

Separation of Telstra: Economic considerations, international experience

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1 Introduction

This report is in response to the Australian Government's request for thoughts and guidance in regard to *Regulatory Reform for 21st Century Broadband*. It has been prepared by WIK-Consult GmbH (a leading European research institute and consultancy on the economics and regulation of network industries) on behalf of the Australian Competitive Carriers' Coalition.

It is clear that Australia needs a new approach to the regulation of telecommunications. As the Government noted in its Discussion Paper, "...the overwhelming message from almost every submitter [of responses to the Government's previous consultation] was that the current regime does not work effectively to achieve its goals, and that it is failing businesses and consumers."¹

Efforts to introduce competition into the Australian telecommunications marketplace have largely failed. The Australian "light touch" negotiate/arbitrate regulatory system been rendered ineffective by slow-rolling and strategic litigation. Telstra remains one of the most vertically and horizontally integrated incumbents in the world.

There are a range of long-standing competitive harms that warrant urgent attention. Each is linked to a specific Telstra bottleneck. Individually and collectively, Telstra's exploitation of these bottlenecks represents a nearly insurmountable barrier to entry for a wide range of firms that would otherwise be viable competitors to Telstra. The failure of competition to emerge (and to grow as it should) appears to us to represent a substantial loss of consumer welfare.

Specific bottlenecks that are of concern include:

- Last mile fixed network facilities
- Back-haul facilities to large areas of the national territory
- Common ownership of the fixed network and of the HFC cable network
- Common ownership of the largest fixed and mobile networks
- Telstra's 50% interest in Foxtel, which in turn has exclusive control over substantial premium high value content

Exploitation of Telstra's control of these assets appears to be undermining competition by telecommunications competitors, cable operators (notably Optus), and mobile operators. Current regulation is clearly not up to the job of enabling competition.

¹ Discussion Paper (2008), Minister's foreword, page iii.

Action is appropriate at this time. The Government is correct in noting that “...rollout of the NBN as a wholesale-only open access network will fundamentally transform the competitive dynamics of the Australian telecommunications sector.”² That transformation does not justify inaction or delay, for a variety of reasons:

- Build-out of the NBN is expected to take some eight years. Delaying the benefits of competition would represent a substantial loss of welfare for Australian consumers and businesses.
- Consumers and businesses also bear the costs associated with the *risk* of any delay in the roll-out, or any failure to achieve the desired level of penetration.³
- Even when the NBN is fully built out, and even if it fully achieves its targets in terms of adoption, Telstra’s fixed network bottlenecks will continue to be relevant to large numbers of Australians (see Section 5.2).
- A Government-sponsored roll-out of alternative back-haul facilities is unlikely to reach all of the national territory.
- The wired NBN will, even if all goes well, still not reach 10% of the population.
- The Government’s initiatives will not, in and of themselves, do anything to correct for Telstra’s control over premium content.

Our key recommendations are:

- A relatively stringent functional separation of Telstra’s fixed telecommunications services, producing a wholesale-only access services entity with its own board and accounts.
- Imposition of a “bitstream” obligation (comprising access to end-users through Telstra’s DSLAM, and including IP-based back-haul, analogous to Telstra’s unregulated ADSL2+ offering).
- More effective regulation of carrier pre-selection capabilities, at least during the transition period.
- A full structural separation of Telstra’s HFC cable television operations.
- Divestiture of Telstra’s ownership interest in Foxtel, possibly coupled with additional protections to ensure that competitors have reasonable access to high-value premium content.

² Ibid.

³ We are optimistic about the Government’s plans, but it would be improper to ignore risk-based costs.

We realise that we are recommending strong medicine. It is warranted in light of the competitive and market structure of the sector in Australia, and the apparent inability of existing arrangements to rectify the situation.

We are not proposing any specific response to Telstra's joint ownership of fixed and mobile network assets. To the extent that Telstra continues to possess large fixed and mobile operations, it is important that other remedies be implemented effectively. To this end, regulatory tools to aid transparency in relation to areas where concerns arise about possible price discrimination and anti-competitive cross subsidy should be considered.

Chapter 2 reviews key papers in the economic and regulatory literature, with particular reference to Martin Cave's Six Degrees of Separation. Chapter 3 considers pertinent examples, including not only the familiar BT/Ofcom separation, and the functional separation remedy recently voted on by the European Parliament, but also several less well-known examples from the United States. Chapter 4 reviews the Australian telecommunications marketplace, and considers various aspects of Telstra's dominance. Chapter 5 reviews the key threshold question of whether regulation or separation will still be necessary after the NBN is fully deployed – contrary to what many have assumed, we believe that Telstra's dominance over copper-based infrastructure will still require an intensive regulatory response. The analysis is inspired by the Three Criteria Test, a simple analytical framework that has been in extensive use in Europe in recent years. Chapter 6 provides our concrete recommendations.

2 Economic and policy background on various forms of separation

There has been an increasing amount of literature on different kinds of separation in the context of the BT/ Ofcom undertakings and the planned establishment of functional separation as a remedy in European telecommunications regulation.

Martin Cave's "Six Degrees of Separation: Operational Separation as a Remedy in European Telecommunications Regulation" (2006) is viewed by many as the definitive paper. Cave (2006) emphasizes that separation is particularly useful to abolish non-price discrimination. It aims at achieving equality of access for affiliated and non-affiliated operators.

Cave distinguishes different forms of separation (See Table 1).⁴

Table 1: Different separation options.

Ownership separation (in whole or part)	
6	Legal separation (separate legal entities under the same ownership)
5	Business separation with separate governance arrangements
4	Business separation with localized incentives
3	Business separation (BS)
2	Virtual separation
1	Creation of a wholesale division
Accounting separation	

Source: Cave (2006), p. 6.

A combination of accounting separation and the creation of a wholesale division (1) is the most common *modus operandi* of telecommunications incumbents. Accounting separation itself requires separate profit and loss statements and balance sheets for the separate entities. This can be easily accompanied by the creation of a wholesale unit, with a dedicated management responsible for the production and supply of the relevant products. This, however, implies no guarantee of non-discrimination between affiliated and competitive access seekers.

⁴ The following sections build on Cave (2006).

Virtual separation (2) refers to the imposition of an obligation to achieve full equivalence in the services offered to internal and external customers without any physical separation of networks, signalling systems, or business premises. Virtual separation thus effectively requires a reengineering, but no change in the underlying production processes.

Business separation (3) involves physical separation, which requires reworking of underlying business practices. Its aim is to segregate particular assets and other inputs within a separate unit, which then trades using identical processes with both internal and external customers. The separation is, however, not complete; the firms' assets can be separated in different degrees.

Business separation with localized incentives (4) involves incentives for senior managers in the separated entity. Moreover, if externally imposed, it involves more detailed regulation not only of the transaction boundary and production processes, but also of the relations of production of the separated services. To prevent discriminatory behaviour of managers, managerial remuneration should be tied to divisional performance and (where possible) restrictions should be imposed on the movement of senior staff from the separated unit to the group.

Business separation with separate governance arrangements (5) expands the same idea. This type of separation requires the creation of a divisional board with non-executive directors independent of the group.

Business separation with separate governance arrangements could take the extra form of legal separation (6), a regime in which a separate board is created and separate statutory accounts are filed - all designed to emphasize and support the independence of the separated entity.

Running in parallel with the different separation options are enforcement mechanisms. These can be internal and external. The group itself can set up an independent complaints body to investigate the conduct of the separated entity or alternatively the regulator may investigate and impose sanctions for breaches of license conditions. Cave argues that an effective external enforcement system with a high level of deterrence can, to some degree, secure the achievement of goals. Equally, a well-designed incentive mechanism may relieve the pressure of enforcement.

With regard to the imposition of separation Cave (2006) emphasizes that detriments resulting from non-price discrimination should exceed the costs of imposing an operational separation remedy; in particular where those costs are not only those of changing the incumbents' business processes, but also of any chilling effect on investment in new assets, by both the incumbent and competitors.⁵ Cave lauds

⁵ See Cave (2006), p. 12.

extensive analysis carried out by Ofcom as an important prerequisite in the process of separating an incumbent operator.

In an earlier paper published in 2002, Martin Cave expressed his skepticism about the remedy of separation in telecommunications, although there might be circumstances in which the LoopCo (i.e. a vertically separated incumbent) would pass the cost-benefit test.⁶ Its benefits are regarded as limited and conjectural, and potentially adverse effects on network development as likely or significant.⁷ His skepticism builds on his expectations on the further development in fixed-link telecommunications, in particular the role out of fibre and corresponding changes in the network topology, particularly the disappearance of MDFs. He argues, that with the LoopCo model, the MDFs might remain as demarcation points between the separated divisions. A separation based on existing technology might therefore hamper future development. The implication behind is that, if LoopCo were created, these developments would require the co-ordination of investments between the LoopCo and a network operator, and thus, a common view of future revenue streams between wholesale and retail operators. To him, this seems hard to achieve.⁸

Cave and Doyle (2007) address the issue of investment incentives in the context of separation, too. They do, however, apply a different focus in comparison to Cave (2002). They study what would happen if an integrated operator wishes voluntarily to divest a particular set of activities, which might be its access business or its retail business. Cave and Doyle show case studies from other sectors, which offer insights on contracting designs, which have been developed to deal with transaction costs associated with separation. They also refer to the analysis of Gomez-Ibanez (2003) who finds the overall benefit of separation in telecommunications high and the overall costs low. They conclude not to put barriers in the way of proposals from operators who decide to separate vertically.⁹

A report on benefits and costs associated with structural separation published by the OECD in 2003 suggests to impose high burdens on the realization of functional separation. It concludes: *“Vertical separation is a significant intervention in the marketplace, with substantial and – unlike behavioral regulation which can be reversed – irreversible costs. (...) Only if regulatory authorities can show that the benefits are in excess of the costs, and that alternative regulatory approaches would not work, should consideration be given to the structural separation of the local loop.”*¹⁰

In the context of the review of the European Framework for Electronic Communication, the European Regulator’s Group (ERG), the association of European national

⁶ See Cave (2002), p. 25.

⁷ See *ibid.*, p. 31.

⁸ See *ibid.*, p. 29.

⁹ See Cave/ Doyle (2007), p. 38.

¹⁰ OECD (2003), p. 32.

regulatory authorities (NRAs), lobbied for the introduction of functional separation as a remedy available to national regulators. The ERG believes functional separation can be a supplementary remedy in markets where non-discrimination has been shown to be ineffective in dealing with problems of equivalence in wholesale markets.¹¹

¹¹ See ERG (2007), p. 9.

3 Case studies on different separation regimes

As a notable example of regulatory best practice, we draw on the Review of the Regulatory Framework that the European Commission, European Parliament, and the Council are rushing to try to complete work on. On May 6th, the European Parliament voted in favor of a version of the document that includes a provision to make functional separation available as a regulatory remedy to the NRAs of every European Member State. In the European context, this will be conditioned on the notion that there is a consistent problem with competition in the country in question. The document passed by the Parliament says that functional separation should be used only *“Where the national regulatory authority concludes that the appropriate obligations imposed under Articles 9 to 13 have failed to achieve effective competition and that there are important and persisting competition problems and/or market failures identified in relation to the wholesale provision of certain access product markets (...)...”*¹²

We will provide two additional case studies. One emphasizes the Ofcom/ BT undertakings, which are by far the most mature example of functional separation. The functional separation in the UK appears to have resulted in a substantial increase in the take-up of ULL. Some have argued that a simultaneous reduction in the wholesale price is responsible, but more likely the increase is a combined effect of functional separation and lower wholesale prices for ULL.

We also include U.S. experience. We expect the US experience to be particularly useful in providing examples of functioning separation regimes. This perspective will reinforce the discussion of how separation could best be implemented in Australia.

Our analysis starts with a discussion of experiences in connection with the establishment of Openreach in the UK. We then present and examine the role of functional separation in the context of the Review of the European regulatory framework for electronic communications. Finally, we deliver insights from the United States.

3.1 The Establishment of Openreach in the UK

Due to high connection fees and the inappropriate characteristics of the local loop product offered by BT Wholesale, UK competitors showed less efforts in climbing up the ladder in direction to LLU for many years. The number of unbundled local loops was negligible and the competition landscape was fragmented with many unprofitable small providers. BT successfully defended its monopoly in the provision of wholesale services, while its market shares in retail broadband declined to around one quarter. This resulted in vigorous competition that, in turn, had led to relatively low broadband prices.¹³ BT Wholesale was supplying its wholesale product to BT Retail and other

¹² Article 13a, No. 1.

¹³ See Ovum (2006), p. 10.

resale-based Internet access providers. However, there were serious concerns that BT Wholesale did not provide “equivalent” access to its sibling BT Retail and its competitors.

The functional separation of BT and the establishment of Openreach in 2004 was the result of Ofcom’s strategic review of UK’s telecommunications markets designed to set out a strategic direction for Ofcom’s activities in relation to telecoms. Its aim was to create a new settlement between the regulator, the companies, and citizens and consumers. After two decades of telecommunications regulation in the UK, Ofcom (2004) revealed a bleak picture of competition on the broadband market:

“Infrastructure-based operators continued to struggle to achieve scale, while network-based operators and service providers were frustrated by delays and inadequacies in wholesale access products such as indirect access, carrier pre-selection and wholesale line rental”.¹⁴[...]

