



TELSTRA CORPORATION LIMITED

Public submission on vertical integration and separation

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Executive Summary

The Government has not mandated separation for the National Broadband Network (NBN). The Government's objective is open, equivalent access.

Yet some proposed bidders and their fellow travellers (referred to here as 'the separationists') are actively agitating in favour of the view that structural, functional or other forms of enforced separation would be a superior model to the vertically integrated business that Telstra presently embodies.

Vertical separation is held out as the universal answer – whatever the question.

Backwards looking

The separationists take a rear mirror view of competition issues and regulatory solutions:

- they call for adoption of overseas separation models that were designed around a legacy network architecture that the NBN will render redundant;
- they promote separation as a solution to discrimination problems that have long been resolved in Australia; and
- they overlook the fact that the limited real world experience of separation is on already-built networks and even then that the disruptions, costs and delays have been large relative to any conceivable benefits.

Regardless of what the proponents of structural separation suggest, every major carrier worldwide, be it incumbent or entrant, is vertically integrated. Both economic theory and industry practice show the strong efficiencies and other benefits of vertical integration in networked industries.

While the separationists see it as in their commercial interests to 'knee-cap' Telstra, all that separation will do is:

- undermine Australia's ability to make a seamless, risk-managed transition to a next generation network;
- increase the ongoing costs of that network; and
- reduce the ability to innovate and invest as new technologies develop.

None of those outcomes are in the long term interests of end-users.

Failed overseas/failed here

There is no wave of separation spreading around the world. In fact the opposite is the case. Only 5 out of 32 developed economies (OECD plus Singapore and Hong Kong) currently have some form of separation.

The real world experience of separation is poor in the few places in which it has been tried:

- over the last 15 years, the US has tried and abandoned every flavour of separation – ownership, structural, and functional. One regulator later

admitted that separation was an “intrusive remedy designed to fix a problem that has not been shown to exist”;¹ and

- In a case of “careful what you wish for”, UK wholesale customers complain that BT has become overly cautious, taking a “one size fits all” approach to wholesaling. Wholesale product development has become slow moving and bureaucratic and that BT spends too much time “talking not doing” with wholesale customers. As a result of continuing problems with BT wholesale service delivery, Ofcom is now proposing to revert to behavioural regulation, which separation was meant to render redundant.

Separation models in other sectors in the Australian economy are causing billions of dollars in lost exports. While the integrated ports/rail infrastructure of Western Australia are booming, ships are queued up offshore from the non-vertically integrated ports of NSW and Queensland because the port operators and mining companies have been unable to agree on the substantial investment required for port expansions.

The supporters of the wholesale-only network model have a short memory of the model’s failure in the Australian market. The obituary list includes the likes of NextGen, Comindico and Macrocom.

Does the Government want to run the risk that Australia’s new critical broadband infrastructure will be built by tomorrow’s version of Comindico?

Not needed here

The separationists’ ring leader in Australia, SingTel Optus, trenchantly opposes separation in its own network in its home market as “intrusive, disproportionate” and justified only as a “last resort” to address “chronic instances of discrimination”.² On SingTel’s own test, separation would be unnecessary in Australia:

- the ACCC has consistently found over the last 4 years that Telstra is supplying access services on non-discriminatory non-price terms to its wholesale and retail channels; and
- the NBN should reduce the fears of discriminatory behaviour – as unfounded as they are. With its open layered architecture, standardised interfaces and highly automated back-end systems, equivalence is encoded into the DNA of next generation networks. As a result, technology will take over the job that organisational separation is said to do for today’s legacy networks.

Endangers Government’s NBN objectives

Any form of functional or structural separation – whether imposed on Telstra or by selection of a wholesale-only operator for the NBN – would raise enormous risks for the Government, the Australian taxpayer and end users. Once responsibility for the management of Australia’s core telecommunications network is fragmented, it cannot be put back together without great cost, endless litigation and unacceptable delay.

¹ Bischoff (2001), cited in Annex C at p. 17.

² SingTel, *Response to IDA Consultation Paper, Industry Structure for Next Generation Access Networks*, 17 June 2008 (SingTel IDA Response): eg at page 26.

A fragmented network structure could not assure users a seamless transition to a new network, nor ensure continuity of crucial services, including emergency and disaster relief services.

Investment decisions – including to keep upgrading the NBN – will be immensely complicated across the boundaries between separated entities that have different incentives, and possibly owners. UK access seekers complain that since functional separation was introduced, BT wholesale processes have become slow and bureaucratic.

The separationists' agenda is at odds with the Government's objective for the NBN. While the Government is trying to encourage investors to make an ex ante decision to invest under conditions of significant demand uncertainty, the separationists want to impose a model which will result in slower, lowest common denominator decision making about investment and innovation. The separation model will put at risk the very benefits of innovation for which the NBN is being built.

Structural separation would be a complete leap in the dark, with few exit options when failure strikes. The very high costs of implementing separation overseas shows how difficult it would be to reverse when it turns out to be wrong. Telstra would no longer be in a position to pick up the pieces as the new arrangements fall apart.

Functional separation is not the softer alternative

Functional separation does not provide the Government with a softer fallback from structural separation. The emerging picture of dysfunctional, bureaucratic and confused relationships between the functionally separated units of BT shows that functional separation carries many of the downsides of full structural separation.

Even BT's wholesale customers in an Ofcom survey described the split between Openreach and BT Wholesale as "awkward" and "unnatural", communications between them as "stilted", and wholesale customers' dealings with them as "hard work".³

What emerges from the UK is a picture of "**dysfunctional separation.**"

If functionally separated units cannot co-ordinate to deliver known, stable legacy services on an existing network, how are they ever going to work together to design, build, operate and upgrade a brand new network of the dimensions and with the risks and uncertainties of the NBN?

We're not alone in our views

Our views about separation in a next generation network world are shared by world-leading experts.⁴ We may not agree with everything they say – as you would expect given that they have been on the other side of debates with incumbents in the legacy world. But, coming from their different perspectives – whether European or American, or as economists, former regulators or from a new entrant – they all agree that separation is unnecessary and risky for the NBN:

³ Ofcom, *Impact of the Telecoms Strategic Review, Evaluation*, 10 December, 2007 (**December Evaluation Report**), Annex 1: Survey of BT Wholesale and Openreach customers.

⁴ In addition to the expert reports annexed to this submission, Telstra also refers to the expert reports it filed in response to G9/FANOC's proposed special access undertaking: Henry Ergas, "Vertical Integration, Vertical Separation and the Efficiency Consequences of the G9 SAU", 6 August 2007 (**Ergas Vertical Integration Report**), and its attached technical report by Serge Moresi; Annex 2 to Telstra's *Submission in response to the Commission's Discussion Paper, "FANOC Special Access Undertaking in relation to the Broadband Access Service – Discussion Paper"*, August 27, 2007.

- **Kip Meek**, the former Ofcom Commissioner who negotiated the BT Undertakings in the UK says:

“The UK form of separation was designed to address severe problems of non-price discrimination which, on the basis of evidence I have seen, do not exist in Australia ... I would not recommend that the UK form of separation be used as a starting point in the Australian context.”⁵

“I am also of the view... that more radical measures, such as structural separation, would involve substantially escalated risk and costs. The demand risks and uncertainties associated with building an NGN, especially where it is intended to replace the PSTN, seem to me to raise doubts about whether a non-vertically integrated approach would be able to achieve the necessary level of investment co-ordination.”⁶

- **Professor Martin Cave**, adviser to the European Commission on next generation network regulation says that separation is an inappropriate remedy for the next generation network world in general and the Australian market in particular:

“[the problems with the UK separation model show] as far as investment co-ordination is concerned, the difference between operational and structural separation diminishes on inspection; it is likely that objections to the one form of separation will apply to the other.”⁷

“the opportunities for facilities-based competition and technological change [in a next generation network world] make it more difficult to identify enduring bottlenecks for the purposes of boundary drawing in separation models in the telecommunications industry compared to other networked industries.”⁸

“As telecommunications networks – whether bottleneck or not – are characterised by the need for continuing reinvestment, the investment co-ordination effects of separation can be more troubling than in other network industries characterised by more stable technology. These are of broadly the same nature and scale whether the separation is operational, functional or structural.”⁹

- **Mark Jamison**, a US academic, and **James Sichter**, a former senior executive with the leading US competitor Sprint, say that the US experience shows clearly that separation is a costly diversion:

“Business separation creates regulatory costs. The separation creates interest groups, some of whom benefit from the separation and some of whom can gain strategic advantage by changing the separation. These groups compete in the regulatory arena rather than in the marketplace...”¹⁰

“Behavioral rules are more effective than separation measures. While structural or functional separation were often justified ex ante as necessary for bringing about the benefits of competition, actual experience showed

⁵ Annex A, p. 3.

⁶ Annex A, p. 24.

⁷ Annex B, p. 19.

⁸ Annex B, p. 33.

⁹ Annex B, p. 33.

¹⁰ Annex C, p. 3.

otherwise. For example, rules requiring equivalent competitor access to OSS were less intrusive and were more efficient for providing equivalent internal and external access to bottleneck facilities than any form of structural or functional separation.”¹¹

- **Professor George Yarrow**, a leading UK economist and utility regulator, and his colleague **Dr Chris Decker** say the benefits of vertical integration will be needed to deploy next generation networks given the high level of risk and uncertainty:

“The advantages of business integration across complementary assets [eg network and applications layers of a next generation network] tend to be particularly pronounced in the developmental phases of economic activities, as is revealed from the early stages of the life histories of many industries/markets, from railroads (railroad ownership of complementary land assets) to video games (integration across hardware and software).”¹²

“Whilst it is true that integrated and non-integrated firms face different incentives, that is just the other side of the coin from the fact that integration has real economic effects. It would be folly to argue that, as a matter of principle, equivalence or non-discrimination means that the incentives of all competitors in, say, service activities should be fully aligned, irrespective of whether alignment has pro- or anti-competitive effects.”¹³

The time has come to draw the line under the separation debate. The sooner we recognise that the arguments for separation – particularly in a next generation world – do not hold up, the sooner we can actually focus on the *real* issues that the transition to a new network involves.

¹¹ Annex C, p. 3.

¹² Annex D, p. 32.

¹³ Annex D, p. 32.

A Introduction

- 1 This submission responds to the Government's call in the Request for Proposals (RFP) for public submissions on policy and regulatory issues relevant to the NBN.
- 2 This submission deals only with the debate over vertical integration vs. separation. Telstra believes this is a distraction from the real issues that need to be addressed to ensure the Government's ambitious objectives for the NBN can be achieved. Telstra has simultaneously lodged a separate submission discussing the principles around which an NBN-specific regulatory regime should be designed (**the Main Submission**).
- 3 The remainder of this submission is structured as follows:
 - (a) **in Part B**, we examine the economic and empirical evidence in support of the efficiency of vertical integration;
 - (b) **in Part C**, we review the problematic record of applying separation to legacy networks in overseas markets;
 - (c) **in Part D**, we discuss how vertical integration will be crucial to the success of the NBN project and why separation, based on its poor track record, will be unnecessary and damaging;
 - (d) **in Annex A**: Kip Meek, the former Ofcom Commissioner who led the negotiation of the BT functional separation undertakings, considers why UK-style functional separation is inappropriate for Australia, and examines why the UK model of separation has been overtaken by the network architecture of next generation networks;
 - (e) **in Annex B**: Professor Martin Cave, an advisor to the European Commission on next generation network regulation, reviews the economic and empirical evidence in favour of a presumption of vertical integration. Professor Cave discusses why that presumption should hold even more strongly for the NBN, given the increased opportunities for competing next generation networks and the heightened requirements for co-ordinated investment decision making between service and network levels in the highly uncertain environment surrounding next generation networks;¹⁴
 - (f) **in Annex C**: Mark Jamison, Director of the Public Utility Research Institute, a leading regulatory "think tank" in the US, and James Sichter, former Vice President Regulatory Affairs for the major US new entrant, Sprint, review the full range of separation models tried in the US over the last several decades and why they all failed; and
 - (g) **in Annex D**: Professor George Yarrow, recognised as one of the leading economists in the UK, and his colleague Dr Chris Decker discuss the importance of vertical integration across complementary assets in the

¹⁴ Note that Professor Cave's submission deals with issues discussed in the Main Submission and is also attached to that submission.

developmental phases of economic activities, such as the NBN, and misconceptions about 'pricing equivalence.'¹⁵

¹⁵

Note that the report prepared by Professor Yarrow and Dr Decker deals with issues discussed in the Main Submission and is also attached to that submission.

B The strength of vertical integration efficiencies

- 4 In this Part, we discuss how vertical integration is the most prevalent business model in today's telecommunications environment and why economic theory bears out the efficiency of this market outcome.

B.1 What the market tells us

- 5 Vertical integration is very much the norm among telecommunications operators worldwide, be they fixed or mobile, incumbent or entrant (see Figure 1). Network owners typically provide retail services over the networks that they operate.

