

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22 Dr Sorin Barbulescu, Institute for Telecommunications Research, University of South Australia, Committee Hansard, 8 May 2003, p 567.

23 Professor Eric Wainright, Pro-Vice-Chancellor, Information Services and Technologies, James Cook University, Committee Hansard, 28 April 2003, p 449.

6.26 In evidence to the Committee Optus was critical of the approach taken by the Commonwealth to filling its own telecommunications needs. Optus criticised both the failure of Commonwealth departments and agencies to aggregate their demand, and the failure to take into account the wider public benefit in allocating government telecommunications contracts.

> The Commonwealth, on the other hand, has a "silo" approach to telecommunications purchasing that prevents creative leveraging. Agencies and departments make their own purchasing decisions albeit within a centralised framework managed by the National Office of the Information Economy (NOIE). The goal of the department or agency is to obtain the best commercial deal that it is able.
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> The limitation of this approach is that it can make the aggregation of demand by multiple agencies and departments difficult. Indeed, there has been a recent rejection of a whole of Government approach to IT&T outsourcing. While this may have a valid rationale, it means that demand aggregation is not feasible where it is most needed in regional areas. Although NOIE has examined mechanisms to aggregate demand for departments and agencies in regional towns Project "Golden" this initiative has not progressed. In Optus' view, it would be desirable for further resources to be provided to pursue this initiative.[24]
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> The other problem with the current approach is the potential missed opportunities that can arise from purchasing decisions being made purely on the basis of commercial interests and without regard to broader government objectives or the wider public benefit.
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> For example, assume a Commonwealth agency is tendering for the provision of bandwidth between central Australia, and the East Coast. One of the proposals of a bidding carrier is to build a new intercity fibre network to provide the service (such as to provide dual infrastructure with the incumbent). Under the current arrangements there would be no consideration by the agency (or the Government) of the benefits that would flow to consumers from the building of a new competitive network, as opposed to simply using an existing monopoly network.[25]

6.27 The importance of government demand aggregation was also recognized by the Small Enterprise Telecommunications Centre (SETEL) whose E-Commerce Forum Taskforce recommended that governments:

> Establish a program to promote Government (covers all tiers of government) demand aggregation and infrastructure development initiatives in regional

24 Optus, Submission 91.

25 ibid.

> and rural areas and to encourage greater participation by industry and regional action groups in support of e-commerce.[26]

6.28 In the Committee's view the Commonwealth could, and should, do much more to promote the development of alternative infrastructure by participating in demand aggregation arrangements. This is particularly important in remote, rural and regional areas where there is no effective infrastructure competition.

26 Small Enterprise Telecommunications Centre Limited, Submission 76.