*“Competition has delivered very substantial benefits to consumers in the last twenty years; for example, in terms of much lower prices and enhanced choice. But the clear consensus of the responses to Phase 1 was that even though substantial effort has been focused on it over the last twenty years, the problem of lack of equality of access has yet to be resolved. For example, C&W argued that: **In the world of broadband, BT was allowed to create an LLU product which was prohibitively expensive, not industrialised and not fit-for-purpose, which meant that it was entirely unsuitable for mass-market take-up. The result is that there is currently virtually no competition in broadband based on LLU.** [accentuation in the original]¹⁵*

The overall situation in the UK was interpreted in the following way:¹⁶

- the changeover from PSTN to IP-based networks,
- a competitive mobile landscape,
- a low level of fixed-mobile substitution
- a strongly regulated landline landscape, which had increased consumers’ benefits to some extent, but did not tend to sustainable competition.

As a consequence Ofcom considered three policy options:

- a significant reduction of ex-ante obligations and thus a deregulation of the entire sector,

¹⁴ Ofcom (2004), p. 53.

¹⁵ Ibid., p. 66.

¹⁶ See Ibid.

- a reference under the Enterprise Act enabling the Competition Commission to impose structural remedies such as a splitting up of BT and finally,
- the achievement of real equality of access.

Facing the danger of an enduring anti trust law procedure with ambiguous outcomes, BT offered Ofcom a set of undertakings *in lieu* of Ofcom making a reference to the Competition Commission under the Enterprise Act 2002 in June 2005.¹⁷ These undertakings finally resulted in the functional separation of its access and service divisions and the establishment of Openreach.¹⁸

To ensure workability and achieve real equality of access different measures were undertaken, including the establishment of the “Equality of Access Board” overseeing the work of Openreach, the introduction of a detailed code of practice to be followed by all employees,¹⁹ and several organizational changes ensuring a high degree of separation between Openreach and BT.

Due to its role as a precedent, the establishment of Openreach has been subject to some analysis, in particular with regard to its effects on investment incentives (both of BT and its competitors) and competition.

In the case of Openreach, the far reaching functional separation of its infrastructure and service divisions did not discourage BT from investing 10 billion British pounds to establish BT’s 21st century network (21CN). BT presumably realised that the functional separation of its access and service divisions would serve not only to avoid an enduring antitrust lawsuit with unforeseeable consequences, but would also effectively cement its dominant position in the wholesale market governed by Ofcom, and thus provide BT with increased planning certainty.²⁰ Investments of competitors on the UK market increased as well. An appropriate indicator for competitors’ investment is the number of unbundled local loops, which rose to more than 4 million lines in 2008.²¹

These well-known historical facts suggest that functional separation need not imply a reduction of investment; however, BT’s investments were primarily in the NGN core network, not in the access network. The migration to Functional Separation may have increased ULL investments by competitors, but ULL prices also declined dramatically at the same time, which is observable from Figure 1, contrasting ULL prices in Germany and the UK in 2004 and 2005.

¹⁷ See in detail Ofcom (2005a).

¹⁸ See Ofcom (2005b).

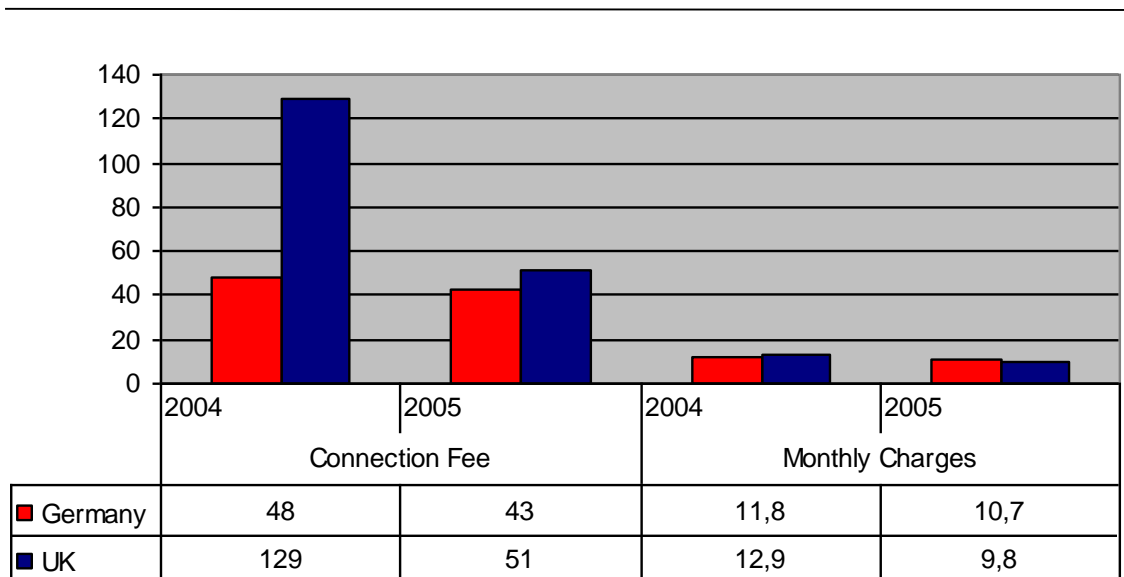
¹⁹ See British Telecom (2006).

²⁰ See Wernick (2007), pp. 161-163.

²¹ See Kiedrowski (2008).

In 2004 a connection fee of 129 Euros was charged by BT (converted into Euro), which declined to 51 Euro in 2005, while German competitors only had to pay 48 Euros connection fee in 2004 and 43 Euros in 2005. However, monthly charges were on a similar level with 11,80 Euro (2004) and 10,70 Euro (2005) in Germany and 12,90 Euro (2004) and 9,80 Euro (2005) in the UK.

Figure 1: Monthly charges and connection fees in Germany and the UK (in Euro).



Source: Wernick (2007), p. 143.

Similar was observable regarding the charges for shared lines. Competitors had to pay a connection fee of 61 Euro (2004) and 51 Euro (2005) in Germany, while BT charged 123 Euro in 2004, which declined to 51 Euro (2005), while monthly rental charges amounted to 2,40 Euro (2004) and 2,30 Euro (2005) in Germany and 3,30 Euro (2004) and 1,90 Euro (2005) in the UK.

The general reactions on the establishment of Openreach have been predominately positive. Kiedrowski (2008) gives insights on Ofcom's assessment:²²

- Residential monthly cost of a basket of fixed telecoms services has fallen.
- Residential market shows both growth and replacement of dial-up with broadband.

²² See Kiedrowski (2008).

- UK now has one of the highest broadband penetrations in Europe.
- Offers of bundled services increase and take-up gains momentum.
- The Undertakings have been effective for LLU operators (rise from 100.000 to more than 4.000.000 unbundled lines between 2005 and 2008).

Kiedrowski (2008) also names sources of dissatisfaction. They are associated with quality and timely availability of wholesale products.

Overall, however, benefits of the establishment of functional separation in the UK seem to prevail.

UK's experiences did also have impact on other European Member States. We observe serious discussions about introducing functional separation in some other Member States as well (e.g. Poland, Sweden and Italy). There are, however, legal difficulties in some Member States associated with imposing separation on incumbent operators. These legal barriers have prevented several NRAs from following this approach in the past.

The establishment of functional separation as a remedy within the amended European framework for electronic communication would remove these barriers.

3.2 Functional separation in the context of the European Framework for Electronic Communication

On May 6th, the European Parliament voted in favour of a version of the document that includes a provision to make functional separation available as a regulatory remedy to NRAs. In the European context, this will be conditioned on the notion that there is a consistent problem with competition in the country in question. The document delivers insights on the motivation of the Commission and the Parliament associated with integrating this far-reaching remedy in the European regulatory framework.

“The purpose of functional separation, whereby the vertically integrated operator is required to establish operationally separate business entities, is to ensure the provision of fully equivalent access products to all downstream operators, including the operator's own vertically integrated downstream divisions. Functional separation has the capacity to improve competition in several relevant markets by significantly reducing the incentive for discrimination and by making it easier to verify and enforce compliance with non-discrimination obligations. In exceptional cases, functional separation may be justified as a remedy where there has been persistent failure to achieve effective non-discrimination in several of the markets concerned, and where there is little or no prospect of infrastructure competition within a reasonable timeframe after recourse to one or more remedies previously considered to be appropriate. However, it is very

important to ensure that its imposition preserves the incentives of the concerned undertaking to invest in its network and that it does not entail any potential negative effects on consumer welfare (...). In order to avoid distortions of competition in the internal market, proposals for functional separation should be approved in advance by the Commission.”²³

Functional separation is designated to achieve full equality of access for all downstream divisions including vertically integrated downstream divisions of the incumbent operator. Article 13a No. 1 defines the Commission’s understanding of the term equality of access: *“That business entity shall supply access products and services to all undertakings, including to other business entities within the parent company, on the same timescales, terms and conditions, including those relating to price and service levels, and by means of the same systems and processes.”²⁴*

Functional separation is expected to distort incentives for discrimination and thus to increase competition. It’s application is, however, coupled with significant barriers: persistent failure to achieve non-discrimination in several markets and no prospect of infrastructure competition within a reasonable timeframe after recourse to one or more remedies previously considered to be appropriate. Furthermore, a functional separation has to be approved in advance by the Commission.

These rules are established in the new Article 13a. Article 13a No. 2 lists materials, which have to be submitted to the Commission during the approval process and thus defines the spectrum of analysis which has to be carried out by NRAs to justify this market interference. It includes:

- evidence that existing remedies have failed to achieve effective competition and evidence on important and persisting competition problems and/or market failures identified in relation to the wholesale provision of certain access product markets.
- a reasoned assessment that there is no or little prospect of effective and sustainable infrastructure-based competition within a reasonable timeframe;
- an analysis of the expected impact on the regulatory authority, on the undertaking, on incentives to invest in the sector as a whole and on other stakeholders including competitors and consumers;
- an analysis of the reasons justifying that this obligation would be the most efficient mean to enforce remedies aimed at addressing the competition problems/markets failures identified.²⁵

²³ See EU Parliament (2009).

²⁴ See Ibid, Article 13, No. 1.

²⁵ See Ibid, Article 13a, No. 2, a-c.

The draft measure has to include the following information:

- a) *the precise nature and level of separation, specifying in particular the legal status of the separate business entity;*
- b) *an identification of the assets of the separate business entity, and the products or services to be supplied by that entity;*
- c) *the governance arrangements to ensure the independence of the staff employed by the separate business entity, and the corresponding incentive structure;*
- d) *rules for ensuring compliance with the obligations;*
- e) *rules for ensuring transparency of operational procedures, in particular towards other stakeholders;*
- f) *a monitoring programme to ensure compliance, including the publication of an annual report.²⁶*

Following the Commission's decision on the draft measure, the national regulatory authority shall conduct a coordinated analysis of the different markets related to the access and shall impose, maintain, amend or withdraw obligations.²⁷

The information, which is required by NRAs according to Article 13a No. 2 (with regard to the proposal) and according to Article 13a No. 3 (with regard to the draft measure) represents helpful examples with regard to a potential separation of Telstra.

The first list exhibits a useful and comprehensive list of requirements, which should be fulfilled in order to avoid unnecessary market interference. This checklist will guide us during our analysis of Telstra's position in the Australian market in Chapter 4.

The second list exhibits a detailed roadmap of aspects which have to be taken into account in the process of the realisation of functional separation. This will serve as a valuable guideline in Chapter 6.

There is another new paragraph (Article 13b) dealing with voluntary separation by a vertically integrated undertaking. This seems, however, against the backdrop of Telstra's earlier behaviour, less relevant for Australia.

²⁶ Ibid, Article 13a, No. 3.

²⁷ See Ibid, Article 13a, No. 4.

3.3 Experiences in the U.S.

In the United States, the courts and the Federal Communications Commission (FCC) have employed various implementations of separation as a means to constrain the market power of dominant telecommunications. Most famous is the 1984 divestiture of AT&T, breaking it into a competitive long lines carrier and seven non-competitive Regional Bell Operating Companies (RBOCs). While the AT&T break-up is the most widely cited, there are numerous other instances where partial separation requirements were imposed on firms which were or would seek to be integrated telecommunications firms. These separations could be considered to be levels 5 or 6 in terms of Prof. Cave's classifications.

Here we present three distinct examples of the implementation of separation in the US, beyond the AT&T Divestiture, in order to demonstrate how a separation regime (properly implemented) can generate benefits. Many of these separations have been phased out as markets became more contested, and as anti-competitive behaviour becomes less of an issue; however, we feel that they had already achieved their goals. We begin with a description of the US FCC's so-called *Computer Inquiries*. Then we discuss how separation was used as a competitive safeguard when the RBOCs were allowed into the in-region long distance market at the end of the 1990s. Finally, we discuss the separation of cellular providers from incumbent local exchange carriers.

3.3.1 The Computer Inquiries

In a series of proceedings during the 1960s, 1970s, and 1980s, the US FCC was forced to deal with the question of whether the regulated Bell System should be permitted to offer new network-based services such as computer time-sharing. Their conclusions rested on making a distinction between *basic service* (later called *telecommunications service*) that constituted pure communications, versus *enhanced service* (later *information service*) that drew on communications but augmented it with computer processing, transformation or storage.

In 1966, the FCC initiated a proceeding, later known as *Computer I*, to address the question of whether and how to regulate access to computer-based networks.²⁸ In *Computer I*, the FCC was concerned that the incumbent telephone monopoly might discriminate unfairly against other enhanced service providers, or might unfairly cross-subsidize their (presumably unregulated) enhanced services from their monopoly regulated services. The decision thus focused on whether the service in question was a communications service or a data processing service. Data processing services were

²⁸ Reg. and Policy Problems Presented by the Interdependence of Computer and Comm. Servs., *Notice of Inquiry*, 7 F.C.C.2d 11, para. 16, 8 Rad. Reg.2d (P & F) 1567 (1966) (*Computer I Inquiry*).

left unregulated. Unfortunately, this approach created great confusion for services that contained both communications and data processing.