Figure 1: Vertically integrated telecommunications operators around the world

	Asia Pacific	Europe	North America
Incumbents	Telstra (Australia) Telecom New Zealand ^a SingTel (Singapore) Telekom Malaysia Chunghwa (Taiwan) NTT (Japan) PCCW-HKT (Hong Kong) China Telecom (PRC) PT Telekomunikasi (Indonesia) KT (South Korea)	Deutsche Telekom France Telecom Telecom Italia KPN (Netherlands) eircom (Ireland) ^a BT Britain ^c Telefonica (Spain) TeliaSonera (Nordic countries) TDC (Denmark) Swisscom (Switzerland) Belgacom (Belgium)	AT&T Verizon Qwest ^c Bell Canada
Entrants	SingTel Optus (Australia) Vodafone (Australia) ^b Unwired (Australia) ^d TelstraClear (New Zealand) Hutchison Telecom (HK) Starhub (Singapore) KDDI (Japan) Maxis Communication Berhad (Malaysia)	Cable & Wireless (UK) Virgin Media (UK) SFR (France) FASTWEB (Italy) ^c Casema (Netherlands) UPC (Ireland) ^c	Comcast Time Warner ^c Cable Charter Communications ^c Cox Communications ^c

Notes: 'a' denotes vertical separation has been considered but not implemented; 'b' denotes vertically integrated across mobile business only; 'c' denotes vertically integrated across fixed line business only; 'd' denotes vertically integrated across wireless broadband business only.

- 6 Moreover, since the earliest days of deregulation, regulatory policy has, at least notionally, encouraged entrants at the retail layer to vertically integrate by backward-integrating into the network layer. The "ladder of investment" theory, applied by the ACCC and overseas telecommunications regulators with a view to promoting facilities-based competition, accepts at its heart that investing in networks enables service providers to compete more strongly and sustainably – to the ultimate benefit of end users. Indeed, it is precisely these investments that the ladder theory promotes.
- 7 The fact that entrants are as vertically integrated as they are is telling, in that:
- these entrants have no market power, so their decisions cannot reflect the desire to use or perpetuate such power; and
 - typically, regulators have provided entrants with many options to use the incumbent's network, often at preferential prices.

- 8 As a result, those choices to vertically integrate, taken in many jurisdictions with differing approaches to regulation, are strongly suggestive of underlying efficiency considerations.

B.2 Economic analysis supports the efficiency of vertical integration

- 9 A simple and enduring truth lies behind the fact that vertically integrated telecommunications operators tend to succeed while separated ones tend to fail: *vertical integration enables the most efficient provision of telecommunications services.*

B.2.1 The benefits of vertical integration generally

- 10 Vertically integrated entities avoid the inefficiencies that arise from “vertical externalities” – that is, situations where each firm in a vertical chain takes decisions which, viewed separately, are profit maximising, but which viewed collectively are suboptimal for the vertical chain because they do not take account of the interdependencies between the vertical layers. The benefits of vertical integration that economic analysis highlights include:¹⁶
- (a) upstream and downstream investment and innovation decisions can be better co-ordinated. Potential network upgrades – and the decision to roll-out the network at all – can be made with the best available knowledge of retail products and retail demand conditions, gained from operating at the retail interface;
 - (b) network owners retain the maximum incentive to invest to support innovative retail service offerings, because they share in the margins accruing downstream. This may include network investments that enable tailored inputs, because such investment are not impeded by the risk of “hold-up”¹⁷;
 - (c) prices may be lower – and create greater demand – because double marginalisation is avoided; and
 - (d) the industry will be more responsive to change, because there is less need for slow, costly and contentious bargaining between upstream and downstream interests regarding who will bear the risk of adapting to change.
- 11 Professor Cave cites two striking and recent studies that provide empirical support for the superiority of vertical integration over separation:¹⁸
- (a) Lafontaine and Slade reviewed the impact of vertical integration by considering almost 200 sources, of which around 80 are empirical, and concluded by expressing surprise at the weight of evidence in favour of integration:

[U]nder most circumstances, profit-maximising vertical integration decisions are efficient, not just from the firms’ but also from the

¹⁶ For more detail, see Ergas Vertical Integration Report.

¹⁷ “Hold-up” effects can impede the incentives to invest more broadly when investments are tailored to the needs of a downstream party, who can act opportunistically and may be able to expropriate the investment returns because of the limited market for that tailored investment.

¹⁸ See Annex B, p.4.

*consumers' point of view. Although there are isolated studies that contradict this claim, the vast majority support it. Moreover, even in industries which are highly concentrated so that horizontal considerations assume substantial importance, the net effect of vertical integration appears to be positive in many instances. We therefore conclude that, faced with a vertical arrangement, the burden of evidence should be placed on competition authorities to demonstrate that the arrangement is harmful before the practice is attacked.*¹⁹

- (b) Joskow draws a similar conclusion, and suggests that regulatory hostility to vertical integration is misplaced except in extreme conditions:

*[T]here is substantial support in the empirical literature for various efficiency motivations for vertical integration. There is minimal empirical support for anticompetitive foreclosure motivations. This suggests that there is little empirical support for the anti-trust law's traditional suspicion of and hostility towards vertical integration and related non-standard vertical contractual arrangements, except under extreme conditions...*²⁰

- 12 Professor Yarrow summarises the economic learning on vertical integration as follows:²¹

- (a) there is no basis for a general presumption that vertical integration or vertical supply agreements are harmful, since the relevant economic links are between *complementary*, not substitutable, activities;
- (b) for complementary activities, the economic presumption is the other way round: for example, it is standard theory that merger of two companies, each with significant market power, will tend to lead to incentives to reduce prices and expand output when the products/services provided by the companies are complements. Unfortunately for public policy, whilst obvious when reasoned through, this result is not entirely intuitive;
- (c) in 'vertical cases', therefore, and unlike in 'horizontal cases', the positive effect of agreements/integration always stands to be weighed in the balance. Its effect, all else being equal, is to counteract any incentives for abuse because restriction of the market at one level of activity tends to be bad for the profits of the integrated company at other levels of activity;
- (d) nevertheless, there can be circumstances in which companies with strong (horizontal) market positions can use vertical agreements or vertical integration to protect or enhance market power, and the gains from doing so may be sufficient to more than counteract the expansionary incentives arising from complementarity.

- 13 The separationists seize on the last point. However, in doing so, they leap to three conclusions without any theoretical or empirical support: **first**, that Telstra (or the NBN operator) will have unrestrained market power; **second** that Telstra (or the NBN operator) will have the opportunity and the incentive to misuse that market power; and **third**, that separation is the most efficient remedy to address

¹⁹ F. Lafontaine and M. Slade, (2007) 'Vertical integration and firm boundaries: the evidence', 43(3) *Journal of Economics Literature* 629-685.

²⁰ P. Joskow, 'Vertical Integration' (2006), available at econ-www.mit.edu/files/1191.

²¹ Annex D, p. 30.

that risk. In Part D, we discuss why these assumptions can't be applied to the NBN, why the problems for which separation is said to be a solution don't apply in a next generation network environment, and how separation would undermine the Government's ambitious objectives for the NBN. We will now discuss the specific benefits of vertical integration for telecommunications and high risk projects like the NBN.

B.2.2 The benefits of vertical integration in telecommunications

- 14 While the studies referred to above draw on the experience of vertical integration across many sectors, addressing vertical externalities through vertical integration is likely to be even more important in telecommunications, as Ergas comments:

There is good reason to believe that telecommunications is even more subject to these externalities than are other infrastructure industries. There is substantial interdependence between network layers in terms of efficient design, investment and ongoing operation. Optimising those interdependencies requires specialised investment in each layer and coordination of the timing of that investment. Moreover, the boundaries between vertical layers in telecommunications are dynamic, shifting over time as technological change alters the optimal location of network functionalities. There is a contrast here to the conventional public utilities, where frontiers between vertical layers are relatively clear (i.e. rail to port, generation to transmission) and have been stable over periods of decades.²²

- 15 Telstra's own experience highlights the gains from integration. Every day, Telstra secures substantial efficiencies through:
- (a) the ability to share resources, including capital and skilled people, between network level tasks and tasks that directly service customers;
 - (b) the ability to procure equipment, including information systems, on a joint basis for network layer uses and for uses by customer-facing divisions;
 - (c) the ability to closely co-ordinate product and service development and launch decisions as between the network layer and the applications layer, including in terms of co-ordinating required changes to systems;
 - (d) the ability to identify, track and manage exceptions, faults and outages on an integrated basis from the network through to the customer-facing unit;
 - (e) the ability to share information about demand and other market data as between network and customer-facing units, and hence take better informed, more timely and hence ultimately more efficient investment and output decisions;
 - (f) the ability to structure management goals and incentives at the customer-facing layer so as to make best use of network capabilities and to reflect any network constraints, and symmetrically, the ability to set those management goals and incentives at the network level so as to

²² Ergas Vertical Integration Report, para. 9.

ensure customer-facing units can have access to the network capabilities they need to provide and support high quality, responsive, service to end-users; and

- (g) the ability to quickly learn from experience at all levels of the vertical chain, and to transfer that learning, without impediments, throughout the vertical chain.

16 Vertical integration efficiencies are also central to network survivability, to disaster and emergency response and to effective delivery of national security objectives. This is because each of these requires:

- (a) the ability to track information across a wide range of systems on an unimpeded basis and to share that information as required;
- (b) the ability to share resources in emergency or disaster response, including by making trade-offs on the spot as between network level responses (e.g. repair the network) and service layer responses (e.g. provide an alternative service); and
- (c) the ability to continually update plans, processes and procedures as change occurs in each layer of the system.

B.2.3 The benefits of vertical integration in building new networks

17 As important as vertical integration has been for legacy telecommunications networks, it is likely that vertical integration will be even more important for the deployment of new high risk networks like the NBN. As Professor Yarrow comments:

The advantages of business integration across complementary assets tend to be particularly pronounced in the developmental phases of economic activities, as is revealed from the early stages of the life histories of many industries/markets, from railroads (railroad ownership of complementary land assets) to video games (integration across hardware and software). Integration leverages the returns from business expansion, and it therefore tends to be expansionary rather than restrictive in its overall effects in the marketplace. In technical jargon, integration internalises what would otherwise be positive externalities which (a) tend to be larger at developmental stages of economic activity, (b) can be expected to be particularly significant for NGANs because high fixed costs create a large wedge between average and marginal costs, and (c) are not at all straightforward to fix by other means (e.g. more complex contracts) in the fact of high uncertainty about demand in the NGAN context.²³

18 Again, Telstra's own experience, both with the transition to the Future Mode of Operation in the 1990s and most recently, with the highly successful deployments of the NextG™ and Next IP™ networks, shows that vertical integration is crucial to:

- (a) planning to the required level of detail the procurement, deployment and cutting over of the new network and associated services, and doing so on the basis of high quality, fully verifiable information;

²³

Annex D, p. 32.

- (b) co-ordinating and effecting as seamless a transition of customers and services as possible from the existing to the new network and applications;
 - (c) ensuring that systems and processes are in place to manage customer queries, and to support retail and wholesale services, as transition occurs; and
 - (d) minimising the harm to customers from the faults and errors that inevitably occur in any very large scale transition.
- 19 Some supporters of separation argue that it should be easier in a next generation network because the downstream products and upstream inputs are not as tightly linked technically. While next generation networks will allow more downstream innovation and better support open access, the vertical integration efficiencies remain strong, particularly because the demand is so uncertain for next generation products. As Professor Cave explains:

While next generation networks will allow more scope for downstream service providers to innovate, reducing the interdependency of product development between upstream and downstream layers, other interdependencies will remain strong, such as the maximum network speed which will depend on the technical solution implemented at the network level (e.g. the faster VDSL2 vs. the slower ADSL 2+) The decision about when at the network level to make the next step change in network speed will very much depend on the likely consumer response to the downstream retail products, including price, offered through the service channels.²⁴

B.3 Conclusion

- 20 Telstra does not believe the efficiencies outlined above, all of which clearly benefit consumers, could be obtained in an environment of separated ownership and control. The deployment of a new high risk network like the NBN will depend even more on those vertical efficiencies in co-ordinating retail and network levels. As Kip Meek says:

[T]he demand risks and uncertainties associated with building an NGN, especially where it is intended to replace the PSTN, seem to me to raise doubts about whether a non-vertically integrated approach would be able to achieve the necessary level of investment co-ordination.²⁵

- 21 While complicated theories can be developed as to how that might be done for the NBN, those theories are no more than academic speculation – untested, as far as Telstra knows, by the experiences of any successful telecommunications operator. In fact, as we will now turn to discuss, current separation approaches as they apply to legacy networks and in other industry sectors has a poor track record here and overseas.

²⁴ Annex B, p. 9.
²⁵ Annex A, p. 24.

C Separation: a study in failure

- 22 As we show in this Part, mandated separation – whether in Australia or overseas and whether in telecommunications or other industries – has proven to be a costly, unnecessary and unsuccessful attempt at a remedy.

C.1 Getting some perspective on separation

- 23 At the outset, it is important to understand three things about the separationists' model proposed for Australia: **first**, separation is imposed in very few telecommunications markets around the world and there is no trend towards separation (in fact, some jurisdictions are stepping back from it); **second**, even amongst the limited sub-set of markets with mandatory separation, the form of separation they are proposing for Australia is by far the most radical; and **third**, nowhere in the world has the implementation of separation and the construction of a network of the dimensions of the NBN been tried simultaneously.