A decade later in 1976, the FCC was obliged to revisit its Computer I decision. In its *Computer II* proceeding, the FCC sought to clarify the distinction between communications and data processing services. The Computer I decision had inadvertently created a deluge of case by case determinations as to whether a hybrid service was to be regulated or not. Thus, the FCC created the distinction between *basic services*, which involve pure transmission of data, versus *enhanced services* where information is transformed, processed and/or stored. Computer II also recognized that microcomputers were becoming widely available and were being connected to the ends of telephone lines. "The new technology may also have rendered meaningless any real distinction between 'terminals' and computers."²⁹ In order to ensure fair access for these devices, the FCC required full separation between AT&T's enhanced service operations and its local exchange operations. This required the establishment of separate subsidiaries with separate employees and accounts within the seven *Regional Bell Operation Companies (RBOCs)*, subsequent to the AT&T Divestiture in 1984. These subsidiaries could obtain transmission facilities from the RBOCs which owned them on the same terms which the RBOCs offered to non-affiliated providers.

These separation requirements kept the RBOCs' market power at bay, but was felt to do so at the cost of the loss of certain economic efficiencies afforded by vertical integration. In 1985, the FCC felt the requirements limited "the ability of AT&T and the [R]BOCs to make unfair use of their regulated operations for the benefit of their unregulated, enhanced services activities."³⁰ In *Computer III*, the FCC abandoned its structural separation requirements and instead allowed RBOCs the ability to adhere to non-structural requirements. The non-structural separation requirements included:

- Accounting rules to allocate cost between basic and enhanced services;
- Rules to protect customer information;
- Conditions for handling the information regarding technical changes to the basic network;
- Implementation of Open Network Architecture (ONA) arrangements (setting out unbundled pricing for basic network features of enhanced services); and
- Mandatory filing of non-discrimination reports.

²⁹ Amendments of Section 64.702 of the Commission's Rules and Regs. (Computer Inquiry), Supplemental Notice of Inquiry and Enlargement of Proposed Rulemaking, 64 F.C.C.2d 771 (1977).

³⁰ Amendment of Sections 64.702 of the Commission's Rules and Regs. (Third Computer Inquiry), Report and Order, CC Docket No 85-229, 104 F.C.C.2d 958, 60 Rad. Reg.2d 603 at ¶ 3 (1986).

These safeguards were eventually supplemented, but not displaced, by changes to the existing law.

At the time, Computer III was hailed as a progressive and deregulatory step forward. In hindsight, it must be viewed as a serious blunder. Over the past eight years (from 2001 through 2008), competitors filed literally *hundreds* of complaints against RBOCs for violations of Computer III, but not a single enforcement action was taken.³¹ Within the FCC, it was claimed that Computer III was unenforceable.

Computer II made transactions highly visible, and created an easily enforced “bright line”. The murkiness of the standards set down by Computer III made it difficult to enforce with the best of intentions, and easy to ignore by a pro-business Bush administration.

3.3.2 Separate affiliate requirements under Section 272

In 1996, the US Congress completed an omnibus reorganization of communications law culminating in the passage of the Telecommunications Act of 1996. The Act imposed a suite of safeguards designed to prevent the RBOCs from exercising market power by leveraging regulated assets in order to engage in improper cost allocation and discrimination in their provision of interLATA communications services. Under the Modified Final Judgment of the AT&T Divestiture, the RBOC were prevented from offering communications services between so-called LATAs (Local Access and Transport Areas) within their service regions. There are 196³² LATAs based on geographic areas, originally specified by the Bell System itself, which demark the boundary between local and long distance services.³³

Specifically, Sections 271 and 272 of the 1996 Act set forth the requirements under which the RBOCs may provide intraLATA services. Section 271 provides the conditions under which an RBOC may provide such service and Section 272 sets out the requirements of the separate affiliate necessary. The statutory safeguards sought to address many of the same anticompetitive concerns as the *Computer Inquires*, but they were not intended to displace the safeguards established by the Commission in those proceedings.³⁴

³¹ There was one action against SBC for a misleading filing, but none for actual violations.

³² The MFJ originally specified 161 LATAs. Newton, Harry, *NEWTON'S TELECOM DICTIONARY*, Flatiron Publishing: New York.

³³ *Ibid.*

³⁴ Further Notice of Proposed Rulemaking, *In The Matter Of Computer III Further Remand Proceedings: Bell Operating Company Provision Of Enhanced Services*, CC Docket No. 95-20, 1998. *Biennial Regulatory Review -- Review of Computer III and ONA Safeguards and Requirements*, CC Docket No. 98-10, FCC 98-8 (January 30, 1998).

Under Section 272, an RBOC must establish a separate affiliate to engage in “competitive activities”, including interLATA services.³⁵ The affiliate is subject to the following separation requirements. The affiliate of the RBOC:

- Must have operational independence;
- Must have separate books, records, and accounts;
- Must have separate officers, directors, and employees;
- May not obtain credit secured against default by the assets of the RBOC; and
- Must conduct all transactions with the RBOC at arm’s length, in writing, and available for public inspection

Further, the RBOC was prevented from discriminating in favor of the affiliate and was required to provide comparable services to unaffiliated entities. The provisions sunsetted on three years after the RBOC was permitted to offer interLATA services. However, the FCC retained the authority to extend or reinstate such requirements.

3.3.3 Cellular separation

The FCC also imposed certain separation requirements on RBOCs in the provision of mobile service. Prior to 1997, the FCC permitted RBOCs to own a controlling interest in a corporation which sold mobile services; however, the RBOC and the subsidiary were subject to the following requirements:

- The subsidiary was not permitted to own facilities for the provision of landline telephone service. It could obtain transmission facilities from the RBOC on a compensatory, arm’s-length basis. Landline exchange and transmission facilities for the provision of cellular service had to be obtained the subsidiary on the same terms and conditions as those facilities were made available to other entities.
- The subsidiary had to operate independently in the provision of cellular service, including separate books; separate officers; separate operating, marketing, installation and maintenance personnel; and separate computer and transmission facilities.
- Research and development performed by RBOCs for separate affiliates had to be on a compensatory basis.
- Transactions involving the transfer of money, personnel, resources or other assets had to be in writing, filed with the FCC.
- The RBOC was prohibited from selling or promoting of mobile service; however, joint advertising or promotional efforts were permitted.

³⁵ Under this Section, competitive activities also include the manufacture and provision of telecommunications equipment and information services (other than electronic publishing).

- The RBOC could not provide customer proprietary information (i.e. names, addresses, and other information that the RBOC possessed by virtue of the customer relationship) to the subsidiary, unless such information was publicly available on the same terms and conditions.³⁶

In 1997, the FCC reviewed these regulatory safeguards, opting to apply them uniformly to all incumbent local exchange carriers (ILECs) and not just RBOCs for the provision of in-region mobile service. (Note that the United States has hundreds of small, local incumbents.) The Commission felt that such an approach would ensure fair competition, while imposing the least burdensome rules necessary to address the potential for anticompetitive behavior. The competitive landscape had changed somewhat since the creation of the original rules, thanks in part to competition facilitated by the 1996 Act. Thus, the FCC believed that ILECs and mobile operators were increasingly direct competitors and that such competitive pressures would make it more difficult to engage in discriminatory interconnection, cost-shifting, and anticompetitive pricing practices

However, ILECs (including RBOCs) were required to provide in-region mobile service through a separate affiliate. The affiliate was required to

- Maintain separate books;
- Not jointly own transmission or switching facilities with its affiliated ILEC that the ILEC used for the provision of local exchange services in the same in-region market; and
- Acquire any services from the affiliated ILEC on a compensatory arm's length basis pursuant to the FCC's affiliate transaction rules.

Telecommunications services acquired from the affiliated ILEC must be available to all other carriers on the same terms and conditions; however, the affiliate and the ILEC *could* share officers, directors, and other personnel. The prohibition that the affiliate could not own its own fixed network facilities and could not offer competitive fixed network local exchange service was removed. The FCC declined to impose any structural separation requirements where the ILECs where had no incentive and ability to use the control of "bottleneck" local exchange facilities to affect competition, such as out-of-region. Rural telephone companies were exempt from the separate affiliate requirement. The separate affiliate requirement expired on 1 January 2002; however, the FCC retained the authority to reinstate or extend such requirements.

³⁶ 47 USC 22.903.

3.3.4 Observations

A first lesson from these US experiences is that there are many ways to implement functional or structural separation, not just a single way.

A second is that all of the stringent approaches worked, more or less. That they were subsequently phased out (either because the market had become more competitive or else under arguably misguided US deregulatory policies) should not detract from that fact. They achieved what they were intended to achieve, when they were intended to achieve it. The separation that was demonstrably ineffective was Computer III, apparently because it was too “soft”.

Third, a closely related corollary is that relatively simple separations that establish bright lines that are easily enforced should be preferred over softer separations that potentially leave murky ambiguity and thus impediments to oversight and enforcement.

4 Concentration and cross-ownership in the Australian marketplace

This section of the report seeks to characterize the Australian marketplace as it exists today, and Telstra's role within that market. In the next section, we consider possible future developments, and in particular the degree to which the new incarnation of the NGN might change those relationships.

Telstra touts its status as the Australian number one operator in mobile telecommunications, fixed telecommunications, broadband, pay TV (50% owned) and directories.³⁷ Whatever advantages Telstra's pre-eminence might imply for its shareholders, it is problematic for Australian consumers.

The Government's consultation paper has itself captured the matter succinctly. It says:³⁸

The Australian telecommunications sector is characterised by ... a very strong incumbent. Telstra owns:

- the fixed line copper network that connects almost every home and workplace in Australia
- the largest hybrid fibre coaxial cable network, and
- 50 per cent of Australia's largest subscription television provider Foxtel

In addition, Telstra has a share of some 44% of the mobile market.³⁹

Collectively, this is an extraordinary arsenal of market bottlenecks. The barriers to new market entry are painfully high.

Section 4.1 considers Australian market characteristics in comparison to other developed countries. Section 4.2 discusses cross-ownership of fixed, mobile and cable television networks in Australia and in other developed countries. Finally, Section 4.3 expands on the previous discussion, comparing Telstra's dominance of the Australian market to that of incumbents in the largest European economies.

³⁷ See Telstra (2009).

³⁸ Page v.

³⁹ See ACCC (2008).

4.1 Characteristics of the Australian telecommunications market

Telstra continues to dominate the market for fixed voice services in Australia. ACCC (2008) concludes: “Telstra remains the dominant supplier of fixed voice at both the wholesale and retail level. The 9.76 million wholesale and retail voice lines provided over Telstra’s network accounts for 89 per cent of all fixed voice lines in Australia. More significantly 80 per cent of the lines on the network are retailed by Telstra.”⁴⁰ Furthermore, there is no observable trend towards more competition as can be seen in Table 2.

Table 2: Basic access and local call competition based on the percentage of subscribers.

	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07
Optus retail	7%	9%	9%	10%	10%	N/A ^(a)
Telstra retail	80%	76%	72%	70%	69%	71%

Note: (a) Due to a change in Optus’s reporting methodology, it is no longer possible to extract public figures for 2006–07.

Source: ACMA communications reports, Telstra financial reports and SingTel quarterly reports.

Source: ACCC (2008), p. 18.

This dominance is striking, particularly in comparison with European incumbents. The EU 27 observed a decline in incumbent’s market shares in fixed telephony from 65,8% (in 2004) to 62,96% (in 2007) [measured by volume of traffic].⁴¹ Looking at the incumbent market shares for voice telephony in the four largest European Member States is far more revealing. Deutsche Telekom’s market share in Germany’s fixed telephony market declined to 47% (all types of calls by minutes of traffic), France Telecom’s share declined to 55%, BT holds a market share of 56% in UK’s fixed market. Finally, in Italy 65% of fixed voice traffic is handled by the incumbent.⁴²

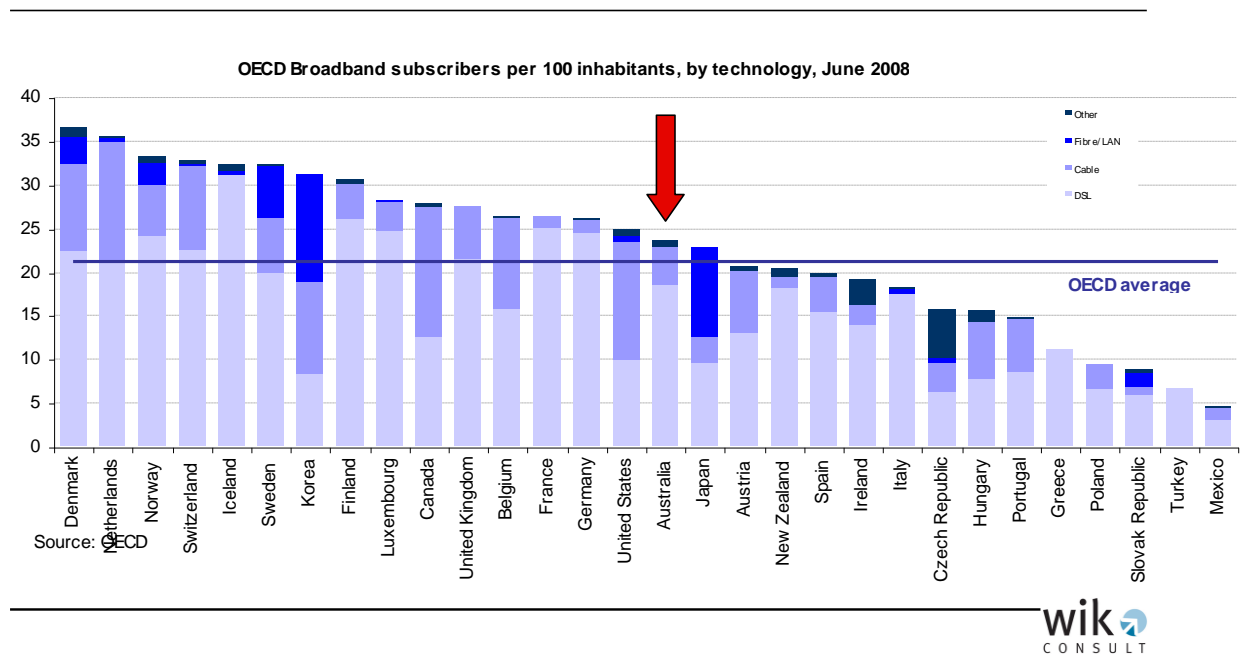
According to OECD broadband statistics, the number of broadband subscribers per 100 inhabitants in Australia as of June 2008 was slightly above OECD average and comparable to that observed in Germany, the United States, or Japan.