C.1.1 There is no separation wave internationally

- 24 As Table 1 sets out, only 5 out of the 32 countries surveyed (OECD plus Singapore and Hong Kong) currently have some form of mandated separation. In his report for SingTel Optus, Dr Doyle says his most recent experience of separation is in Mongolia where the Government is introducing structural separation. One additional country (Sweden) may implement separation, but then in one country with separation (Japan) the regulator has recently recognised the importance of vertical integration in the changed environment of next generation networks.²⁶

Table 1: Instances of separation around the world

Country	Is separation mandated?	Comment
Australia	✓	operational separation
Austria	✗	
Belgium	✗	
Canada	✗	
Czech Republic	✗	
Denmark	✗	specifically rejected by regulator
Finland	✗	historically separated local and long distance companies have been allowed to integrate
France	✗	specifically rejected by the regulator
Germany	✗	
Greece	✗	
Hong Kong	✗	

²⁶

C. Doyle, 'Structural Separation & Investment in the National Broadband Network Environment', a report for SingTel Optus, June 2008.

Country	Is separation mandated?	Comment
Hungary	x	
Iceland	x	
Ireland	x	voluntary separation offered by eircom but has encountered difficulties and Babcock & Brown getting cold feet
Italy	x	proposed by the regulator but new Government is backing away from, preferring voluntary form of operational separation
Japan	✓	US RBOC approach of regionally vertically integrated entities However, in next generation network environment, Ministry has recognised value of vertical integration
Korea	x	
Luxembourg	x	
Mexico	x	
Netherlands	x	voluntary form of operational separation which is less extensive than Australian model. Regulator doubted value of UK model
New Zealand	✓	separation has limited application to next generation networks
Norway	x	
Poland	x	regulator investigating option. Due to report in Q3 2008. Polish Government believed to oppose separation
Portugal	✓	part of merger clearance when market consolidated with the largest mobile operator acquiring fixed incumbent
Singapore	x for existing network ✓ for FTTP	only operational separation at retail/wholesale level. See discussion below of SingTel 'workaround' for structural separation at NetCo level
Slovak Republic	x	
Spain	x	
Sweden	x	The Swedish Parliament has passed a law empowering the regulator to recommend separation. The regulator has previously expressed a view in favour of some form of separation, but it will be required to undertake a more formal analysis before imposing separation
Switzerland	x	
Turkey	x	
United Kingdom	✓	

Country	Is separation mandated?	Comment
United States	✘	ownership, structural, functional and operational separation all tried and abandoned

C.1.2 Double-cut model: radical and unprecedented

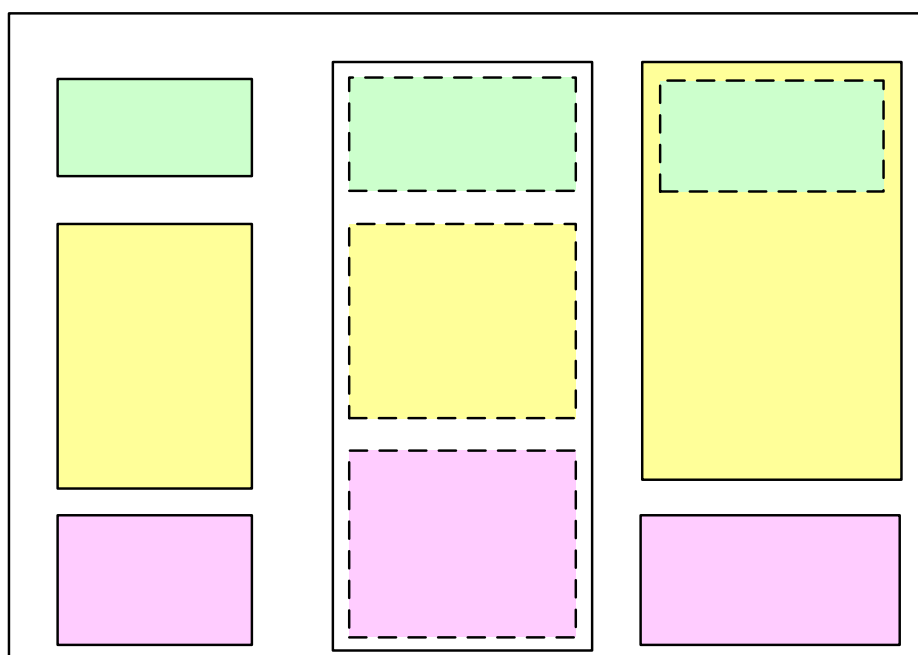
- 25 As Davis and Williams say “in assessing the costs and benefits of separation, it is of critical importance to determine precisely how the proposed separation is to take place.”²⁷ Unlike the overseas models, the model proposed by Terria/G9 for the NBN cuts the vertical supply chain not once, but twice:
- (a) **sub-loop unbundling:** sub-loops owned by Telstra would be supplied to an FTTN network operator on a comprehensive and exclusive basis (i.e. all loops in an area cut over, regardless of individual customer preference). If Telstra is not the winning bidder in the RFP, then not only would the sub-loop owner and the fibre owner be different entities, but the sub-loop owner would be foreclosed from rolling out its own FTTN – an extreme and unprecedented outcome; and
 - (b) **wholesale-only:** the FTTN operator would supply only wholesale services, ensuring separation from downstream retail businesses. In essence, this amounts to ownership separation of wholesale and retail layers, with the bidding entity participating in only the wholesale layer. However, it remains unclear whether participants in the wholesale-only entity would be entirely precluded from participation in retail operations.²⁸
- 26 The result, as depicted in Figure 2, is that the Terria/G9 model is substantially more intrusive than any overseas separation model. Even the Singapore model which is touted as supportive of the Terria/G9 model allows OpCo to be vertically integrated, with functional or operational – not structural – separation applying at this level.²⁹

²⁷ W. Davis and P. Williams, ‘Structural Separation in Australia, Economic and Policy Issues’, *Telecommunications Journal of Australia*, vol. 58, no.1, at page 11.11.

²⁸ In G9’s proposed undertaking, its investors would also operate at the retail layer, thus unravelling the charade that G9 was “wholesale-only” and had no competing downstream interest. In this paper we assume that the Terria/G9 model will materially reflect G9’s SAU.

²⁹ The exact extent of the internal separation within OpCo that will be required is unclear. SingTel describes the required level of separation as ‘operational’. If the degree of separation nears the UK model, it may be more accurate to describe it as ‘functional’ separation. See SingTel IDA Response.

Figure 2: Comparison of separation models



C.1.3 Separation on old networks

- 27 In the few markets in which separation has been imposed overseas, it applies primarily to incumbents on their existing networks – even then, the experience has involved years of effort, massive dislocation and huge costs. In UK, the BT Undertakings, in effect, put next generation networks in the “let’s think about it later” basket. In New Zealand, there is a transition plan to a next generation network but the services covered are little more than next generation versions of today’s narrowband products, with future next generation access services plan largely outside the scope of the Ministerial-approved Telecom separation plan.
- 28 Even in Singapore, the FTTP network to be rolled out under its vertical separation arrangements will operate side by side with the existing PSTN, which SingTel will continue to operate as a fully vertically integrated entity, providing a ‘safety net’ if things go wrong with the separated FTTP model.
- 29 Against this background, we will now turn to consider the poor international record of separation in the few places it has been used.

C.2 United States: a story of back flips and failures

- 30 While separation is being hailed as the “regulatory measure du jour” by some in Europe and Australia, the US over the last 15 years has tried every flavour of separation – ownership, structural and operational. All have failed, and have now been wound back.
- 31 In the US, ownership separation between *local and long-distance* operations has been tried most famously with the forced carve-up between the local area carriers providing local service known as RBOCs and AT&T’s long-distance service in 1984. Even this approach – which fully preserved vertical integration (as regards network and retail operations) for each of the separate local and long distance companies – proved unsustainable, with firms eventually re-integrating across the separated lines of business in response to commercial forces, and the

FCC recently removing the last vestiges of these rules because they were “at odds with a market environment”.³⁰

- 32 It is estimated that the divestiture caused productivity losses of well over \$30 billion.³¹ Alfred Kahn – one of the US’s most eminent scholars and practitioners of regulation – has said that the following lesson should be drawn from the US experiment:

*The twenty year experience with AT&T’s dissolution should have increased our respect for the potentially large economies of scope in telecommunications.*³²

- 33 Mandated legal separation between *retail and wholesale* functions also has been tried in the US, and also failed.³³

(a) In Pennsylvania, Verizon was split into a retail entity and a wholesale entity in 1999, on the basis that “structural (ie legal) separation is the most efficient tool to ensure local telephone competition where a large incumbent monopoly controls the market”.³⁴ After two years, the regulator recanted and retreated to operational separation and an open access regime, concluding that it could efficiently and expeditiously achieve the objectives of legal separation (which was to open the local telecommunications market to competition). The regulator was quoted as saying that structural separation “*didn’t look like as much of a silver bullet when we looked at the details of it*”³⁵ that it actually required more, rather than less, subsequent regulatory supervision, and in the end, it turned out to be an “*intrusive remedy designed to fix a problem that has not been shown to exist.*”³⁶

(b) In New York the Rochester telephone company’s vertical separation became tied down in regulatory proceedings while the original reason for it – local access bottlenecks – faded. Access seeker behaviour remained unchanged, continuing to ask for greater discounts. The company is now seeking to terminate what remains of its legal separation plan.³⁷

- 34 In their annexed report, Jamison and Sichter found that the US experience shows that:³⁸

(a) separation lowers efficiency and delays innovation. The natural boundaries of businesses in telecommunications are always changing in unpredictable ways, as are the locations of bottlenecks. Adapting business separation rules to new realities takes time. The resulting regulatory delays create costs, slow the delivery of innovations to the market place, and may slow the development of competition;

³⁰ Federal Communications Commission, *Press Release: FCC replaces outmoded long-distance rules with new protections for consumers*, August 2007, p. 1.

³¹ R.W. Crandall & J.G. Sidak (2002), ‘Is Structural Separation of Incumbent Local Exchange Carriers Necessary for Competition?’, 19(2) *Yale Journal on Regulation* 386.

³² Kahn, A. 2004, *Lessons from Deregulation: Telecommunications and Airlines after the Crunch*, AEI-Brookings Joint Centre for Regulatory Studies, at page 24. See also Kahn, A. *Whom the Gods Would Destroy, or How Not to Deregulate*, AEI-Brookings Joint Centre for Regulatory Studies, for example, at pages 19, 26 and 29.

³³ Annex C, p. 14.

³⁴ Annex C, p. 17.

³⁵ Annex C, p. 17.

³⁶ Annex C, p. 17.

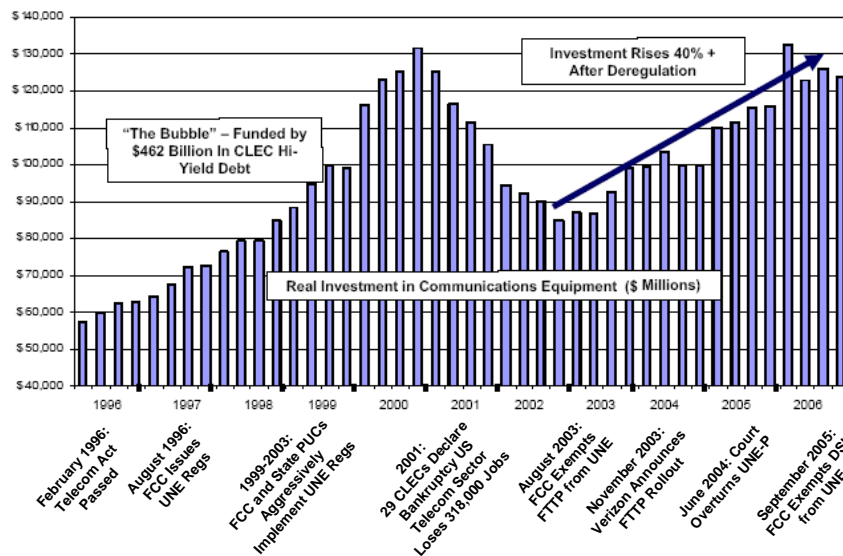
³⁷ Annex C, p. 12.

³⁸ See Annex C.

- (b) separation creates regulatory costs. Separation creates interest groups, some of whom benefit from the separation and some of whom can gain strategic advantage by changing the separation. These groups compete in the regulatory arena rather than in the marketplace, which clogs the regulatory process and decreases the resources devoted to marketplace competition; and
- (c) while separation measures were often justified as being more effective than behavioural rules, experience has actually shown that well designed behavioural rules turned out to deliver much better outcomes for competition. For example, rules requiring equivalent competitor access to operational support systems (OSS) in Australia have been a less intrusive and more efficient means for providing equivalent internal and external access to bottleneck facilities than any form of structural or functional separation.

35 Separation measures, and access regulation generally, have only been applied in the US to legacy networks. The shift away from separation remedies has been accompanied by a deliberate regulatory policy of withdrawing regulation (forbearance) from new network infrastructure (“old wires old rules, new wires new rules”). Starting in 2003 with the FCC’s decision to withdraw unbundling and access regulation from fibre local access networks,³⁹ the US has seen substantial and accelerating growth in next generation network infrastructure since the FCC’s decision, as shown in Figure 3.

Figure 3: Investment rises after deregulation in the US



C.3 The UK Model: expensive and few gains

36 Much of the current excitement about separation in Australia comes from the recent imposition of functional separation in the UK (which seems to have been oblivious to the US experience). A close examination of the UK model, however,

³⁹ *In the Matter of Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers, Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, Deployment of Wireline Services Offering Advanced Telecommunications Capability, Report and Order and Order on Remand and Further Notice of Proposed Rulemaking*, CC Dkt. Nos. 01-338, 96-98, and 98-147, 18 FCC Rcd 16978 (Aug. 23, 2003).

clearly shows that it imposes significant costs on consumers and undermines, rather than promotes, efficient investment in next generation networks.

- 37 At the outset, it is important to understand the background to the UK model as it explains much about why separation was thought necessary and how the model was designed. As Kip Meek explains, functional separation in the UK was primarily directed at addressing what was viewed by regulators as being BT's persistent history of discriminatory and poor non-price terms of supply. Ofcom itself said that "...those who have relied on BT to provide ... access have to date experienced slow product development, inferior quality wholesale products, poor transactional processes, and a general lack of transparency."⁴⁰ Hence much of the focus of the UK is on building new equivalent OSS platforms which will be used to supply key access products to retail and wholesale channels.
- 38 The direct costs imposed by the UK model have been unquestionably large. BT has said it spent over £100 million on functional separation measures but the full costs are rumoured to be higher.⁴¹ Capital expenditure *did* increase in the UK following the introduction of functional separation, but most of it was actually due to the implementation of functional separation itself and not investment in new network infrastructure. BT's 2007 Annual Report states:
- (a) *BT Retail*: "Capital expenditure for the 2007 financial year was 8% higher at £166 million due to extra expenditure on implementation of the systems development required under the Undertakings"⁴²;
 - (b) *BT Wholesale*: "Capital expenditure on property, plant and equipment and computer software at £1,017 million increased by 4% in the 2007 financial year. This reflects increased capital expenditure to prepare for the 21CN [BT's next generation core network] and investment in new systems to ensure compliance with the Undertakings"⁴³; and
 - (c) *Openreach*: "Capital expenditure on property, plant, and equipment and computer software was £1,108 million, an increase of 7% in the 2007 financial year. This reflects significant new investment in new systems to ensure compliance with the Undertakings and increased spend to meet LLU demand."⁴⁴
- 39 Despite the disruptions and costs, the improvement in key performance indicators for wholesale services – the reason separation was done in the first place – has been painfully slow. Ofcom's latest review of separation in December 2007⁴⁵ suggests that there has not been much improvement in wholesale service levels – in some cases things have actually gone backwards. Ofcom noted that "[t]here have been concerns around the service performance of Openreach"⁴⁶.

⁴⁰ Ofcom, *Final statements on the Strategic Review of Telecommunications, and undertakings in lieu of a reference under the Enterprise Act 2002*, 22 September 2005, para. 4.7.

⁴¹ Azimuth, *Operational Separation: Establishment of a separate Access Network Services Unit*, February 2007. Report done for TCNZ, (available at: <http://www.med.govt.nz/upload/45608/azimuth-ans-unit.pdf>).

⁴² BT Annual Report 2007, p36.

⁴³ BT Annual Report 2007, p37.

⁴⁴ BT Annual Report 2007, p.37.

⁴⁵ See Ofcom, December Evaluation Report.

⁴⁶ December Evaluation Report, para 6.96.

- 40 Ofcom is now proposing to impose a new layer of behavioural regulation on BT in the form of service levels agreements.⁴⁷ Separation was intended to render redundant behavioural regulation of this very type.
- 41 Two years on, the bloom is fading for UK access seekers. A recent survey of wholesale customers by Ofcom reported the following problems they are experiencing with functional separation:⁴⁸
- (a) BT and the regulator had been too distracted by the enormous task of implementing operational separation, rather than getting on with developing new wholesale products;
 - (b) the split between BT Wholesale and Openreach is acknowledged by almost all to be an awkward and unnatural, complicating the task of wholesale customers in dealing with BT; and
 - (c) the downside of equivalence is an overly cautious “one-size-fits-all” approach to wholesale customers and result in an “equivalently average/poor” services rather than “equivalently excellent” services.
- 42 The UK functional separation regime principally applies to the legacy network and some transitional services, such as Ethernet. The Undertakings do include obligations on BT to consult over the transition to a next generation network and to design it to provide equivalence in the event that regulated access is required in the future. However, the question of whether next generation network services will come within the functional separation regime will depend on whether Ofcom determines that BT has significant market power over particular next generation network services, which will require a full market review under EU rules.
- 43 Even so, it would appear that functional separation is having an adverse effect on the deployment of next generation networks in the UK. The deployment of next generation networks in the UK lags behind other EU Member States without separation (see Schedule A). The Minister for Competitiveness has highlighted the widening of a next generation network gap between the UK and other EU Member States,⁴⁹ and the growing level of concern has led to the UK Government setting up an inquiry.⁵⁰

C.4 New Zealand: an expensive copy

- 44 In New Zealand a similarly expensive solution was arrived at. The estimated cost of applying the BT approach to Telecom New Zealand was NZ\$130 – 180 million.⁵¹
- 45 New Zealand’s situation is even worse than in the UK because local loop unbundling (LLU) has only just been introduced in New Zealand. However, as Telecom simultaneously announced an ambitious cabinetisation program, LLU

⁴⁷ Ofcom, *Service Levels: Incentivising performance, Consultation Paper*, December 2007, (available at: <http://www.ofcom.org.uk/consult/condocs/slg/>)

⁴⁸ See December Evaluation Report, Annex 1: Survey of BT Wholesale and Openreach customers.

⁴⁹ Speech by Stephen Timms, Minister of State for Competitiveness, London, 18 September 2007.

⁵⁰ Department for Business Enterprise & Regulatory Reform, ‘Government investigates path to next generation broadband’, 22 February 2008, (available at: <http://nds.coi.gov.uk/content/detail.asp?NewsAreaID=2&ReleaseID=354760>).

⁵¹ Azimuth, *Operational Separation: Establishment of a separate Access Network Services Unit*, February 2007. Report done for TCNZ, (available at: <http://www.med.govt.nz/upload/45608/azimuth-ans-unit.pdf>).

is likely to be quickly redundant in most of the areas in which it would be economically feasible to use. Wholesale services relevant to a next generation network environment, such as bitstream, are not supplied through the Openreach equivalent, Chorus, but through the wholesale business unit. The wholesale unit is subject to significantly less extensive separation rules than Chorus –Telecom and the New Zealand Government acknowledge that the wholesale business unit can be little more than a “provisioning desk”.

- 46 The wholesale bitstream products in the Telecom commitments themselves are basic. They are little more than IP versions of the current narrowband telephony and broadband products, and will provide access seekers with very few benefits of the increased functionality and service capability of next generation networks.
- 47 Thus, as Telecom NZ progressively rolls out its cabinetisation program, Chorus, and the stronger operational separation rules that cluster around it, will become progressively less relevant.

C.5 EU: the OECD is shunning the UK Model

- 48 Most other European regulators have declined to follow the UK lead. The French, Dutch, Danish and Spanish regulators have expressed doubts about its value:
- (a) the Danish regulator, ITST, described operational separation as “an onerous administrative requirement to place on a private enterprise, interfering extensively with the company's operations”;⁵²
 - (b) the French regulator, AR-CEP, declined to push for operational separation, noting that “the apparent appeal of such a solution must not be allowed to mask the difficulties involved”;⁵³
 - (c) the Dutch regulator, OPTA, concluded that mandatory functional separation would be a disproportionate remedy and could produce undesirable effects for infrastructure competition. It found no grounds to resort to a remedy which assumes that no permanent, effective alternative forms of infrastructure competition are available or expected;⁵⁴ and
 - (d) the Spanish regulator, CMT, has concluded that functional separation would be an “extreme and exceptional” measure.⁵⁵
- 49 A number of EU Commissioners – including Commissioners for competition affairs and industry development – strongly objected to proposals from the

⁵² ITST (2007), *Strategic Review of Telecommunications Regulation*.

⁵³ See La lettre de l'Autorite, No 55, March/April 2007 (available at http://www.art-telecom.fr/uploads/tx_gspublication/lettre55.pdf) (in French). It also noted that functional separation gives rise to a whole range of costs and does not remove the need for regulation; and that proper accounting separation appears to be an effective means of controlling price discrimination. As to non-price discrimination issues, it suggested that a proportionate remedy might seek separation of systems, together with a code of practice and case-by-case investigation powers.

⁵⁴ OPTA, 2 March 2007, Letter to market parties entitled *All-IP: Policy Rules and Separation of Functions*. Ref: OPTA/TN/2007/200309.

⁵⁵ Refer to http://www.cmt.es/es/home/novedades/anexos/ANEXO_NGA.pdf (2007) (in Spanish).

Telecommunications Commissioner to mandate separation for incumbents.⁵⁶ Eventually, a diluted proposal was adopted by the Commission (and it is yet to be adopted by the Parliament and Council) which allows separation to be applied only where there is evidence of persistent discriminatory behaviour that other remedies have not been able to resolve and there is little or no prospect of infrastructure-based competition.⁵⁷

50 As SingTel notes,⁵⁸ a national regulatory authority wishing to impose separation will face high hurdles. It would have to submit and demonstrate to the European Commission the following:

- (a) evidence that the imposition of appropriate obligations to achieve effective competition following a co-ordinated analysis of the relevant markets in accordance with Article 16 of Directive 2002/21/EC (Framework Directive) has failed, and would fail on a persistent basis, to achieve effective competition, and that there are important and persisting competition problems/market failures identified in several of these product markets; and
- (b) an analysis of the expected impact on the undertaking, including its incentives to invest in its network, and on other stakeholders, including in particular the expected impact on infrastructure competition and any potential entailing effects on consumers.

51 The OECD has recently expressed the view that there is no support for more radical measures like structural separation and that functional or operational separation should only be adopted after a careful analysis of the costs and benefits:

Compared to functional separation, there is little support for implementing structural separation which envisages a complete separation, including ownership, between a company providing access (network infrastructure) and the service company. ... Among OECD member countries for the moment there is ongoing discussion on using functional separation as an additional remedy. However, if existing rules do not work well for NGA then functional separation may become a last resort measure. Therefore, it is important, as a first step, that the benefits and costs of such a measure are well documented so that policy makers can take appropriate decisions.⁵⁹

C.6 Singapore: “less than meets the eye”

52 Singapore is sometimes held out as an example of structural separation being applied to a next generation network. However, closer examination of the facts reveals the charade, and the staggering hypocrisy of SingTel Optus’ separatist agitations in the lead-up to the RFP in Australia.

⁵⁶ Financial Times, ‘Brussels Split over Telecoms’, 25 September 2007 reports that “sharp divisions have emerged” in the EC, and that two Commissioners (Neelie Kroes, EU competition chief, and Günter Verheugen, the industry commissioner) have attacked Commissioner Reding’s proposal.

⁵⁷ EC Directive COM (2007) 697 rev.1, amending Directives 2002/21/EC, 2002/19/EC, and 2002/20/EC.

⁵⁸ SingTel IDA Response, para 4.4.

⁵⁹ OECD (2007), Directorate for Science, Technology and Industry, Committee for Information, Computer and Communications Policy, ‘Convergence and Next Generational Networks’, Ministerial Background Report, p. 31.

53 The facts are:

- (a) Singapore's Government-subsidised next generation network envisages separation between 'NetCo', owning the passive network elements, and 'OpCo', owning the active elements;
- (b) while NetCo and OpCo cannot be under the effective control of the same shareholders, there can be a significant level of common ownership: up to 30%. Also, as we discuss below, SingTel appears to have developed a model that meets the effective control arrangements but allows it to own the network;
- (c) there will be only one NetCo and while, in theory, there is scope for more than one OpCo, the general expectation seems to be that there will be only one winner of the OpCo bid. The relationship between NetCo and OpCo will therefore, by implication, be exclusive. There will not be multiple OpCos accessing NetCo on an equivalent basis. There will be one buyer and one seller, making the separation a high farce;
- (d) further upstream, it appears that under consortium arrangements SingTel is proposing that it would build, own and finance the new network, and provide a long-term lease arrangement to NetCo.⁶⁰ Again, that contracting task appears to be very simple: one provider, one customer and a long-term lease, with very little to negotiate over the life of the asset. It will be SingTel's build, and SingTel's network, with a return funded by income from a JV that itself is dominated by SingTel's shareholder, the Singapore government;⁶¹ and
- (e) further downstream, OpCo will be a wholesaler to multiple retailers, but need not itself be structurally separated. Only functional or operational separation will apply between its wholesale and retail functions – precisely what SingTel Optus says is ineffective in Australia. It appears that, as well as owning the network in the NetCo arrangement described above, SingTel also may bid for OpCo.

54 The separation relates to an entirely new FTTP build that will sit in parallel to SingTel's existing, vertically integrated operations on its copper network. SingTel will not be required to give sub-loop access, nor be foreclosed from itself upgrading or operating its copper network, nor accept any limits on its own discretion to structure as it wishes – all of which SingTel seeks to impose on Telstra in Australia.