⁴⁰ See ACCC (2008), p. 19.

⁴¹ See 14th Implementation Report, p. 45.

⁴² See Ibid, p. 49.

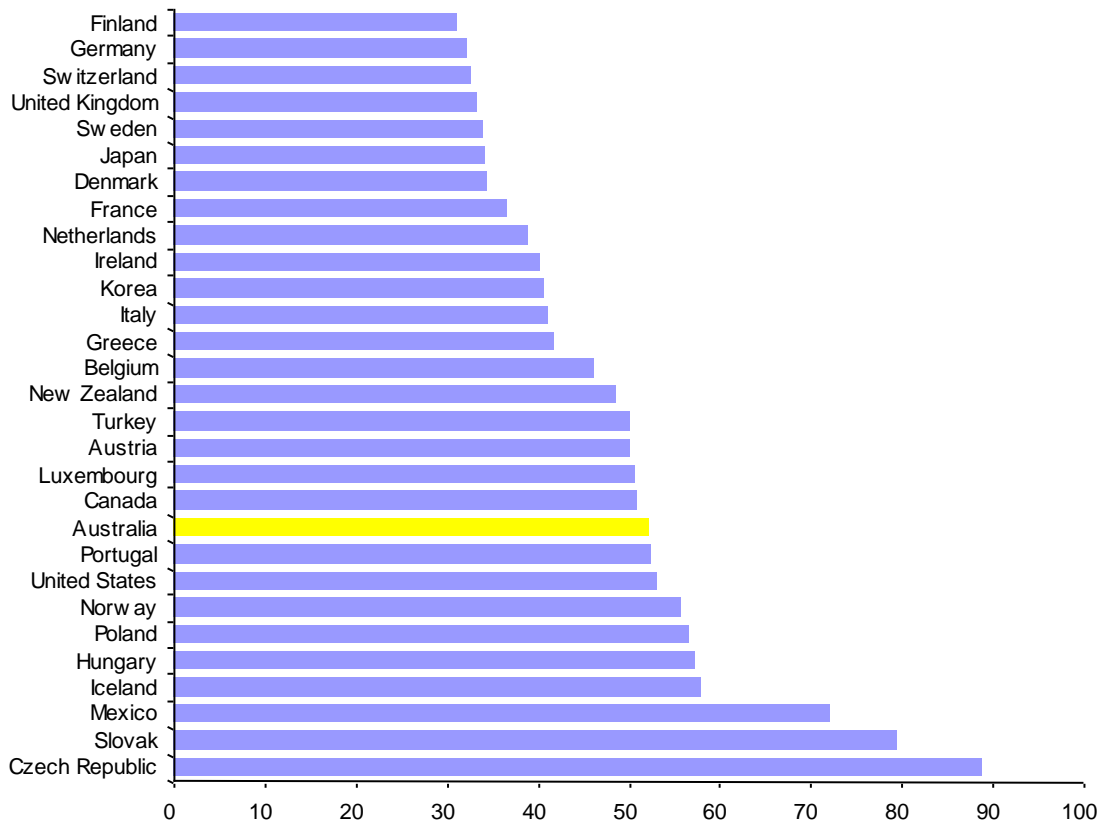
Figure 2: Broadband subscribers by technology.



Source: OECD

Retail broadband in Australia is, however, quite expensive as it is observable from Figure 3 and Figure 4.

Figure 3: Broadband average monthly subscription price, Oct. 2007, USD PPP.



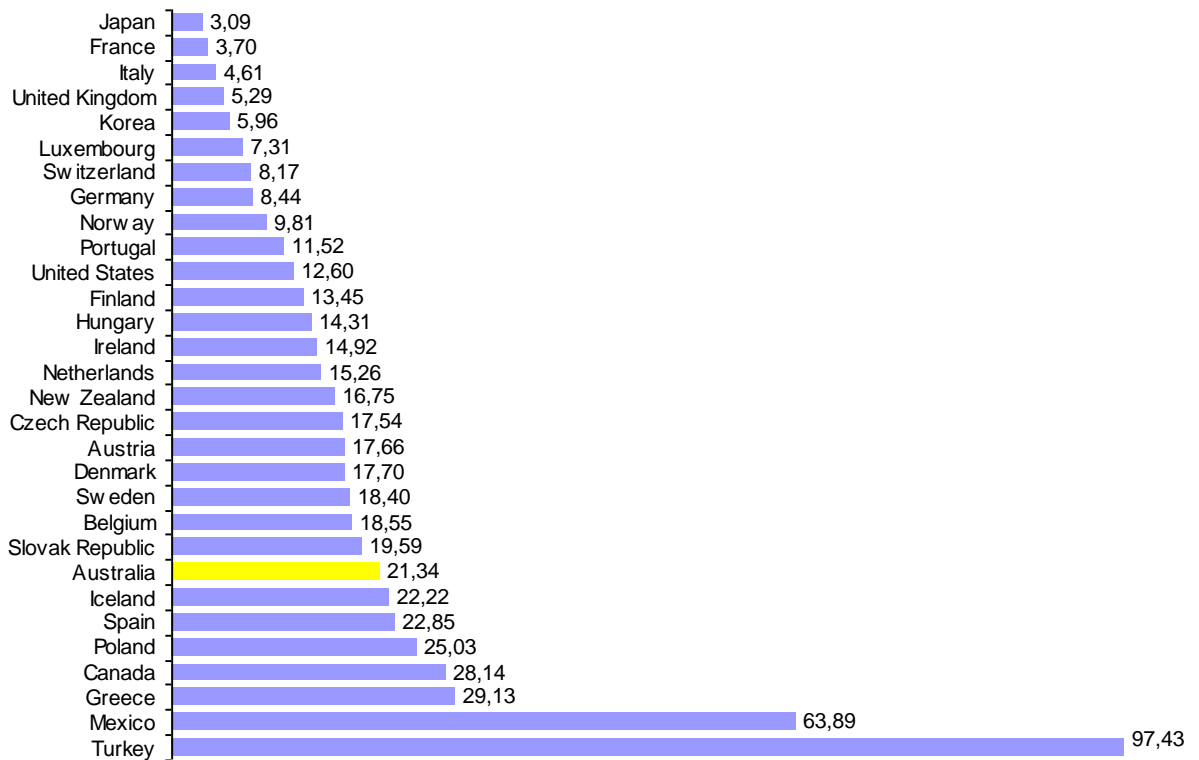
Source: OECD

Figure 3 exhibits the average monthly subscription price for broadband in OECD countries in USD under consideration of purchasing power parities. Monthly subscription prices in Australia exceed those of leading broadband markets such as the Netherlands or Denmark by far.

The high level of broadband prices becomes even more obvious if advertised download speeds are considered, too. Figure 4 compares the average monthly price per advertised Mbit/s. Prices per advertised Mbit/s in Australia are nearly 7 times higher than in Japan, 4 times higher than in the UK, 2,5 times higher than in Germany, and 69% higher than in the U.S.

These figures can be interpreted as an obvious sign for a lack of competition, which is due to Telstra's strong dominance on the Australian market.

Figure 4: Average broadband monthly price per advertised Mbit/s, USD PPP, October 2007.



Source: OECD.

The Australian broadband market rests heavily on ADSL, which accounts for 64% of Australia's broadband subscriptions (See Figure 5). Apart from DSL also mobile wireless and cable account for significant market shares on the broadband market. Other technologies play negligible roles only.

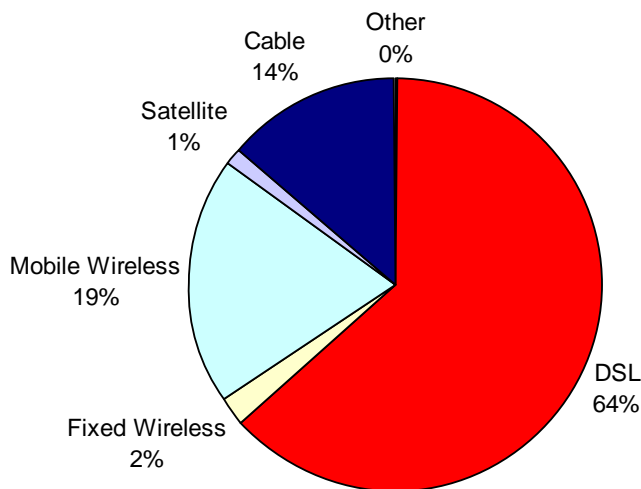
Telstra's DSL network covers more than 2400 exchanges. 459 (of 2432) exchanges are served by more than one infrastructure provider enabling customers to choose between two or more infrastructure-based telecommunications providers. This predominantly accounts for the major cities of Adelaide, Brisbane, Canberra, Melbourne, Perth and Sydney.⁴³ By the first quarter of 2007 Optus had installed equipment in approximately 304 exchanges. Other expansive DSLAM rollouts have been made by iiNet, PowerTel, Primus and TPG. LSS lines doubled from 152 000 at the end of 2005–06 to 304 000 at

⁴³ See ACCC (2008).

the end of 2006/2007. Moreover, we observe an increase in unbundled regulated services from 120.000 to 239.000.⁴⁴

Budde.comm claims that on the DSL market, 42,2% of customers are direct subscribers of Telstra. The remaining customers are divided into retailers and infrastructure based competitors..⁴⁵

Figure 5: Broadband penetration in Australia according to technologies (12/ 2008).



Type of access	Other	DSL	Fixed Wireless	Mobile Wireless	Satellite	Cable/ Other	Total
No. of Subscribers (in 1000s)	19	4.208	164	1.298	80	916	6.685

Source: Australian Bureau of Statistics.⁴⁶

Unlike many other incumbents, e.g. in Europe, Telstra is active on the market for cable broadband, too. Telstra and Optus are the largest operators of HFC networks in Australia. Both companies hold comparable market shares. At the end of 2006/07 Optus had 365.000 cable customers, while Telstra had 336.000 subscribers.⁴⁷

⁴⁴ See *ibid*, p. 31.

⁴⁵ See <http://www.budde.com.au/Research/2008-Australia-Broadband-Market-Overview-and-Statistics.html>

⁴⁶ See <http://www.abs.gov.au/ausstats/abs@.nsf/mf/8153.0/> .

⁴⁷ See *ibid*.

Over a joint venture with News Corporation and Consolidated Media Holdings Telstra also owns 50% of the leading Australian pay television company Foxtel. Foxtel transmits its cable service via Telstra's HFC Cable into the metropolitan areas. Foxtel also transmits its satellite service into these cities as well as the state of Western Australia and the cities of Newcastle, Geelong Victoria, Central Coast, Canberra and Gold Coast. However, satellite service is not available at user sites where Telstra cable is available. Foxtel's programs are currently delivered to over 1.5 million Australian homes either directly or by Foxtel's wholesale customers. Penetration into Australian homes reached 30% in April 2008.⁴⁸

In the mobile sector, Telstra represents the largest network operator, too. By mid of 2007 Telstra held a market share of 44%. Competing operators are Optus with a market share of 32% of subscribers, Vodafone (17%), and Hutchison (7%).⁴⁹

4.2 Cross-ownership of fixed, mobile, and cable television networks

Cross-ownership of mobile and fixed activities are very common in the telecommunications sectors throughout the world. However, cross-ownership of cable TV and telecommunications networks of incumbent operators as well as of content and transmission infrastructure have raised concerns of regulatory and competition authorities in the past.

In the case of cross-ownership of cable TV and telecommunications networks of incumbent operators, concerns arise due to technological and market *convergence*. Upgraded Cable TV and telecommunications networks can be used for the same services, and thus become economic substitutes for one another. Cross-ownership therefore implies the risk of collusive behaviour, to the detriment of competition and consumer welfare. Cross-ownership of exclusive content and transmission platforms raises concerns due to the bottleneck function of a broadcasting network with regard to access to its subscribers.

In Europe potential problems associated with cross-ownership of telecom and Cable TV networks by an incumbent in the same market had been taken into account with the introduction of Directive 99/64/EC on cable ownership in 1999. This Directive called at least for an organizational separation of cable and telecommunications activities of incumbent operators. As a consequence of this Directive, Deutsche Telekom decided to sell its cable TV activities.⁵⁰

⁴⁸ See <http://www.theaustralian.news.com.au/story/0,25197,23619723-7582,00.html>

⁴⁹ See ACCC (2008).

⁵⁰ See Marcus/ Stamm (2006).

In the context of establishing the new regulatory framework for electronic communications in 2002, this Directive became absorbed in the Competition Directive 2002/77/EC. Article 8 of this Directive deals with cable television networks:

1. Each Member State shall ensure that no undertaking providing public electronic communications networks operates its cable television network using the same legal entity as it uses for its other public electronic communications network, when such undertaking:

(a) is controlled by that Member State or benefits from special rights; and

(b) is dominant in a substantial part of the common market in the provision of public electronic communications networks and publicly available telephone services; and

(c) operates a cable television network which has been established under special or exclusive right in the same geographic area.⁵¹

Today, integrated ownership of telecommunications and cable networks is rather unusual in Europe. Currently, only five European telecommunications incumbents conduct business in the cable sector (in Denmark, Luxemburg, Hungary, Poland, and Finland).⁵² In some Member States incumbents have sold their cable activities, in others such as Austria and the Netherlands cable networks and telecommunications have traditionally been independent from each other.

4.3 The dominant position of Telstra on the Australian market

In the following, we will carry out comparative analysis in order to examine the degree of concentration exercised by Telstra on the Australian market. The six largest European incumbents⁵³ are used as benchmark candidates.⁵⁴ They seem appropriate benchmark candidates for the following reasons: Similar to Telstra, they offer telecommunications services nationwide and have been formerly owned by the government. They are subject to wholesale obligations such as LLU and Shared Lines and face growing competition from alternative operators.

Table 3 exhibits data on the market shares of Telstra and European incumbents.

⁵¹ Directive 2002/77/EC, No. 8.

⁵² See European Commission (2009), p. 103.

⁵³ measured by market value.

⁵⁴ These are Telefonica, Deutsche Telekom, France Telecom, Telecom Italia, KPN and BT. See Wernick (2009) for more detailed information on these carriers.

Table 3: Selected market data.

	Deutsche Telekom	France Telecom	Telefonica	Telecom Italia	KPN	British Telecom	Telstra
Domestic Fixed Voice Market Share	47%	55%	66%	65%	65%	56%	71%
Domestic Mobile Market Share	37%	43%	46%	40%	48%	0%	44%
Domestic DSL Market Share	49%	49%	71%	66%	83%	33%	42%
Domestic Cable Market Share	0%	0%	0%	0%	0%	0%	48%

Sources: WIK Analysis based on the European Commission's 13th and 14th Implementation Report; the ACCC's Division 11 report, and Budde.com.

Apart from BT, who had to sell their mobile activities after the burst of the Internet bubble, all incumbents are active on the fixed and the mobile market in their respective home market. On the fixed voice market, Telstra holds the largest market share of the companies under observation. A large gap is observable to Deutsche Telekom, France Telecom and BT.

Deutsche Telekom's affiliate T-Mobile and the Dutch incumbent KPN represent the extrema on the mobile market with market shares of 37% and 48%. With 44%, Telstra's market share is comparable to the shares of France Telecom and Telefonica.

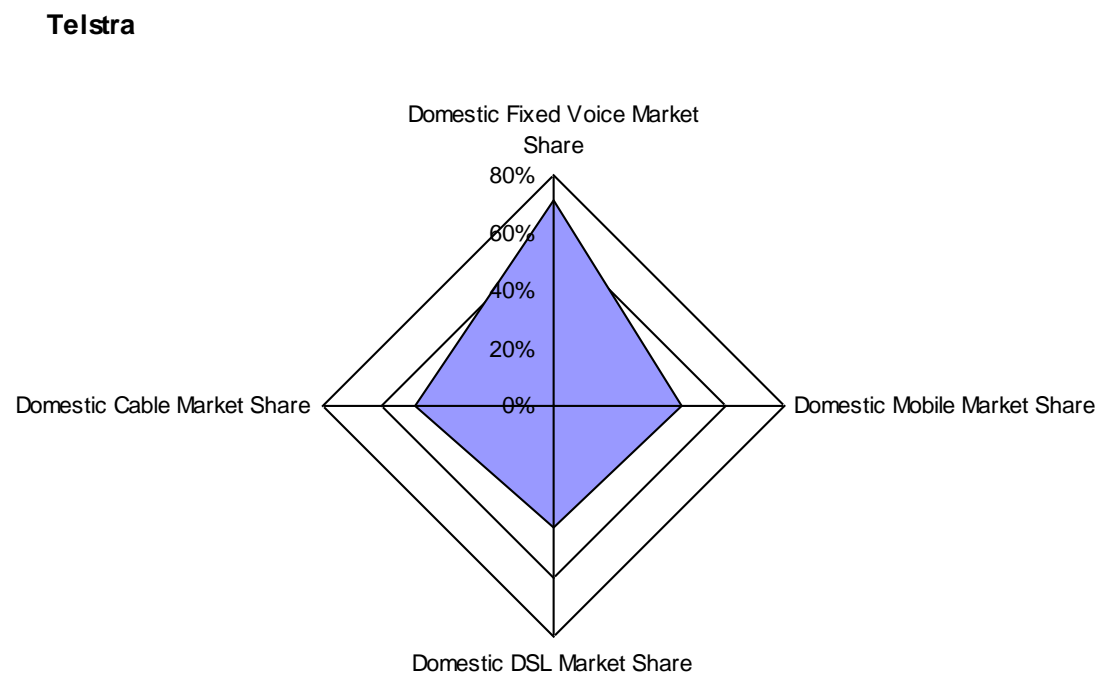
On the DSL market KPN holds the largest retail share with 83%; however, the Dutch market is characterised by strong infrastructure competition from cable operators. With 33%, BT has a comparably low share in retail broadband (without considering resale offers). Again, Telstra's market share is comparable to European incumbents such as France Telecom and Deutsche Telekom.

On the market for cable broadband, Telstra holds a market share of 48%. None of the six largest European fixed telephony incumbents is active on this market. Instead, they face competition from independent cable operators. This visualization underlines the large dominance of Telstra in Australia. Empirical research shows the positive effects of a combination of wholesale regulation and platform competition on broadband penetration. However, it is not likely to expect the same positive effects in an environment with incumbent cross-ownership of DSL and cable activities.

Figure 6 and Figure 7 visualize these results in net graphs for Telstra and selected European incumbents. This visualization underlines the large dominance of Telstra in Australia. Empirical research shows the positive effects of a combination of wholesale

regulation and platform competition on broadband penetration.⁵⁵ However, it is not likely to expect the same positive effects in an environment with incumbent cross-ownership of DSL and cable activities.

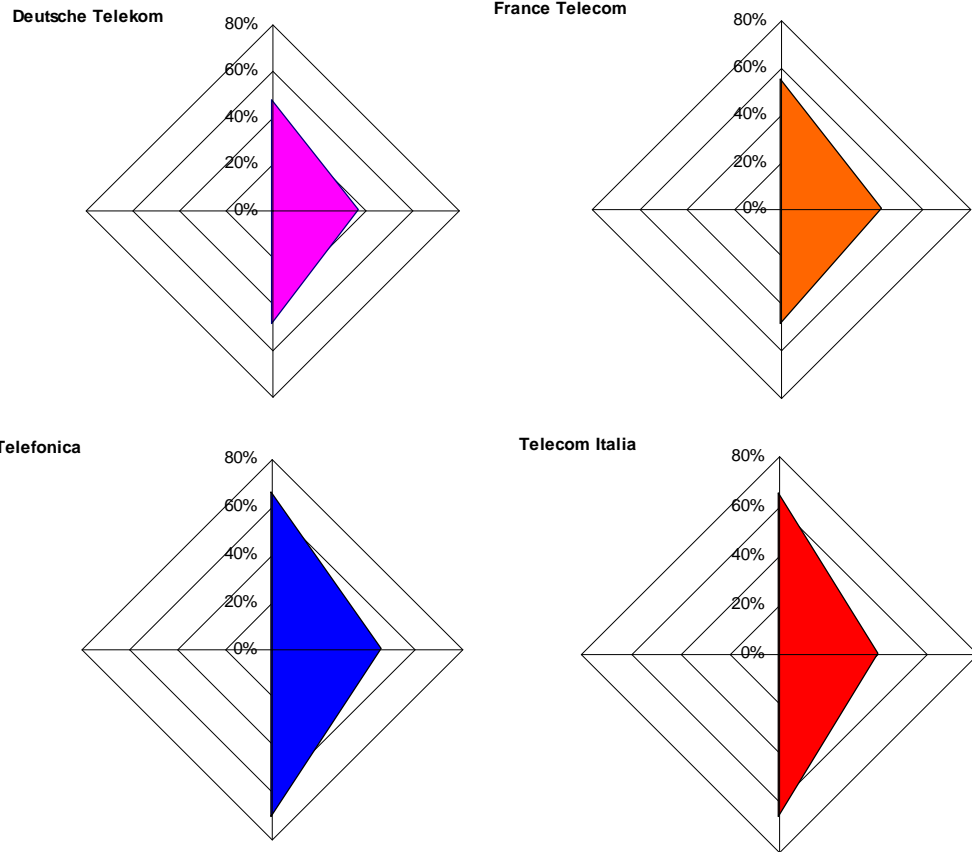
Figure 6: Market share of Telstra on domestic markets.



Source: WIK Analysis.

⁵⁵ See Picot, A./Wernick, C. (2007).

Figure 7: Market shares of European incumbents on domestic markets.



Source: WIK-Consult.

5 An assessment of Australian market and regulatory characteristics based on *Three Criteria Test*

A threshold question is the degree to which Telstra's dominance needs to be addressed at all, given that the re-started NBN will be providing an alternative fixed infrastructure. Is the problem simply going to go away? Might it be premature to impose harsh remedies now that are likely to become irrelevant just a few years in the future?

As a clear expression of this view, a senior ACCC official was recently quoted as saying that he believed that "... regulatory oversight of the sector could be reduced because a separate, wholesale-only NBN operator had incentives to treat all access seekers equally."⁵⁶

We would certainly agree with the notion that much of telecommunications regulation is a response to competitive circumstances in the sector, and that the introduction of an NBN operating only at wholesale level will change the character of that competition. For a variety of reasons, however, we are not persuaded that the introduction of the NBN will eliminate the need to deal with Telstra's dominance over its existing copper-based fixed network facilities. Even if one assumes *arguendo* that the NBN will deploy fully, and on time, and will achieve good levels of customer acceptance, Telstra's fixed market dominance would continue to be relevant to a substantial fraction of Australian consumers.

In explaining our reasoning, it is helpful to have a rigorous analytical framework. We choose to use the *three criteria test*. The three criteria test has been in regular use by the European Commission and by the 27 Member States of the European Union since 2003 as a threshold test to identify problematic telecommunications markets that merit intensive attention on the part of the regulator. If a market satisfies all three prongs of the three criteria test, the national regulator should determine whether an operator on that market possesses problematic market dominance (*Significant Market Power*, or *SMP*). Then, and only then, would corresponding regulatory remedies be applied.

The relevant market for analysis is the retail market for broadband Internet access, irrespective of speed.⁵⁷ (Similar considerations might apply to the market for voice calls origination over the fixed network, but that is a discussion for another day.)

The three prongs of the three criteria test, paraphrased to fit Australian circumstances, are:

⁵⁶ ACCC telecommunications general manager Michael Cosgrave, as quoted in *Communications Daily*, 20 May 2009.

⁵⁷ There is substantial precedent, in Europe and elsewhere, for treating fibre-based and copper-based broadband as being in the same market. If they were not, then it is quite obvious that Telstra retains market power despite the NBN.

- High and durable barriers to competitive entry;
- The likelihood that those barriers will persist over the time period of interest; and
- The inability of other remedies, including competition law, to address the likely harms.

The first criterion is largely a *static* criterion, dealing with the world mostly as it is. The second is clearly a *dynamic* criterion, gazing into the future with a hopefully not-too-murky crystal ball. The third criterion normally considers all legal and regulatory tools other than the one in question (a so-called “modified greenfield” approach).

Section 5.1 quickly demonstrates that the initial static criterion is met. Section 5.2 explains why the advent of the NBN will not solve the competitive problems, and thus why the second criterion is met. Section 5.3 illustrates that existing remedies are not up to the job, and that the third criterion is met. Chapter 4 has already amply demonstrated, if such a demonstration were necessary, that Telstra possesses SMP on the market. In Chapter 6, we consider what remedies would be appropriate, and explain why we feel that a rigorous separation is in order in this case.

5.1 High barriers to entry

In considering barriers to entry, we need to reflect not only on telecommunications networks, but also on network platforms over which competitors could realistically deliver substitute services in the near to moderate term. Network platforms for substitutes include fixed and mobile wireless services as well as cable television networks. We consider them in turn.

The very substantial market share of Telstra in regard to fixed lines represents an enormous entry barrier. The ACCC observed:⁵⁸ “Telstra remains the dominant supplier of fixed voice at both the wholesale and retail level. The 9.76 million wholesale and retail voice lines provided over Telstra’s network accounts for 89 per cent of all fixed voice lines in Australia. More significantly 80 per cent of the lines on the network are retailed by Telstra.” Table 4, from the same source, makes this point clearly.

58 ACCC (2008).

Table 4: Wholesale and retail services provided over Telstra's copper customer access network.

Retail/wholesale percentages	2003–04	2004–05	2005–06	2006–07
Retail	82%	79%	78%	80%
Wholesale	18%	21%	22%	20%
Total number of lines on network (millions)	10.28	10.12	9.94	9.76

Source: Telstra financial reports.

Short of build-out of new facilities at substantial expense, Telstra's dominance is secure. "...Optus's and Telstra's positions as the largest two providers in the market have been relatively stable over the past six years. This is consistent with Telstra's and Optus's positions as the largest owners of telecommunications infrastructure in Australia. ... Optus is the owner of an HFC network that is serviceable to 1.4 million households, while Telstra's legacy copper network has ubiquitous coverage to most households in Australia."⁵⁹

Such competition as exists is present only because of existing obligations on Telstra to permit resale and *Unconditioned Local Loop Service (ULLS)*. Since the question before us is whether these remedies are essential, we do not need to discuss them further here.⁶⁰

Fixed wireless broadband services are relevant; however, with a market share of some 2% (see Figure 5 in Chapter 4), they are clearly not a significant factor in the near term. FTTx build-out, other than through the NBN, is also not likely to be a significant factor in the near to intermediate term.