55 As noted, SingTel vigorously opposes any form of separation being applied to its existing network and business. SingTel says that "[i]nternational practice suggests that separation should not be considered as a regulatory measure until a cost-benefit [analysis] is performed and it is established that the benefits associated with separation exceed the costs."⁶² SingTel goes on to list the costs associated with separation as including:⁶³

⁶⁰ telecomasia.net, 'SingTel to bid for new broadband network', May 6, 2008 (available at: http://www.telecomasia.net/article.php?type=article&id_article=8393).

⁶¹ Three of the four members of the consortium, including SingTel, are part-owned by the Singapore Government's investment vehicle.

⁶² SingTel IDA Response, para 4.36.

⁶³ SingTel IDA Response, para 4.37.

- (a) the costs associated with the loss of certain efficiencies associated with vertical integration;
- (b) degradation of service quality stemming from a “lowest common denominator” approach to service provisioning, delivery and supply;
- (c) disincentives for investment that may arise following separation; and
- (d) the costs of implementing structural separation, including information system separation, staff training and recruitment costs, etc.

56 SingTel also says that structural separation should be categorically ruled out⁶⁴:

Structural separation has been reviewed and considered by various regulatory authorities and other bodies over recent years and there is a consensus that the costs of structural separation significantly outweigh any potential benefits.

57 In an apparent attempt to leave some leeway to explain away its participation in the Singapore next generation network project and its position in Australia, SingTel makes two further arguments. **First**, it says that separation is unnecessary in Singapore because there is full facilities-based competition – as we discuss in Part D, this is also the case in many urban areas of Australia where SingTel Optus has an HFC network passing over 2.2 million homes. **Second**, SingTel argues that structural separation is arguably appropriate where public funding is involved. A recent report by the UK Broadband Stakeholders Group identified the importance of open access requirements when public funding is involved, but said nothing of separation.⁶⁵ As Kip Meek explains in his attached report, open access should be an objective for a partially publicly-funded next generation network project, but it does not follow that separation is needed or prudent to achieve that access.⁶⁶

58 More generally, the fact that public funding is at stake surely only makes it all the more important that resources be used efficiently. The overwhelming evidence of the importance of vertical integration efficiencies – evidence SingTel itself emphasises – underscores the need to ensure that those are fully captured in the NBN, and hence also benefit taxpayers.

59 The role of regulatory gaming must be recognised in SingTel’s attempts to juggle its contradictory positions in Singapore and Australia. SingTel Optus does not come with clean hands. It has obvious incentives to game the regulatory process to reduce its costs and to hamstring its major competitor. Its transparent attempts to leverage lower access prices from Telstra by putting forward its own illusory G9 pricing fell at the first hurdle.⁶⁷ SingTel has no credibility demanding that Telstra “do as I say, not as I do”.

⁶⁴ SingTel IDA Response, para 4.38.

⁶⁵ Analysys Mason, ‘Models for efficient and effective public-sector interventions in next-generation broadband access networks’, Final Report for the Broadband Stakeholder Group, 9 June 2008.

⁶⁶ Annex A, p. 16.

⁶⁷ See ACCC, Assessment of FANOC’s Speed Access Undertakings in relation to the Broadband Access Service, Draft Decision, 7 December 2007.

C.7 Australia: a trail of failures

- 60 Vertical separation models have been tried in a number of sectors of the Australian economy, with poor outcomes for efficiency and the national economy compared to vertically integrated businesses elsewhere in Australia or overseas:
- (a) **Ports:** Vertically integrated mine/port/rail systems in Western Australia (serving the Pilbara region) operate far more efficiently than those at Dalrymple Bay (Queensland) and Port Waratah (NSW, serving the Hunter Valley), that operate under vertically separated structures, and where notoriously chronic delays result in long queues of ships stretching well out to sea as they wait for the congested coal loaders. Without vertically integrated ownership, it is just too hard to agree the terms of capacity expansions needed to support downstream businesses.
 - (b) **Rail:** For the first time since the 1920s, rail in the US has returned to profitability. In Australia, rail continues to struggle. The difference? Vertical integration. In the US, vertically integrated rail operators have invested and been able to compete successfully with other transport modes through a combination of superior service, including high reliability, and aggressive pricing (assisted by the absence of double marginalisation). In contrast, in Australia, vertical separation has resulted in endless “buck passing” in the rail industry and a failure to invest in a timely and efficient manner. The UK provides an even more extreme case of the difficulties that arise when vertical integration is ended, with structural separation in rail triggering major problems necessitating further regulatory interventions including re-nationalisation. Investment in rolling stock was beset with problems, and the system was eventually forced to re-integrate to a substantial degree. In the meantime, operating costs had increased by some 60 percent, making rail in the UK effectively no longer viable.
- 61 The impact of these efficiency factors on productivity is profound.⁶⁸ The Pilbara’s highly vertically integrated mine/rail/port systems allowed iron ore exports to increase by 55% from 2002 to 2006. But in the Hunter, where asset ownership is dispersed across multiple owners, coal exports grew by only 18% in the same period (despite experiencing similar pricing and demand trends). In Queensland, a mine operator recently said that the investment hold-ups at ports in that state would cost “billions” in lost exports.⁶⁹
- 62 The separationists have short memories of the sorry history of vertically separated network firms in the Australian telecommunications industry. The following is an obituary list of separated network companies which have failed – the wreckage was usually acquired or rolled back into vertically integrated operators:
- (a) NextGen was established in 2000 as a carrier’s carrier to build a national inter-city fibre optic network. The initial cost was projected to be \$800 million, fully funded by a syndicate of investors. Barely three years later, NextGen failed and the assets were bought for a knock-down price by

⁶⁸ Centre for International Economics (2006), *National Competition Policy Access Regimes and the National Interest: The case study of iron ore*.

⁶⁹ A. Fraser, ‘Queensland coal bottlenecks “to cost billions”’, *The Australian*, 17 June 2008.

Leightons. Its business model has now shifted to a wholesale and retail model and is now showing modest signs of recovery;

- (b) Comindico was funded in 1999 by AGL and a group of financial investors, including AMP, ANZ Investment Bank, and JP Morgan. The business model was to build a national IP network and to sell white label IP connectivity services. Comindico failed within 18 months and its assets were bought from the receiver by the forerunner of SP Telemedia and then formed the basis of its retail network; and
- (c) Macrocom, which started off as an independent wholesaling company launched by the well-known veteran telecoms engineer, Barney Blundell, built a microwave network between Sydney and Melbourne. It failed in 2002 and was then bought by Flowcom, which deployed fibre networks on the East Coast and operated an ISP business. Flowcom failed in 2004 and the Macrocom assets were acquired by NTL in 2004.

- 63 The failure of these vertically separated operators could be treated as part of the natural 'experimentation' cycle of the market because the networks they were building overlaid the PSTN. However, the NBN is to *replace* the PSTN. Given the enormous economic, social and political consequences of failure, do we really want to entrust the NBN's fate to a separated operator who could be tomorrow's NextGen or Comindico?

D NBN separation: dangerous and unnecessary

64 In this Part, we consider why the **benefits of vertical integration are greater** in the NBN than in legacy networks and, conversely, why the alleged risks of **vertical foreclosure are less** than even in today's legacy networks.

65 We will use the decision-making framework proposed by the European Commission for its "last resort" separation remedy – which SingTel strongly endorses. SingTel describes this framework as follows:

The European Commission's proposals in respect of functional separation seek to prevent the improper use of this intrusive regulatory remedy by requiring national regulatory authorities to conduct a thorough analysis of:

- a. *the existing state of competition in defined markets;*
- b. *the effectiveness of existing regulatory remedies (e.g. accounting separation) in addressing the identified competition problem; and*
- c. *the appropriateness of functional separation as a means of addressing the identified competition problem,*

*prior to the imposition of functional separation as a regulatory remedy.*⁷⁰

66 SingTel endorses Professor Cave's view that such an analysis will "prevent 'copy-cat' use of a fairly draconian remedy."⁷¹ If, as SingTel urges, the EU 'last resort' test was applied, the case for applying separation to the NBN would fail the test.

D.1 What are competitive conditions likely to be in an NBN world?

67 Contrary to the assertion that next generation networks lead to a 're-monopolisation' of the local loop, the economic feasibility of deploying competing network infrastructure can improve in a next generation network world. As a multi-service platform, next generation networks provide the opportunity for higher average revenues per user (ARPU) and, as an IP-based platform, they provide the opportunity for lower ongoing operating costs. Telstra has never sought and will not seek a legal monopoly if it deploys the NBN and therefore, based on emerging overseas evidence, it is likely that the NBN will be competing with other next generation networks in some areas. As Professor Cave comments:

[I]t is often asserted, falsely in my view, that NGAs are a natural monopoly, and that the development of end-to-end competition in the delivery of electronics communications services which have been seen in the past twenty years will be reversed. This view is sometimes based on a definition of NGAs which confines them to FTTx networks which are a development and extension of the copper access network or CAN. But this omits hybrid fibre co-axial (HFC) networks ('cable networks'), which when developed up to DOCSIS 3.0 standard are capable of meeting the functionality of FTTC and some variants of FTTH

⁷⁰ SingTel IDA Response, paragraphs 4.8 and 4.9.

⁷¹ SingTel IDA Response, para. 4.22, citing M. Cave, (2006) "Six Degrees of Separation: Operational Separation as a Remedy in European Telecommunications Regulation", *Communications & Strategies*, No. 64, 4th quarter, p. 12.

networks. They also have the capacity to broadcast entertainment programmes, rather than rely on IPTV.

Moreover, observation of NGAs in Europe suggests that investment in them is promoted by competition. Thus the Netherlands loss of subscribers to cable companies seems to have been one of the factors driving KPN's investments in an NGA network, and competition between France Telecom and Free in parts of France has triggered an investment race which has benefited end users. Accordingly the European Commission's forthcoming Recommendation on the regulation of NGAs is likely to focus to a considerable degree on means of promoting competition among them, via sharing passive assets such as ducts, for example, rather than treating the network as whole as a bottleneck.⁷²

- 68 SingTel states that “[o]ther regulators have specifically rejected operational separation as a regulatory measure on the basis of the existence of **two** national wireline networks” – in Singapore’s case, the SingTel copper network and the Starhub HFC. It is also the case in Australia that there is direct head-to-head competition between the Telstra fixed copper and cable networks and the SingTel Optus cable network for a third or more of Australian homes. SingTel Optus’ HFC network passes more than 2.2 million homes in Brisbane, Sydney and Melbourne. It would be facile to distinguish the situation in Singapore on the basis that the two networks there are nationwide, but that they aren’t in Australia (SingTel Optus’s HFC network’s geographic coverage and homes passed are larger than the entire Singaporean national market). SingTel Optus ranks as one of the world’s larger cable networks – even taking into account markets like the US with ubiquitous cable penetration.⁷³
- 69 Mobile operators (identified by SingTel as potential competitors) are deploying broadband wireless networks that will have coverage exceeding 95% of the population. Fixed wireless operators in the metropolitan areas are gearing up to compete against the NBN.
- 70 While Starhub has upgraded its network to 100 Mbps, SingTel has failed to invest in the SingTel Optus HFC because it has had the easy option of low cost regulated access, including ULLS. By participating in the Terria consortium, SingTel now proposes to overbuild its own HFC network. While in Australia it derides HFC as yesterday’s technology, in Singapore it argues that HFC provides such a formidable competitive challenge to SingTel that separation is unnecessary. SingTel Optus’ failure to emulate its parent’s main competitor in Singapore prevents Australian end users from the consumer benefits arising from the speed race between copper and cable which Singaporean end users enjoy. As Professor Cave has said:

[T]he competitive environment for broadband in Australia exhibits what I believe is a unique feature: the decision by end-to-end competitors to supply a significant number of their customers on the basis of loops rented from the incumbent, in preference to relying on their own loops. This conduct, which can be described as a partial stepping down from the pinnacle of the ladder of investment – full end-to-end competition – coincides with the conduct of ISPs without end-to-end networks making early attempt to gain broadband customers, also using Telstra’s loops.⁷⁴

⁷² Annex B, pages 22-23.

⁷³ Telstra submission to ACCC, in relation to its Application for an exemption in respect of the supply of regulated access services to SingTel Optus in HFC areas, December 2007, Table 5, p. 32.

⁷⁴ M. Cave, *Applying the ladder of investment in Australia*, submission to the ACCC, December 2007, p. 10.

- 71 The separationists, of course, argue that because the NBN is likely to be the only fixed network for the foreseeable future outside metropolitan areas, separation is still necessary. However, it is in the metropolitan areas – where the NBN operator (whether Telstra or another party) faces increasing facilities-based competition – where access seekers focus their activities and therefore seek to unjustifiably use separation to hobble Telstra.

D.2 Will other regulatory measures effectively address identified competition problems?

- 72 Again to borrow from SingTel's own analysis, two issues need to be considered in answering this question:⁷⁵
- (a) are there any “documented cases of chronic discrimination by any wireline operator that would justify the imposition of separation”; and
 - (b) is there any “evidence to suggest that existing regulation is insufficient.”