Mobile broadband is likely to continue to gain subscribers; however, the degree to which it is an economic substitute for fixed broadband is unclear. Today, mobile broadband probably functions more as an economic complement rather than an economic substitute to fixed broadband.

Cable television could be used for substitute services; however, no realistic expansion of existing capabilities is likely. Telstra and Optus pass some two million homes, representing about 20% of the total. Unfortunately, these are largely the same two million homes. The Telstra-owned HFC cable is not a competitor to Telstra telecoms as long as they are under common ownership (and we do not yet consider the alternative here, so as to avoid circular reasoning). Given Telstra's cable presence and market

⁵⁹ ACCC (2008).

⁶⁰ This is the reason for the "modified Greenfield" rule mentioned previously. It avoids circular reasoning.

share, neither Optus nor any other potential competitor is likely to be motivated to build out cable to serve a larger proportion of the Australian public.

5.2 Likely persistence of those barriers

The primary factor that we need to consider here – albeit a huge one – is the likely impact of the NBN build-out. The factors noted in the static analysis would, in the absence of a regulatory change or a divestiture, likely persist for the period of interest (which we can take to be more than ten years).

There are a great many unknowns, among them:

- How quickly the NBN will in practice be built out;
- The proportion of end-users who will ultimately be served by wired solutions, rather than wireless or satellite solutions;
- Whether Telstra or its competitors will participate;
- What fraction of fiber will be aerial (with implications for both capex and opex);
- What the real cost will be, to the Government and to private parties;
- What the retail price will be;
- The degree to which (commercial or non-commercial) end-users are subsidized;
- How great the consumer adoption will be, and in what time frame.

For purposes of analysis, we make base assumptions on Government statements that coverage of the NBN FTTP network will be 90%, that the build-out to 90% of households will be complete in eight years, and that the cost to the Government will not exceed \$43 billion AUD.

There have been wildly different estimates in the press as to the likely consumer price, including an estimate of \$215 AUD per month (national average, with \$145 AUD urban and \$565 regional) at 80% adoption.⁶¹ The end user price and the level of adoption (which is to a significant degree a function of the end user price) turn out to be key variables.

⁶¹ *Communications Day*, 22 April 2009.

We do not endorse the \$215 AUD figure. Rather, we consider it probable that pricing will generally follow international experience, for a variety of technical and economic reasons. This has two key implications:

- The ultimate price to consumers will be compatible with reasonable levels of consumer take-up; but
- the NBN will nonetheless be more expensive than (lower speed) broadband based on Telstra's existing copper network.

In Europe, it is fairly common for copper-based broadband to be available for about 30 euro/month, versus 40-50 euro/month for fiber-based alternatives.⁶² Similar tendencies are observed in the eastern United States, and in other regions where the fiber roll-out is widespread.

There are examples of fiber-based broadband costing no more than copper-based, notably in Paris and in Singapore, but these are the exceptions that prove the rule. Typically, this can be the case only where (1) teledensity is very high, or (2) buildings are unusually easy to access, or (3) the development is on a new greenfield basis. In Paris, for example, the man-high sewers constructed at the orders of Baron Haussman in the Nineteenth Century have greatly facilitated the fiber build-out of the Twenty-First Century.

Ceteris paribus, the costs of FTTx roll-out are heavily dependent on population density. In a recent study for the European Competitive Telecommunications Association (ECTA), WIK assessed the cost per home passed at nine distinct levels of population density, and found large differences in unit costs (WIK 2008). We have not done the corresponding analysis for Australia, but we believe that effective unit costs for an FTTP build-out to 90% of the Australian population will be *higher (but not necessarily prohibitively higher) than those of Telstra's existing copper-based infrastructure*. Our assessment of likely relative costs reflects our best judgment based on what is known today. How things will play out over the next eight years (or over the next twelve months, for that matter) remains to be seen.

Clearly, there are enormous uncertainties in such a prediction eight years in advance, particularly when plans for the NBN are still in flux. Our belief that effective unit costs will be higher reflects our view that:

- Unit costs for technological components will continue to decline;
- Overall costs of FTTP deployment will continue to be dominated by civil engineering costs, which are unlikely to decline very much;

⁶² These price levels usually include broadband access, Internet access and a voice flat rate (at least for calls to fixed networks).

- Deployment to 90% of Australians implies deployment to areas that are not particularly dense (and even Australian city cores are not terribly dense);
- The cost of building a new fibre-based network is surely higher than the incremental cost of adding capabilities to an existing largely copper-based network that is already deployed and whose cost has largely already been depreciated or amortized.

These observations have enormous implications for the character of competition in a post-NBN world. The NBN, if implemented as currently envisioned as a wholesale-only enterprise that is not controlled by any entity that offers retail services, should indeed serve as a competitive break on Telstra; however, *the price ceiling that the NBN effectively sets is likely to be substantially in excess of Telstra's costs.*

This means, in effect, that there will be effective competition at the luxury upper end of the market, but that customers who do not choose to pay a premium for FTTP services will still be dependent on offerings that are still based on Telstra copper-based facilities. Relative to the lower end of the market – which could be substantial – Telstra would still possess market power.

Absent regulation to the contrary, Telstra would price its retail services at levels that are competitive with fibre-based competitive retail offerings (but reflective of the difference in speed), which is to say at levels well in excess of cost. Experience in countries such as Japan suggests that retail prices for copper-based broadband offerings might be only slightly lower than those for fibre-based broadband.

Telstra would not be motivated to enable competitors to make retail offers at prices that reflected Telstra's real costs. It would seek to prevent this either by limiting access to its still-bottleneck copper facilities, or to raise its rivals' costs. In the absence of regulatory safeguards to the contrary, Telstra would choose either not to offer wholesale services at all, or to set its wholesale prices at levels as close as possible to the higher NBN price "umbrella", rather than at levels reflective of its real costs.

More generally, Telstra would continue to be motivated to favour its own retail arm over those of competitors.

All of this carries the unhappy implication that consumers who do not see sufficient benefit in FTTP broadband access, or who feel that they cannot afford it, would nonetheless be obliged to pay a retail price only slightly less than that of services based on the NBN fiber-based network. In other words, in the absence of new legal or regulatory protections, the poor would pay more than they ought to.

The clear conclusion is that the advent of the NBN does little to blunt Telstra's market power at the lower end of the market, which is potentially quite substantial. Subsequent chapters of this report will deal with the implications for public policy.

5.3 Inability of other procompetitive instruments to address the likely harm

It is clear existing legal and regulatory instruments are insufficient to address the likely competitive harms, because they have already failed to do so.

Formally, this analysis should consider only instruments *other* than telecommunications regulation (e.g. competition law) for reasons noted earlier; however, it is clear that even when telecommunications regulation is included, existing instruments fall short.

A speech delivered to the ATUG Regional Conference on May 21 by Graeme Samuels, chair of the ACCC, provides clear substantiation (if substantiation is even necessary): “Since 1997, the ACCC has been notified of a total of 157 telecommunications access disputes. This is in stark contrast to the three access disputes that have been notified to the ACCC across all other sectors of the economy. Over the past 24 months, judicial review has also been sought in respect of almost all final arbitration determinations made by the ACCC. ... The ability of access providers to propose access terms and conditions in undertaking has likewise failed to expedite or provide greater certainty under the regime.”

5.4 Conclusion

The result is clear. There are high barriers to market entry today (and Telstra possesses market power on multiple inter-related markets, as shown in Chapter 4). Dynamic factors, notably including the advent of the NBN, may generate useful competition at the high end of the market but will do little or nothing to ensure effective competition at the (probably quite substantial) lower end of the market. Existing instruments, including existing telecommunications regulation, have been ineffective and will continue to be unless very substantially enhanced.

The conclusion is that regulatory instruments will continue to be needed. In fact, given that present instruments are clearly ineffective, there is a need for significantly stronger medicine.

6 The way forward

It is clear that Australia needs a new approach. As the Government noted in its Discussion Paper, "...the overwhelming message from almost every submitter [of responses to the Government's previous consultation] was that the current regime does not work effectively to achieve its goals, and that it is failing businesses and consumers."⁶³

Efforts to introduce competition into the Australian telecommunications marketplace have largely failed. The Australian "light touch" negotiate/arbitrate regulatory system been rendered ineffective by slow-rolling and strategic litigation. Telstra remains one of the most vertically and horizontally integrated incumbents in the world.

Action is appropriate at this time. The Government is correct in noting that "...rollout of the NBN as a wholesale-only open access network will fundamentally transform the competitive dynamics of the Australian telecommunications sector."⁶⁴ That transformation does not justify inaction or delay, for a variety of reasons:

- Build-out of the NBN is expected to take some eight years. Delaying the benefits of competition would represent a substantial loss of welfare for Australian consumers and businesses.
- Consumers and businesses also bear the costs associated with the *risk* of any delay in the roll-out, or any failure to achieve the desired level of penetration.⁶⁵
- Even when the NBN is fully built out, and even if it fully achieves its targets in terms of adoption, Telstra's fixed network bottlenecks will continue to be relevant to large numbers of Australians (see Section 5.2).
- A Government-sponsored roll-out of alternative back-haul facilities is unlikely to reach all of the national territory.
- The wired NBN will, even if all goes well, still not reach 10% of the population.
- The Government's initiatives will not, in and of themselves, do anything to correct for Telstra's control over premium content.

With that said, there are three key aspects that need to be considered:

⁶³ Discussion Paper (2008), Minister's foreword, page iii.

⁶⁴ Ibid.

⁶⁵ We are optimistic about the Government's plans, but it would be improper to ignore risk-based costs. Aside from that, there are risks that are beyond the control of the current Government, including the risk that the Government might change hands and that the successor might have different priorities.

- Would a new, procompetitive structure more appropriately be put in place by means of regulation, or by means of separation?
- If by separation, should it be structural separation or functional separation?
- If functional separation, how should the separation be implemented?

We consider these questions in Sections 6.1, 6.2, and 6.3, respectively.

6.1 Regulation or separation?

In seeking to introduce procompetitive remedies, regulation and separation can be viewed as alternative approaches.⁶⁶ Which is appropriate in the Australian context, today and in the near to medium term?

Separation is appropriately viewed as a more extreme remedy than conventional regulation. It should be applied sparingly, only in cases where less intrusive remedies are unlikely to be effective.

At the end of the day, this must boil down to a matter of judgment. There can be no simple, empirical economic test that answers this question. There are, however, a number of questions that should be considered:

- How strong are the harms of a lack of competition in the current environment (static effects)?
- How great are the likely harms of a lack of competition in the near to medium term (dynamic effects)?
- How great are the costs of a loss of integration on the commercial entity to be separated?
- Has less intrusive regulation been shown to be ineffective? Are the associated problems fairly intractable?

We have already discussed the current harms in Chapter 4 and in Section 5.1 of the report, and the likelihood that those harms will persist in Section 5.2. The harms are substantial.

Would the loss of economies of scale and scope be prohibitive to the separated entity? We think not. First, relative to Telstra's cable holdings, we think that they are readily

⁶⁶ See Marcus/ Elixmann (2008) and Kirsch/ von Hirschhausen (2008).

separable from Telstra's other telecommunications holdings, and that they do not benefit greatly from synergies with Telstra's other telecommunications businesses in the first place.⁶⁷ Second, with regard to some form of functional separation of the telecommunications business, there clearly is some cost, but experience in the UK and the US demonstrate that the costs are not excessive.

Section 5.3 amply demonstrates that regulation has been ineffective to date, as the Government implicitly acknowledges in its consultation document.

Could conventional regulation be strengthened in Australia so as to render it effective? Perhaps. A quite massive overhaul of the regulatory system would be required, and there is no assurance that such an overhaul would achieve the desired results.

Telstra is, as previously noted, one of the most vertically and horizontally integrated incumbents in the world. It has also arguably been also one of the most intransigent. Telstra has consistently shown itself to be effective in resisting or delaying the effects of procompetitive regulation. Regulation of Telstra to date has scarcely made a dent.

We judge separation of Telstra's telecommunications unit to be the more promising solution, not so much because it is more stringent, but rather because the desired effects can be *self-enforcing*.

Telstra has already demonstrated considerable skill and ability in resisting procompetitive regulation. Simply strengthening the regulator's hand is unlikely to be the most appropriate response. Better is to *change the playing board* – to use separation as a tool that *changes Telstra's incentives* so as to bring them better into line with those of Australian consumers and businesses.

Recommendation 1. The Government should review existing regulation during a transitional period and perhaps beyond.

The Government should review existing regulation during a transitional period and perhaps beyond. For example, more effective regulation of carrier pre-selection capabilities would appear to be appropriate, at least during the transition period.

There is one specific area where we believe that increased attention on regulation is the appropriate response. Competition for voice services is heavily dependent on capabilities such as carrier selection. A forward-looking separation of Telstra will focus on broadband capabilities, and will not necessarily deal with "traditional" switched voice; however, switched voice capabilities will continue to be competitively important for quite a few years. At least as a transitional measure, it is important that regulation of Telstra's

⁶⁷ This view reflects experience with structural separation of cable operators in Europe. For example, Deutsche Telekom was forced to structurally separate the German cable industry. The businesses are largely distinct.

switched voice services be strengthened and made effective. For this report, we have not assessed what changes would be required.

6.2 Structural separation, or functional separation?

Is it better to attempt a functional separation, as in the UK, or a full structural separation?

Recommendation 2. The Government should impose a full structural separation of Telstra's HFC cable television operations.