D.2.1 Non-price discrimination not a problem in Australia

- 73 One of the major risks identified in the CEG paper of vertical integration⁷⁶ is “sabotage”: supply of bottleneck inputs to external wholesale customers at quality levels, in provisioning times or with service features and functions that are worse than the supply of equivalent inputs to the retail channel.
- 74 According to Kip Meek, the Ofcom Commissioner involved in the development of the UK functional separation model, the principal driver of Ofcom's decision to adopt functional separation was BT's appalling record of discriminatory non-price terms of supply which was crippling competitors. BT was missing over 40% of wholesale appointments in some months immediately prior to functional separation being introduced.⁷⁷ Functional separation was, in effect, “shock therapy” to achieve equivalent service.
- 75 SingTel also agrees that non-price discrimination was the focus of the UK approach and that functional or operational separation is justified only where there are “chronic instances of discrimination in service delivery.”⁷⁸
- 76 But the problems of the poor service delivery to wholesale customers that beset the UK market were resolved in Australia 4-5 years ago. Telstra offers equivalent ordering, provisioning, maintenance and other service support functions and processes between its retail and wholesale channels. Telstra's B2B OSS interfaces reflect world's best practice. Telstra's relative performance in servicing wholesale and retail customers is measured regularly under record-keeping rules. The ACCC has consistently found no evidence of discriminatory treatment. In fact, on average Telstra delivers *better* service to wholesale customers than its own retail users.
- 77 Kip Meek concludes that, given the level of service equivalence which has been achieved in Australia, the UK model of functional separation is inappropriate for the Australian market:

⁷⁵ SingTel IDA Response, para 2.22.

⁷⁶ CEG report, ‘Structural Separation for a National Broadband Network’, report for SingTel Optus, May 2008, p. 16.

⁷⁷ Ofcom, *Strategic Review of Telecommunications – Phase 2 consultation document*, 18 November 2004, para. 6.18.

⁷⁸ SingTel IDA Response, para 4.19.

In the light of these differences between the Australian and British environments, I would not recommend that the UK form of functional separation be used as a starting point in the Australian context. The undertakings agreed between BT and Ofcom have provided the basis for a transformation in the competitive environment in fixed telecoms in the UK and in particular in broadband; they have played a very substantial role in diminishing non-price discrimination as an issue in the UK; and they contain many interesting and innovative approaches. However, the position in Australia in 2008 is totally different from that in the UK in 2004 - and the fact that the current form of operational separation in Australia is less radical than the UK's does not, in isolation, mean that it is not fit for purpose.⁷⁹

- 78 In a report for SingTel Optus, Dr Doyle says that “[o]perational and functional separation is very much targeted – if designed properly – to address [non-price] problems. In my opinion, the Australian operational separation plan is lacking in precisely doing that.”⁸⁰ However, Dr Doyle overlooks the extensive reporting obligations under the operational separation regime as well as under the ACCC’s record keeping rules which require Telstra to report on comparable wholesale and retail performance. As Professor Cave says:

Dr Doyle’s report refers to the record keeping rules which the ACCC has issued in relation to accounting separation, but he does not refer to the record keeping rules which the ACCC has issued requiring Telstra to report on the comparable treatment of retail and wholesale channels on key non-price service parameters. The information collected by the ACCC on Telstra’s relative performance on non-price issues in supplying retail and wholesale customers for over 4 years has been published quarterly by the ACCC in its imputation testing and non-price conditions report. The latest report compares the percentage of Telstra’s wholesale and retail customers for which performance standards are met. According to the ACCC, the results show that basic access connection levels had slipped for wholesale customers in the last quarter of 2007, but other results ‘are similar and do not indicate that Telstra has materially discriminated against its wholesale customers during the quarter’ (p.5). This reflects a consistent pattern of findings of non-discrimination by the ACCC over the 4 year reporting period.⁸¹

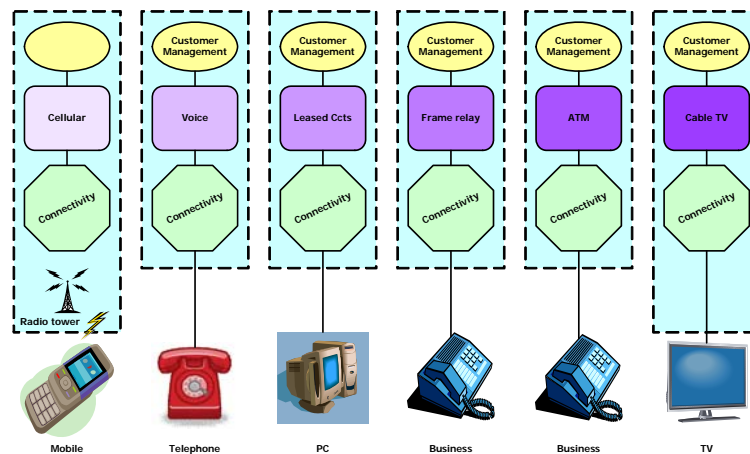
- 79 The risks of non-price discrimination are likely to be even less in a next generation network environment. The architecture of next generation networks differs fundamentally from a circuit based network. As depicted in Figure 4 below, a circuit-based network may involve a siloed approach to product development and supply. In the legacy environment, access requirements often had to be retro-fitted to network architectures and technology originally designed for a monopoly environment. As so many processes were manual or partly manual, employees of the incumbent were involved at key stages of the supply chain to retail and wholesale businesses, raising concerns about their incentives to prefer the retail channels.

⁷⁹ Annex A, p. 3.

⁸⁰ Quoted by J. Hogan, ‘New calls for Telstra Separation’, The Age, 19 June 2008.

⁸¹ Annex B, pp. 13-14.

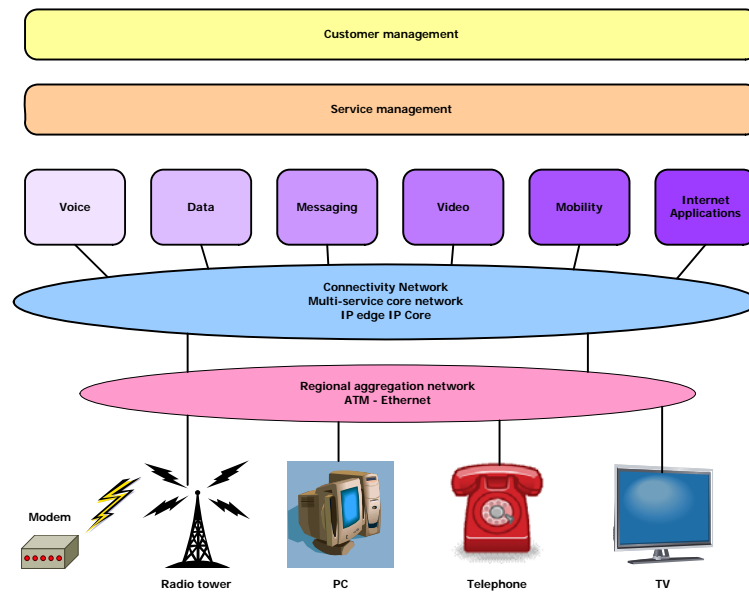
Figure 4: Depiction of a circuit-based network



80 By contrast, a next generation network takes a more layered approach and uses externally defined interfaces to permit access at the connectivity *and* applications layers (see Figure 5). The next generation network will mean that access to the underlying transport layer is easier, more straightforward and more likely to be equivalent than ever before. Bitstream buyers will have unprecedented opportunities for value creation, and it will be in the downstream layers that most of the innovation and growth will occur. Here, assets and businesses are highly replicable by non-network providers, who face low barriers to entry (eg it is much cheaper to deploy a server than a network).⁸² There are fewer human touch points in a next generation network. More processes will be automated and internal and external customers will be able “plug and play” into the new network through efficient B2B interfaces.

⁸² For example: (a) using the basic bitstream service an ISP could offer a range of cloud computing applications using the development environment offered by Amazon or Google; (b) ISPs or users can also construct “mash-ups” by combining Web 2.0 applications to deliver new services; and (c) a service provider could offer a unified communications application which uses information about a friend’s “presence” to determine the best way to communicate with them. For example, if they are logged in to a web session then instant messaging might be best, but if they are travelling then mobile might be best.

Figure 5: Depiction of a next generation network



- 81 Taken together, these two architectural characteristics mean that the new network will inherently provide access to all corners at the bitstream layer, so service providers simply will not face the technical hurdles of the past in getting demonstrably equivalent network access.

D.2.2 Price related competition risks reduced in a next generation network environment

- 82 Telstra does not believe that access seekers, nor the ACCC, have produced evidence of a systematic or significant problem of price discrimination. But if this is the real concern, the risks of anti-competitive price discrimination in the NBN world will be significantly reduced and, in any event, separation, legal or operational, is not the solution.
- 83 First, a rigid requirement that a vertically integrated operator’s arm “pays” exactly the same for inputs makes no economic sense. As Professor Yarrow explains:

Precisely because integration has real economic effects, intuition can sometimes mislead analysts into thinking that it is necessarily discriminatory and anti-competitive in its effects. The argument usually goes something like as follows: integration gives economic advantages, the playing field is therefore not level (competitors do not have access to equivalent opportunities), [and] competition is therefore harmed...

Whilst it is true that integrated and non-integrated firms face different incentives, that is just the other side of the coin from the fact that integration has real economic effects. It would be folly to argue that, as a matter of principle, equivalence or non-discrimination means that the incentives of all competitors in, say, service activities should be fully aligned, irrespective of whether alignment has pro- or anti-competitive effects.⁸³

⁸³ Annex D, p. 32.

- 84 Professor Yarrow concludes that while non-price equivalence should be required for key bottleneck inputs, rigid price equivalence would be inefficient:

*Equivalence/non-discrimination is a key principle in access regulation, but it is important to distinguish it from full equalisation of business circumstances. Equivalence/non-discrimination is most appropriately promoted in so far as it serves to prevent anti-competitive outcomes, but to go further would itself be inefficient and anti-competitive in its effects, leading to more restricted markets and lower investment levels.*⁸⁴

- 85 Indeed, the primary goal from an efficiency perspective should be to ensure the benefits of vertical integration are secured to the full, even when this means displacing less efficient rivals: to do otherwise would perpetuate the regulatory error into which the ACCC routinely falls of confusing “infant industry” protection, and the provision of welfare to inefficient entrants, with the promotion of competition. Of course, it is important to ensure that vertically integrated firms do not act anti-competitively, for instance, through vertical price squeezes that could substantially lessen competition, but the instruments to achieve that goal are already in place, including the recently strengthened s.46 of the *Trade Practices Act 1974*. However, this is fully consistent with the vertically integrated firm deriving the benefits of avoiding double marginalisation – benefits that are plainly favourable to consumers and to overall efficiency.
- 86 In short, it is essential to avoid confusing the sensible desire to avoid anti-competitive conduct – a goal that can be effectively achieved by the instruments of competition law – with an essentially irrational goal of preventing the benefits of vertical integration (including those associated with the avoidance of double marginalisation) from being secured.
- 87 Second, the risks of anti-competitive pricing behaviour by a vertically integrated entity will in any event be significantly reduced in a next generation network world. The economics of the new network are such that once very large fixed investments have been made, the owner will have strong incentives to ensure that the retail layer flourishes. Ofcom has recognised that as the next generation network operator will recognise that “[competing] communications providers might help increase overall demand for next generation access, [this] could ... act to diminish incentives to discriminate.”⁸⁵
- 88 Further, the business models which are likely to succeed in a next generation network environment will promote open access approaches. As the NBN will carry a much wider range of services than any network in the past, customers will demand this variety. The network operator will not be able to meet all end user needs. Where closed “walled garden” approaches were initially attempted they have typically been dismantled in the IP environment once it was realised that the demand-creating effect of diversity and contestability exceeded any potential benefit from attempts to monopolise downstream service markets. As Williamson notes:

IP technologies have facilitated entry into service provision, thereby increasing competition in the downstream market and reducing any potential benefit from discrimination. First generation web services, such as Skype voice and video and emerging web based video services like YouTube, provide a foretaste

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Annex D, p. 32.

Ofcom. September 2007. ‘Future broadband, policy approaches to next generation access’, para. 5.36.

of the scope for applications and services competition possible on the powerful, end to end IP platform provided by an NGN.⁸⁶

89 There is some concern, particularly as raised by CEG, that the high potential for downstream innovation benefits makes it even more important to ensure that anti-competitive discrimination cannot occur. What they fail to realise, however, is that it is the changed downstream environment itself that answers these concerns: precisely *because* of those benefits, the network owner’s incentive to discriminate anti-competitively will be far *lower* in a next-generation world. The network owner stands to gain from innovations that make the network (with its high fixed costs and low marginal costs) more attractive. Together with the technological features of next generation networks noted above – features that will make for effective ‘equivalence of access’ – the incentives the network owner will have to expand the value of its network will make the risk of the harmful discrimination that CEG fears remote.

D.2.3 Are alternative regulatory tools effective?

90 SingTel argues that separation is unnecessary because the regulation which currently applies in Singapore, which it describes as being of “high” level, provides an effective safeguard against discrimination in a next generation network environment. SingTel’s regulatory burden is significantly lower than the current level of regulation that Telstra faces in Australia, as summarised in Table 2.

Table 2: Comparison of the regulatory burden in Australia and Singapore

Regulatory Requirement	Australia	Singapore	Comment
Non-discrimination standard			
Non-discrimination obligation	✓	✓	Singapore obligation is less explicit than Australian SAOs
Is non-discrimination legally enforceable by access seekers?	✓	✗	Only IDA can bring enforcement action
Transparency			
Accounting separation	✓	✓	
Imputation test reporting	✓	✗	
Public reporting on non-discriminatory service levels	✓	✗	
Supply terms			
Regulatory approval of terms?	<ul style="list-style-type: none"> • Voluntary undertakings • ACCC determined standard terms 	Compulsory RIO	

⁸⁶ Williamson expert report, Annex B to Telstra’s Main Submission, p. 13.

Regulatory Requirement	Australia	Singapore	Comment
Transparency of approval process	✓	✗	Access seekers have access to confidential cost modelling information but do not in Singapore
Operational Separation			
Requirement for separate wholesale unit	✓	✗	
Requirement for separate network support unit	✓	✗	
External audit of compliance with non-discrimination	✓	✗	
Requirement for supply of information on network changes and future technology roadmap to wholesale customers	✓	Partial	Notification of network changes in Singapore but not technology roadmap
Requirements to treat wholesale customer information confidentially	✓	✓	Singapore measures not as extensive as under Telstra operational separation plan
Competition powers			
Standard ex post competition powers	✓	Partial	General competition law does not apply but similar telco specific ex post powers
Enhanced competition powers (eg competition notice)	✓	✗	
Can competitors bring own enforcement actions?	✓	✗	Only IDA can enforce

- 91 For the reasons discussed in Telstra’s Main Submission, including primarily the need to provide regulatory certainty, the current regulatory regime (including the measures in Table 2) will require significant modification to reflect the radically altered challenges, technology and competitive dynamics of the NBN. The regulatory proposals of each bidder will form part of its commercial bid; Telstra’s Main Submission outlines the key principles we believe should inform that new regulatory regime. There is no reason to believe that the NBN measures on non-price discrimination will be less effective than today’s. Whatever the final shape of the new NBN regulatory regime, separation has no useful part in it.
- 92 On **non-price discrimination**, the clear experience in both the US and Australia shows that behavioural rules have been more effective at delivering non-price equivalence for access seekers by, for example, requiring or encouraging non-discriminatory electronic OSS interfaces. Imposing further separation in Australia now would lead the bizarre situation where:
- (a) the UK has introduced functional separation to achieve non-price equivalence, particularly on electronic OSS interfaces;

- (b) the US has removed separation measures once equivalent non-price processes, such as OSS interfaces, have been established; and
 - (c) Australia, which already has achieved equivalent processes, including world's best practice wholesale OSS interfaces, would be introducing separation.
- 93 On **price** discrimination, SingTel and its expert, Dr Doyle, freely acknowledge that operational separation is an inappropriate remedy for price discrimination. Dr Doyle states that “[t]he main driver for functional separation was not price discrimination by BT ...”⁸⁷
- 94 Therefore, on SingTel's own test, its case for separation must stand or fall on whether there are “documented cases of chronic discrimination” in the non-price terms. Clearly, the ACCC monitoring shows this is not the case.
- 95 This leads some separationists, such as CEG, to argue that only full ownership separation can address the risks of price discrimination, with the result that the trading will be real.
- 96 However, this incorrectly assumes, as Professor Yarrow notes in the quote above, that price discrimination is harmful, which is plainly incorrect, especially for an activity that has very high fixed costs and low marginal costs. Rather, price discrimination is only harmful to the extent to which it substantially lessens competition and in so doing reduces output. In contrast, the form of price discrimination implemented within a vertically integrated firm – price discrimination through the avoidance of double marginalisation – generally acts to expand output, intensify competition and improve welfare.
- 97 In those circumstances where the price discrimination has material anti-competitive effects, there are already in place powerful remedies that can be brought to bear. It would be foolish to deprive consumers and society of the well-established benefits of vertical integration for the sake of avoiding risks of anti-competitive conduct that are merely speculative.
- 98 Overall, ownership separation runs the full risks of the loss of the vertical efficiencies discussed above. Given the armoury of powers the ACCC has to deal with price squeezes, it is not credible to believe that the risk of undetected or unremedied price discrimination is significant enough to adopt a separation model which jeopardises the efficient deployment and continued upgrading of the NBN. We will now turn to consider this issue.

D.3 Separation will cause significant damage to the NBN objectives

- 99 If there are identifiable discrimination problems which are not addressed by current regulation, the next step, as SingTel says, is as follows:

*The proper test involves an analysis of the costs and benefits (if any) associated with structural and operational separation. International practice suggests that separation should not be considered as a regulatory measure until a cost-benefit [analysis] is performed and it is established that the benefits associated with separation exceed the costs.*⁸⁸

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Quoted by J. Hogan, 'New calls for Telstra Separation', The Age, 19 June 2008.
SingTel IDA Response, paras 4.35 and 4.36.

- 100 The risks of separation are the flip side of the benefits of vertical integration outlined in Part B, including double marginalisation, slower and more risk-adverse innovation, and impaired capacity to react to technological change. These risks are enlarged in a next generation network environment. As Professor Yarrow comments, it would be a **mistake** for policy makers to blithely assume that:

[T]he large uncertain projects of interest here [ie next generation networks] present nothing more than an enhanced challenge to getting the investment allocation incentives right. The big difference is that whereas previous concerns about over-investment (from rate-of-return regulation) or under-investment (from price-cap regulation) related to distortions at the margin of capex programmes, the big-project distortions are potentially on a much larger scale, encompassing the possibilities that a major reconfiguration of a network is either (a) not undertaken when it is economically justified, or (b) undertaken when it is not economically justified. The harm caused by ‘getting it wrong’ is much larger.⁸⁹

- 101 Professor Yarrow says that these conditions mean that “it is reasonable to expect that, for network companies and for policy makers, the future will be significantly different from the past, in as yet unknown ways.”⁹⁰ He draws two corollaries for policymaking at the point in time before next generation networks have been rolled out. **First**, dynamic efficiency, which to date has mainly been treated as an ad hoc add-on in telecommunications regulation, “should be very much to the fore in policymaking.”⁹¹ **Second**, policymakers must be very alive to the fundamentally greater risks that the benefits of next generation networks could be delayed or diluted “if regulators do not get their priorities right.”⁹²
- 102 In Telstra’s view, the benefits of vertical integration in the design, deployment, operation and upgrading stages include:
- (a) efficient design of the NBN requires close cooperation between the network and downstream units in terms of identifying service and system requirements, and ensuring that they will be met as effectively as possible. It will also need to benefit from the economies of scale in procurement and logistics that only a large, vertically integrated entity can achieve;
 - (b) efficient deployment of the NBN, which will be a massive undertaking, will crucially depend on close cooperation between the network and downstream units to manage transition issues, avoid disruption and deal as quickly as possible with any faults or errors in the cut-over process. It will also require the very detailed knowledge of local networks and services, the substantial upstream and downstream logistics assets and the field staff and control infrastructure that comes from long incumbency and vertical integration;
 - (c) efficient operation and use of the NBN will benefit from end to end fault monitoring and management. It will also require ensuring that downstream units face incentives to make proper use of the network,

⁸⁹ Annex D, pp. 13-14.

⁹⁰ Annex D, p. 12.

⁹¹ Annex D, p. 12.

⁹² Annex D, p. 14.

which has high fixed costs but very low marginal costs. Vertical integration will avoid double marginalisation, which would distort and undermine these incentives for efficient use; and

- (d) as is apparent from the separation experiences reviewed above, timely investment in upgrading the NBN in line with developments in technology and in usage patterns will be critically dependent on close, continuing and unimpeded information flows between vertical layers, co-ordination of network changes with applications development and the ability to spread and manage the risks, and share the benefits, of upgrading as between the full portfolio of wholesale and retail activities. The alternative is the endless buck-passing and capacity bottlenecks that have become chronic conditions in vertically separated ports and rail.

103 Securing these economies of integration will be critical to ensuring the success of the Government's plan to bring to Australians the full benefits of genuinely high speed broadband. Conversely, should those efficiencies be compromised or curtailed, the Government will be taking on massive risks that are likely to prove equally as difficult to manage as they will eventually prove costly to overcome.

104 In the following sections we focus on three of the largest problems of applying separation to the NBN: the risk of efficient investment being stalled, the risks to the integrity and continuity of end user services because no operator will be responsible for the network on an end to end basis, and the problems of matching a rigid organisation model developed for the PSTN architecture to the more dynamic environment of a next generation network.

D.3.1 Investment risks

105 Even if you take the view – despite the evidence outlined in Part B – that the battle between the opponents and supporters of vertical integration is a “nil all draw”, the fundamentally different investment risks associated with the NBN would lead you to the view that separation is too dangerous to experiment with. As Professor Cave says:

Both proponents and opponents of separation in the telecommunications industry draw on the arguments made in the general economic literature about the appropriate boundaries of firms. I do not intend to rehearse the arguments and counter arguments, although the studies I discussed at the outset of this paper [Lafontaine and Slade, and Joskow] clearly suggest that the proponents of vertical integration have the better end of the empirical argument relating to efficiency.

In my judgment, the technology driven characteristics of telecommunications networks ...suggest that the deciding factor in the telecommunications industry must be the impacts of integration vs separation on investment and innovation, particularly when considering how to conjure into existence a new fibre network or networks.⁹³

106 Mechanistic solutions to these co-ordination problems are generally costly and contentious; while structural solutions lead to the kind of tortured and dysfunctional structure that G9 proposed, involving a committee – possibly a cartel – of wholesale customers with extraordinary control over a network in

⁹³ Annex B, p. 9.

which they have not invested. Professor Cave, who is quoted by the separationists as supporting contracting mechanisms, considers that, even if they worked for an existing network, they are unlikely to succeed in getting the NBN built and upgraded over time:

[P]olicy makers face an entirely different situation when dealing with the deployment of as yet unbuilt network of the dimensions and significance of the NBN. The task of building within five years an entirely new national network to replace the PSTN, and then of upgrading it, involves challenges, risks and unpredictable contingencies which are of a different order of magnitude from the exercise of developing enhancements to existing networks or products, where the prospects of foreseeing likely contingencies are much better.

The conflicts, uncertainties and inefficiencies inherent in a contracting model addressing the deployment of a new large scale network are, in fact, well illustrated by the FANOC-BAS Manager structure proposed by the G9 in its Special Access Undertaking...⁹⁴

- 107 BT's Chief Technical Officer has said that the reason other EU markets are ahead of the UK in the deployment of next generation networks is because the incumbents in those other markets are not subject to the functional and other similar regulation imposed on BT.⁹⁵ While less blunt than his engineering colleague, the head of Openreach explains that the case for next generation network deployment in the UK is more demanding in the UK because, under the functional separation model, Openreach requires contractual commitments from the downstream providers:

The economics simply do not work unless BT Retail and rivals such as Sky, Tiscali and TalkTalk agree to make use of the new technology and pay for it. In essence, "the decision about whether to put fibre in is not just a BT decision", he says. "Our model says we do not take the whole value chain, we do make it available to everybody else and that means the financial case is even more demanding".⁹⁶

- 108 While it may be too early to be definitive, the early signs from the UK are troubling. While the head of Openreach's comments are framed in language of sharing the value chain (which will be attractive to competitors), policymakers should be under no mistake that the consequences, if this pattern does continue, are the very kind of investment co-ordination inefficiencies that the literature predicts for separation models.
- 109 The particular model of separation proposed by Terria/G9 escalates the co-ordination risks. As noted above, the Terria/G9 proposal cuts in two places: between Telstra as the sub-loop provider and FANOC and then between FANOC and the retail providers. As Ergas identifies in his report attached to the Telstra G9 SAU submission this more extreme form of separation would cause the following problems:

⁹⁴ Annex B, pp 30-31.

⁹⁵ D. Meyer, 'BT says no to traffic shaping', 12 April 2007, (available at <http://news.zdnet.co.uk/communications/0,1000000085,39286687,00.htm?r=2>).

⁹⁶ D. Meyer, 'BT Openreach unsure of fibre demand', 28 September 2007, (available at <http://news.zdnet.co.uk/communications/0,1000000085,39289708,00.htm>).

- (a) Telstra would have weaker incentives to maintain and upgrade its copper assets, as its ability to do so would be compromised by the G9 architecture, while its return on those assets would be effectively eroded by its dependence on the decisions made between Netco (called FANOC under the G9 proposal) assets and the access seeker governance body (called the BAS Manager);⁹⁷
- (b) FANOC's reduced incentives to invest in network and service upgrades (as a vertically separated operator) are compounded by the management of network assets under the BAS Manager arrangements:⁹⁸
 - (i) if participants are able to make "side payments" to each other (so that they can attain the outcome that is profit-maximising for the participants as a group), then the BAS Manager will operate as a cartel, with all the inefficiencies that entails;
 - (ii) alternatively, if participants are prohibited from making such payments, then there is simply no reason for expecting the committee structure to lead to efficient decisions. Rather, decisions would be taken in the interest of the pivotal voter, who is unlikely to have interests that are aligned with those of consumers overall in terms of service quality, costs and network upgrading.