The Government should impose a full structural separation of Telstra's HFC cable television operations. This will facilitate inter-modal competition, and reduce or eliminate incentives for anti-competitive conduct.

In the case of Telstra's cable television holdings, the argument for a full structural separation is strong, for reasons noted earlier.

The synergies between the cable television business and the rest of Telstra's telecommunications business are not that strong in the first place; thus, there is no strong argument in terms of operating efficiencies that current arrangements should be continued.

Moreover, these are businesses that not only are not particularly synergistic, but that in the absence of joint ownership would be head-to-head competitors. Any degree of coordination between Telstra cable and Telstra telecommunications can serve only to blunt potential competition.

This is not a new issue. It featured prominently in the ACCC's 2003 *Report on Emerging Market Structures in the Communications Sector*.⁶⁸ The ACCC recognised that Telstra's ownership of its dominant, over-built cable network suppressed actual (by Optus) and potential competition, and therefore recommended that the Government introduce legislation requiring Telstra to "divest the HFC network in full". This divestiture would have represented good public policy then, and would represent good public policy today.

⁶⁸ ACCC, "Report to Senator Alston, Minister for Communications, Information Technology and the Arts, on Emerging Market Structures in the Communications Sector"; June 2003.

There is precedent internationally for such a divestiture, as noted in Section 3.2. Even with structural separation, the overall regulatory and competition law environment may require attention to ensure that it enables meaningful competition.⁶⁹

Recommendation 3. The Government should require Telstra to divest its ownership interest in Foxtel.

The Government should require Telstra to divest its ownership interest in Foxtel. Additional protections to ensure that competitors have reasonable access to high-value premium content may be required.

Telstra's media content interests (notably, its 50% interest in Foxtel) are even more problematic. In the *Report on Emerging Market Structures*, the ACCC recommended that Telstra "divest its 50 per cent shareholding in Foxtel". The ACCC recognised six years ago that control over high value content plays a large role in consumer purchasing decisions. For Telstra to have such a massive ownership share distorts Foxtel's economic incentives, and can motivate it to withhold content from firms that compete with its owners. In 2003, it was already clear to the ACCC that Telstra's share in Foxtel was distorting Foxtel's commercial negotiations with Optus.

Such conduct is essentially anticompetitive. It should be viewed as a form of *economic foreclosure*, where a firm tries to use its bottleneck in a market where it possesses market power to project power in otherwise competitive upstream or downstream markets.

The ACCC's recommendation that Telstra be required to divest its ownership interest in Foxtel was sound in 2003, and it is even more urgent today. Video content is critical, not only for the HFC network, but also for all forms of broadband. Current arrangements could represent a substantial threat to take-up of the NBN, to competition using NBN facilities, and even to mobile operators that compete with Telstra. Divestiture is clearly in order, possibly coupled with complementary safeguards.⁷⁰

For the telecommunications portion of Telstra, the level of integration is presumably greater. A full structural separation would likely be *effective*, but might be *disproportionate* (i.e. more intrusive than necessary). The Government has not invited submissions on the merits of structural separation in any event, but has asked for comments on the appropriate form of separation short of that.

⁶⁹ For example, the German cable industry was divested by DTAG; however, the divestiture was initially "slow rolled". Even after divestiture, broadband competition was slow to develop due to inappropriate competition law obligations on the cable operator. See Marcus/ Stamm (2006).

⁷⁰ For example, it may be appropriate to review the scope of anti-siphoning provisions.

6.3 What kind of functional separation?

Recommendation 4. The Government should mandate a stringent functional separation of Telstra's fixed telecommunications services.

The Government should mandate a relatively stringent functional separation of Telstra's fixed telecommunications services, producing a wholesale-only access services entity with its own board and accounts.

In considering how the functional separation could be undertaken, we would suggest that the Government be guided by the following principles:

- The separation should change Telstra's *incentives*, so that its provisions are insofar as possible *self-enforcing*.
- The separation should be as *simple* and *transparent* as possible, in order to enable the regulator to monitor its effectiveness.

Section 6.3.1 provides an overview of the functional separation that we are recommending. With that established, there are a number key dimensions of the functional separation that need to be considered. The first is, what services and assets should go to a functionally separated entity (and implicitly, whether there should be more than one functionally separated entity); the second is the degree to which entities should be separated. We consider the first question in Section 6.3.2, and the second in Section 6.3.3.

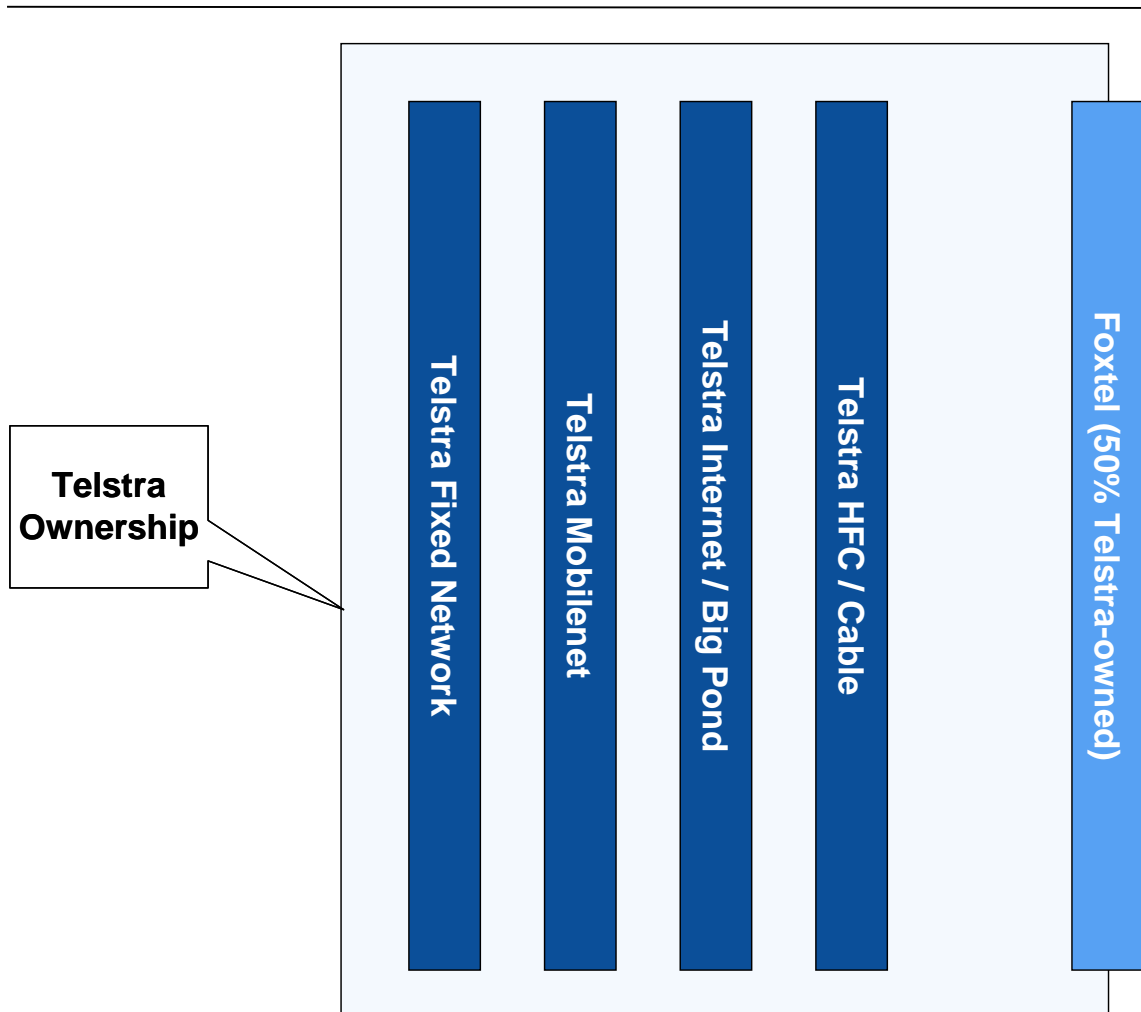
6.3.1 Overview of the functional separation

We recommend that a wholesale-only access services entity be separated off from the Telstra group. This is in addition to the structural separation arrangements that we previously advocated in Section 6.2.

Telstra today can be viewed as including fixed services, mobile services, Internet access (Big Pond), and HFC cable operations, as shown in Figure 8. In addition, Telstra has a 50% interest in Foxtel.⁷¹

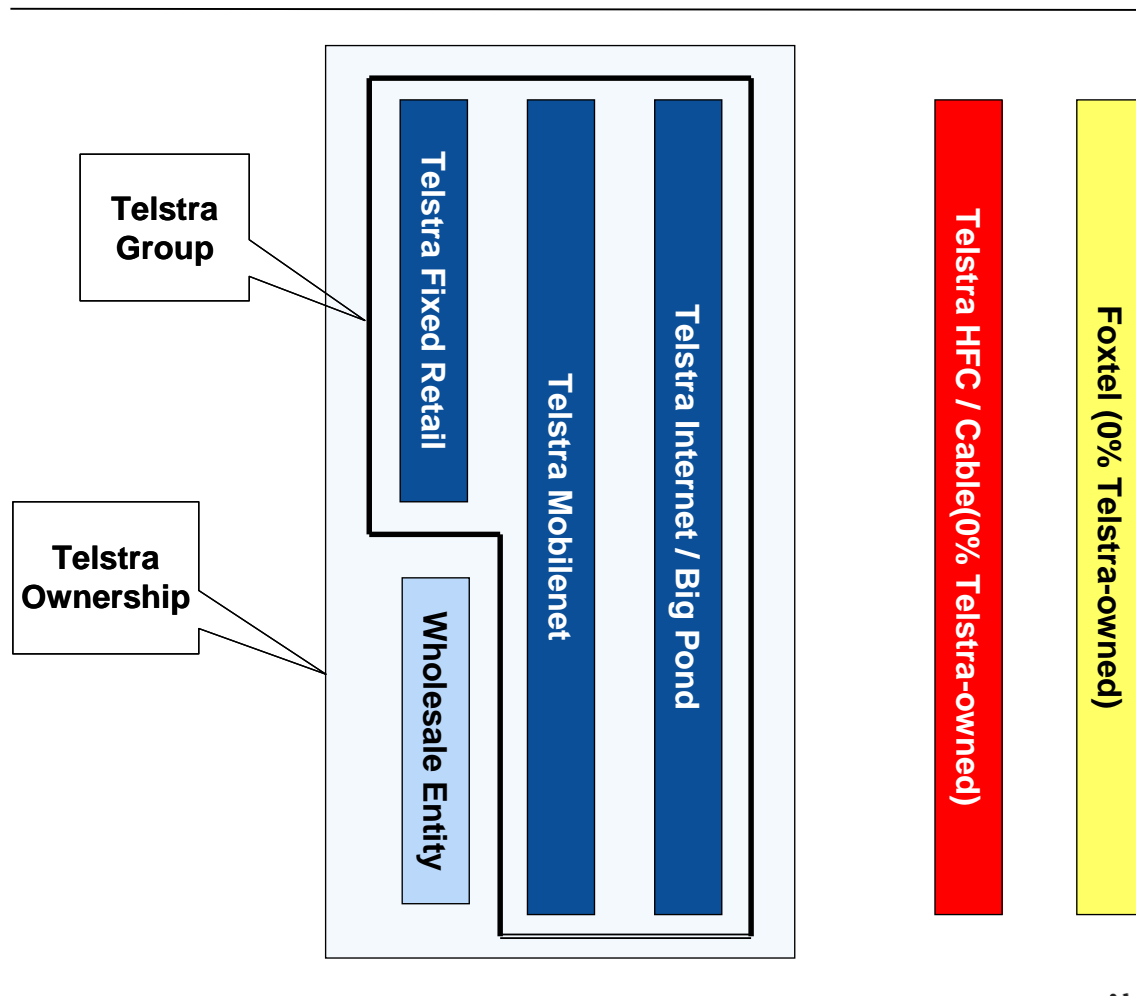
⁷¹ In the interest of readability, we ignore Telstra's international operations, telephone directory services, and other ancillary activities. They are generally unaffected by what we advocate here.

Figure 8. Structure of Telstra today.



In the separation that we envision, Telstra group would continue to include Telstra’s current retail fixed network operations, including the voice service (and switches used to provide that service); Telstra’ mobile service; and Big Pond, as depicted in Figure 9. These units would be free to coordinate their purchases (including purchases from the separated entity, and from the structurally separated Foxtel) and their other activities to the same extent that they are today.

Figure 9. Recommended functional and structural separation.



The group would continue to be subject to certain regulatory obligations, including regulation of termination fees for voice services; however, it might be possible to relieve Telstra group of certain obligations that are associated with bottleneck facilities that would be transferred to the separated wholesale entity.

Telstra group would procure any bottleneck assets that it needs from the separated entity. It would be free to procure from alternative suppliers, including the NBN. The separated entity would have its own operational support systems (OSS) for taking and amending orders, and would process Telstra group orders using the same OSS, and with the same processes and at the same average speed, as orders from other network operators.

The separated entity would be subject to confidentiality obligations so as not to disclose one wholesale customer's information to another – in this regard, Telstra group is just

another wholesale customer. A “Chinese wall” would necessarily be crafted to prevent improper information transfers between Telstra group and the separated entity.

6.3.2 What services and assets should be assigned to the separated entity?

As a guiding principle, *all bottleneck assets of Telstra’s fixed telecommunications network should be assigned to the separated entity*. For non-bottleneck assets, there is more flexibility as to where they are assigned, but it is clear that both Telstra group and the separated entity must have reasonable access to all of the assets that they need to conduct their respective businesses. The ACCC or the Government, whichever oversees the implementation of functional separation, must have authority to ensure that this is the case.

In the UK, the focus of the functional separation has been on (1) last mile copper and fibre access and (2) back-haul facilities. These were felt to be the bottlenecks that could not readily be replicated by competitors. Successful experience with functional separation in the UK (and in the US and elsewhere) provides a useful point of departure for Australia, but Australian circumstances are different. We do not propose that Australia slavishly follow the UK model.

Last mile *copper* access would indeed appear to be an appropriate concern in Australia, and will continue to be so even after the NBN is fully deployed (see Section 5.2). Any last mile *fibre* access is certainly a bottleneck today, but might not be after the NBN is deployed.

As a practical approach, we would recommend that all last mile copper and fibre access be transferred to a functionally separated access services wholesale-only entity; however, it might be appropriate to permit the retail portion of Telstra to build out new fibre-based access, if it wishes to do so, once the NBN is deployed.

The back-haul network raises more complex questions. Today, it is clear that the back-haul network represents a separate and distinct bottleneck; however, not all back-haul is a bottleneck. Some routes are reasonably competitive (typically between capital cities); others are bottlenecks.

Moreover, the first stage of the NBN seeks to build out a second back haul infrastructure. If this were done quickly, and if reached all points of interest, and if the NBN back-haul network were assured of full and non-discriminatory access to Telstra’s access services entity, then it might not be necessary for the back-haul network to be transferred to the wholesale-only entity; however, it is not clear that all of these will be fulfilled, and it is certain that they will not be fulfilled for quite some time. Thus, the safer and simpler course today would be for the access services entity to include at a minimum all bottleneck routes on the back-haul network.

The ownership and access requirements of the separated entity are driven by the services that it will provide. We would expect that the wholesale access services entity will provide non-discriminatory access to (1) unconditioned local loops, (2) shared access (high frequency of voice lines), (3) back-haul circuits, at least for routes that are otherwise uncompetitive, and (4) capabilities such as collocation that are necessary to successfully deliver the rest.

Recommendation 5. The separated entity should provide a “bitstream” service.

The separated wholesale access entity should also be permitted and obliged to provide a “bitstream” service. Bitstream represents an aggregated IP protocol access to broadband access services. The wholesale access entity must have sufficient ownership or access rights to DSLAMS and to back-haul to enable it to deliver bitstream services to competitors to Telstra group without hindrance from Telstra group.

We also see merit in enabling and requiring the separated entity to provide a “bitstream” service. Bitstream represents an aggregated IP protocol access to broadband access services.⁷² In Europe, bitstream access has been viewed as an intermediate rung on a “ladder of investment” of procompetitive options ranging from simple resale (with no investment by the competitor, but also no possibility for product differentiation) through shared access and unbundled and unconditioned loops (and beyond to actual facilities build-out).

Bitstream has shown itself to be important as a means of facilitating the earlier stages of competitive entry. In the Australian context, it may be particularly important for facilitating access to regional and remote areas. Competitors rarely provide broadband services in remote areas today because ULLS loops are prohibitively expensive. In addition, back-haul to regional or remote areas would be prohibitively expensive, and collocation is often unavailable.

A possible further argument in favour of requiring the provision of a bitstream service is that bitstream is less likely than shared access or ULLS to become obsolete if the separated entity were to upgrade some last-mile access facilities to some form of fibre-based access.

The bitstream offering would be similar to Telstra’s current ADSL2+ offering; however, the ADSL2+ offering is unregulated, and may not be available at suitable prices, terms or conditions. Also, there have been reports that it is offered only on condition that the access-seeker commits not to order regulated access products such as ULLS. We feel that the best way to address these problems is to include a bitstream service in the portfolio of the separated entity.

⁷² There is extensive experience in Europe and elsewhere with regulatory obligations on incumbents to provide bitstream access.

We are assuming that the any relevant universal service / universal access funding for serving regional or remote areas would flow to the separated entity, and not to Telstra group, since the separated entity would own and operate both the access line and (most likely) the back-haul. The wholesale price of bitstream service should reflect these subsidies (and should thus be less than the full unsubsidised cost), but would not necessarily be fully averaged across Australia.⁷³

This naturally begs the question of which entity should own assets such as DSLAMs. The simplest model would be for the separated wholesale access services entity to own the existing DSLAMs, with Telstra ordering DSL access just as its competitors do. Alternatively, Telstra group could choose to purchase its own DSLAMs, deploy them to collocation areas or the access services entity, and run them over ULLS services provided by the access services entity, just as its competitors could.

Up to this point, we have discussed the services that the separated entity should be permitted and required to provide. Equally important is what the wholesale access services entity should be prevented from doing. In essence, it should not be permitted to build up complex retail services from its wholesale piece parts. Doing so would create incentives to discriminate in its own favour, which would run counter to the purposes of the functional separation. It should be excluded from retail activities for the same reasons that the NBN will be excluded from retail activities.

6.3.3 How should the separation be implemented?

It is useful to consider the functional separation in terms of Martin Cave's Six Degrees of Separation (see Chapter 2). The least intrusive of these degrees or levels corresponds to accounting separation. Inasmuch as it is already in effect, and has been totally ineffective, there is no need to discuss it further. In fact, there is no need to discuss any degree of separation lower than Cave's fourth degree. To review, degrees four, five and six are:

- **Degree 4: Business separation with localized incentives:** Senior managers in the separated entity are remunerated based on performance of the separated entity, not on that of the group. Restrictions are imposed on the movement of senior staff between the separated unit and the group.
- **Degree 5: Business separation with separate governance arrangements:** The separated entity has its own divisional board, with non-executive directors independent of the group.

⁷³ Note, too, that both the obligation to serve remote or regional areas and the associated subsidies might be phased out for areas where NBN is fully deployed.

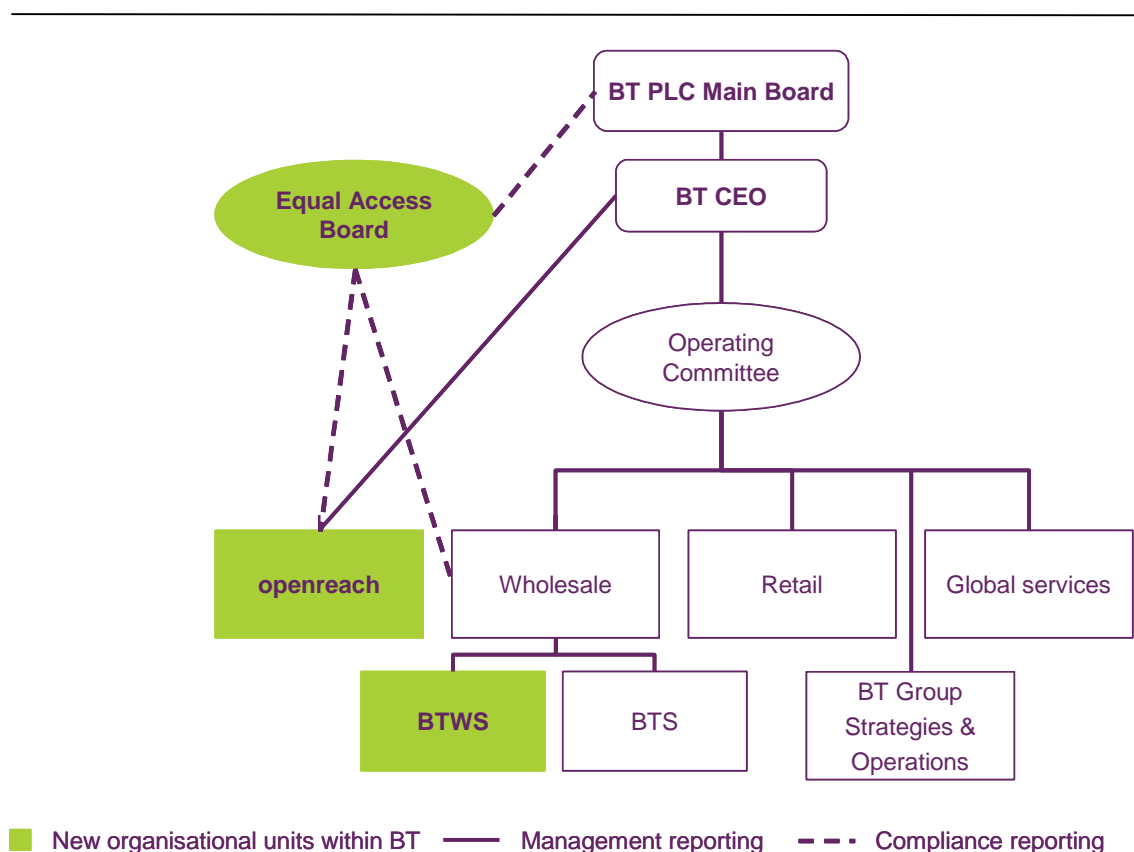
- **Degree 6: Legal separation:** The separated entity has a separate board, and separate statutory accounts are filed.

Any arrangement where senior management of the separated entity are compensated based on overall profitability of the Telstra group would tend to continue to motivate them to discriminate in favour of the group, and against competitors. This clearly defeats the purpose of the separation.

We think that the prospects of success are significantly enhanced if governance mechanisms are in place that internally monitor the effectiveness of non-discrimination provisions, and that can serve to resolve disputes. In the case of the Ofcom/BT undertakings, the Equivalence of Input Board has clearly been a positive feature.

At the same time, the BT/Openreach structure is complex – perhaps more so than is needed. A recent Ofcom presentation depicted the structure as shown in Figure 10.⁷⁴

Figure 10. The structure of BT and Openreach.

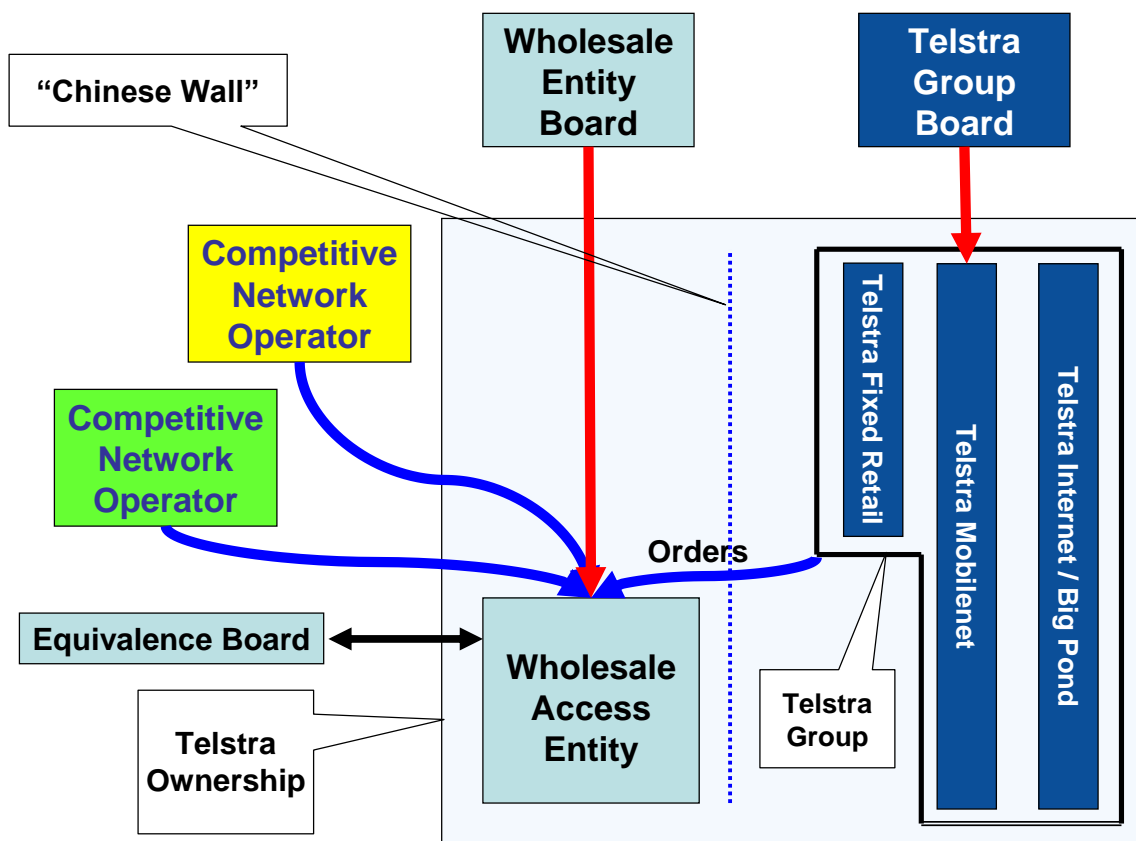


⁷⁴ See Kiedrowski (2008).

We tend to prefer Cave's Degree 6 – characterised by a separate board with independent directors, and the filing of separate accounts – because it is simpler, more comprehensible, requires few if any special arrangements. It facilitates external monitoring, and also does a better and clearer job of refocusing the incentives of the wholesale access services entity.

This implies the organisational structure depicted in Figure 11. The separated Wholesale Entity has its own board, distinct and separated from that of the Telstra Group. Telstra Group (fixed, mobile, or Internet) orders any services that it may require from the Wholesale Entity through arm's length transactions, using the same order processing mechanisms as other network operators. (Telstra's HFC cable is not shown because it is assumed to have been structurally separated.) An Equivalence of Input Board, including non-executive directors, adjudicates any complaints as regards equivalence of inputs provided to Telstra Group versus competitors. The "Chinese Wall" denotes the need to prevent improper siphoning of proprietary order information from one wholesale customer to another, and especially to Telstra Group.

Figure 11. How the functional separation should be organised.



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