110 Even SingTel Optus' own expert, Dr Doyle, shrinks from the two cut approach and suggests a NetCo/RetailCo model.⁹⁹

111 While acknowledging the strength of the investment co-ordination arguments, Davis and Williams comment:

*[these argument do not provide] a sufficient explanation of why it is that assets such as local loops or, indeed, other network assets should be considered relationship-specific. The assets clearly cannot readily be turned to other uses, but, in many cases, they could readily be supplied to other firms. That should significantly reduce the possibility of investment hold-up.*¹⁰⁰

112 This misunderstands the nature of the problem. Asset specificity is but one source, and in this case by no means the primary source, of the problems that would beset a vertically separated approach. Rather, the fundamental problem is that there would not be a close alignment of incentives between the network owner (or in the case of the G9 proposal, between and among the network owners, as there would additionally be separation of ownership as between the sub-loops and the rest of the FTTN network) and the downstream users. As a result, there would be complex issues involved in securing agreement about the allocation of the costs and benefits of network upgrading.

113 A striking illustration of these problems is provided by the experience of vertically separated airports. Thus, in the proceedings associated with Virgin Blue's application for declaration under Part IIIA of facilities owned by Sydney Airport Corporation Ltd (SACL) it became apparent that despite the fact that the relevant assets (essentially runways and other aeronautical facilities) were by

⁹⁷ Ergas Vertical Integration Report, para. 12.

⁹⁸ Ergas Vertical Integration Report, para. 13.

⁹⁹ C. Doyle, 'Structural Separation & Investment in the National Broadband Network Environment', a report for SingTel Optus, June 2008.

¹⁰⁰ W. Davis and P. Williams, 'Structural Separation in Australia, Economic and Policy Issues', *Telecommunications Journal of Australia*, vol. 58, no. 1, at page 11.5.

no means user-specific, there had been prolonged, conflictual and ultimately unsuccessful negotiations between the airlines and the airport owner over the costs of new investment, with the effect of inefficiently delaying that investment.

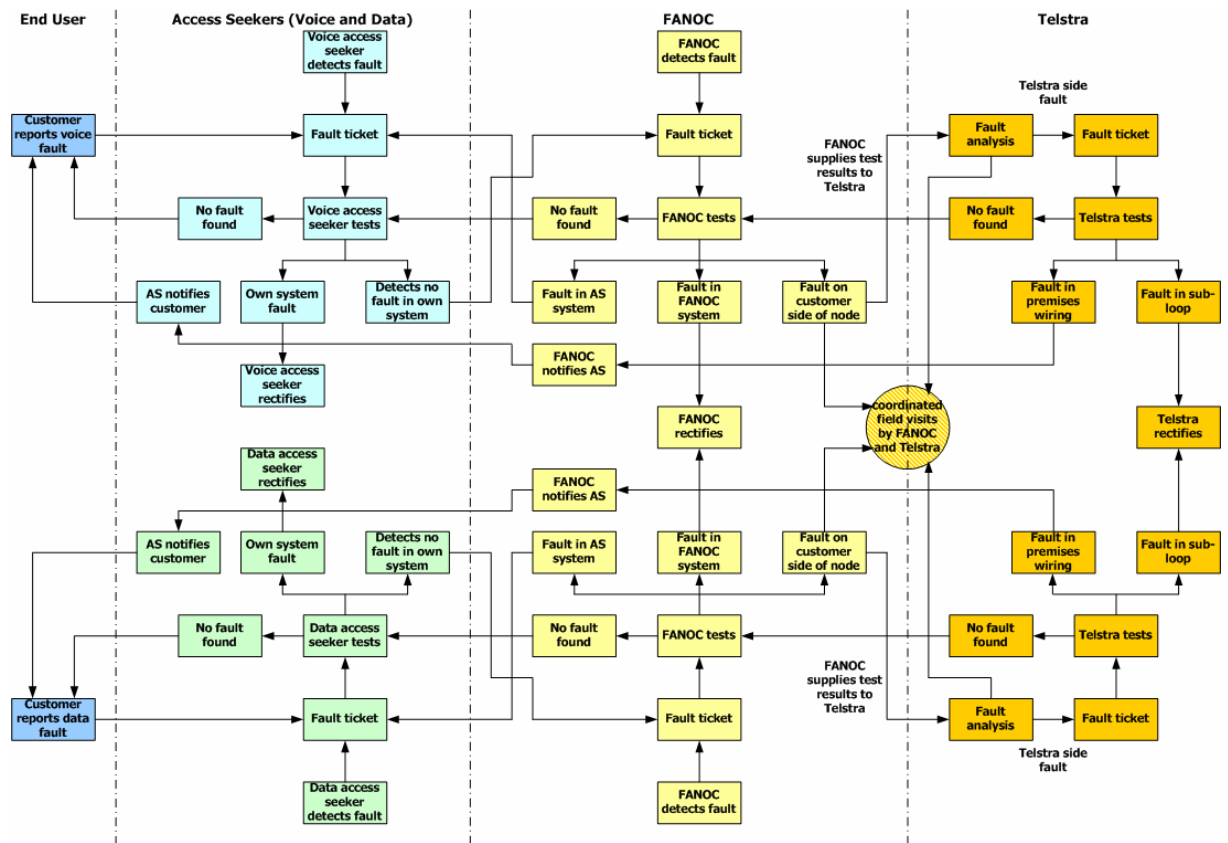
- 114 Indeed, in those proceedings, Professor Williams, one of the authors of the paper referred to, gave evidence that despite SACL being completely structurally separated from the downstream markets, and having no involvement in those markets, it had incentives to, and had acted in a way to, materially distort competition in those markets.¹⁰¹ The Tribunal found that SACL – which it noted was indeed completely structurally separated from the downstream markets – had nonetheless acted in a manner that sought to substantially distort downstream competition.¹⁰²

D.3.2 Risks for end users

- 115 Substantial operational efficiencies are generated by operating at both wholesale and retail levels. These will be even more important in a next generation network world because these networks push intelligence out to the network edge, at nodes and in the end user's home. All of these network elements will need to work seamlessly together to create high quality end to end connectivity on which downstream applications depend.
- 116 The operational arrangements under the Terria/G9 model will become immensely complex because there will be three parties operating at arm's length. No one party will be responsible for delivering, on an end to end basis, a predictable and high quality service, to end users.
- 117 Figure 6 depicts the probable process flow between Telstra as the sub-loop provider, the wholesaler at the transmission level (described as FANOC, G9's formerly proposed operating company), and the retail provider to resolve a fault complaint from a customer. A narrative description of this nightmare process is set out in Box 1.

¹⁰¹ Frontier Economics, 'Application for Declaration of the Airside Service at Sydney Airport' 12 August 2004, para. 87.
¹⁰² *Virgin Blue Airlines Pty Limited* [2005] ACompT 5.

Figure 6: Complexity of the operational arrangements under a separated model



Box 1: How separated operational arrangements would work in the real world

An end-user, Alice, acquires voice from service provider A and data from service provider B. Paul discovers that his DSL service appears to be “slower than usual”. She first calls service provider B which can check that the service is not being “throttled” in accordance with a cap. If Alice is calling on a phone service from service provider A, then there is nothing catastrophic in the network. Service provider B considers that the fault is not in its network. However, before Service Provider B reports a fault to FANOC, there may need to be a truck roll by service provider B to ensure that the fault is not in the customer premises beyond the network boundary point. For example, the fault may be in Alice’s customer wiring or caused by a noisy device (such as a faulty cordless phone) connected to the line. If the fault is neither in Alice’s house nor in service provider B’s network, then service provider B will send a trouble ticket to FANOC. FANOC can then establish that the node is operating properly and isolate the fault to downstream of the node. FANOC then conducts tests on the line and sends the results to Telstra. Telstra will then analyse the results. If the results are inconclusive, then both FANOC and Telstra will co-ordinate a truck roll to the node. It is still possible that the fault is in Alice’s wiring, in which case each of Telstra and FANOC will need to recover their costs.

- 118 If the G9 SAU is any guide, under the wholesale-only models, emergency calls (if not the standard telephone service itself) are likely to be a “hospital pass” to the downstream retail providers. Currently, access seekers re-supplying Telstra telephony services can leave the routing of 000 calls entirely to Telstra. Access seekers will need to invest in points of handover in each call collection area within the FTTN footprint for emergency calls to ensure that the call is delivered to the emergency service centre located nearest to the calling party. If access seekers do not make this investment, emergency calls would be routed to emergency service centres which are unable to dispatch appropriate help.

- 119 Again if the G9 SAU is any guide, wholesale-only providers may not offer a wholesale PSTN emulation service to downstream service providers. Instead, access seekers will introduce soft switches. However, no other country has yet replaced large parts of its PSTN with soft switches and the technology has not been deployed on any scale for voice services (although BT commenced such a migration in November 2006 in a process expected to take 2 to 3 years). Some new entrants are beginning to use such switches but are carefully managing the expansion of their voice services off a small base. A vertically integrated operator like Telstra would be in a position to follow a more incremental migration pathway which kept the existing time division multiplex switching architecture as a safety net.
- 120 Telstra won't be in a position to pick up the pieces when tens or even hundreds of thousands of users are stranded in a botched transition from the existing network to the spaghetti junction of the new industry structure. The dismemberment plan is a risk management nightmare. It is completely unprecedented internationally, could not be undone without huge cost, massive disruption and unending litigation, and would, if adopted, bring nothing but chaos for end users.

D.3.3 PSTN boundary line is irrelevant to NGNs

- 121 If separation measures could be justified at all, it would be on the basis of addressing the power which a vertically integrated operator derives from upstream bottlenecks in circumstances where behavioural measures had failed. But the very nature of bottlenecks in telecommunications is fluid. Today's bottleneck may be tomorrow's scrap metal, with a new bottleneck appearing elsewhere.
- 122 As Professor Cave cautions, rigid, difficult to reverse regulatory measures like separation of telecommunications which fix on bottlenecks run the risk of being self-fulfilling prophecies:

[T]he pay-off to separation clearly depends upon the scope for end-to-end competition and the pervasiveness of the bottlenecks ... It is important to bear in mind the two relationships between regulation and structure: while regulation properly responds to structure it also shapes it – in the sense that regulating an asset as a bottleneck will probably keep it one, even if it could be replicated.

In most other network sectors, technology is relatively stable and, aside from minor increments, unchanging over decades. As a consequence, bottlenecks can be readily identified and remain durable over a long periods of time. Long lived or irreversible regulatory solutions such as separation can be put in place in the knowledge that the underlying bottleneck problem which justified their adoption will not go away.

Telecommunications networks, of course, are characterised by dynamic technological change: indeed, innovation is the principal source of end user benefit. Past experience shows that judgments about the location of bottlenecks within telecommunications networks and the existence of downstream market power will change, often in unanticipated ways, with successive technological developments.¹⁰³

¹⁰³

Annex B, pp 6-7.

- 123 This makes the task of regulating a firm’s boundaries all the more perilous and error-prone. Even if it could be gotten right, it would become wrong over time, requiring controversial regulatory adjustments and new (equally costly and error-prone) regulatory rulings on what new structures should prevail.
- 124 This was very much the experience in the US, where both structural and operational separation led to incessant proceedings as to where the relevant boundaries lay on which separation was to occur. The result was not only substantial inefficiencies associated with delays in introducing new services – delays costed by Professor Crandall at \$US1.5 billion **per year** – but also the pure waste associated with the costs of litigation and rent-seeking.
- 125 Kip Meek comments that the UK model of functional separation is premised on the copper network and unbundled loops as the primary access service. Accordingly, he concludes that it is unsuited to a next generation network environment:

*The UK form of separation was implemented at a time when fibre in the local loop was a more distant possibility than is the case in Australia today: this fact alone underlines that there are trade-offs in creating technology-specific boundaries within a previously integrated organisation...*¹⁰⁴

D.4 Functional separation is no soft option

- 126 As the UK experience shows, functional separation should not necessarily be viewed as “softer” than structural separation. Professor Cave notes :

*[A]s far as investment co-ordination is concerned, the difference between operational and structural separation diminishes on inspection; it is likely that objections to the one form of separation will apply to the other. This similarity may even extend to the hold-up problem, as it would clearly be discriminatory for a separated unit to forswear opportunistic behaviour in relations with an affiliated organisation, but engage in the practice with others. Thus, I conclude the we are justified in lumping together, for some purpose in this discussion, operational, functional and structural separation.*¹⁰⁵

- 127 The emerging picture of “dysfunctional separation” within BT is exactly what economic theory says will happen with the loss of the efficiencies of vertical integration. In a recent Ofcom survey of wholesale customers about functional separation, wholesale customers identified the following problems with separation:

- (a) the artificial boundary lines between Openreach and BT Wholesale:

*The asymmetric split between BT Wholesale and Openreach is acknowledged by almost all to be an awkward one. Some of the product boundaries are unnatural (e.g. should WLR be in Openreach or BT Wholesale?). Consequently the relationship between Openreach and BT Wholesale can be hard work, and there is a perception amongst some CPs that Wholesale has lost its identity and sense of purpose;*¹⁰⁶

- (b) problems of co-ordination between Openreach and BT Wholesale:

¹⁰⁴

Annex A, p. 3.

¹⁰⁵

Annex B, p. 19.

¹⁰⁶

December Evaluation Report, page 69.

[C]ommunication across the group can be stilted – there is certainly nervousness, and no-one wants to be “fired” because they breached an Undertaking;¹⁰⁷

- (c) separation rules creating bureaucratic internal processes in BT:

The Undertakings have been overly prescriptive (and in some areas unnecessary, e.g. separation of systems or IPStream Connect), taking up a huge amount of BT’s bandwidth and creating a slow and awkward innovation cycle¹⁰⁸; and

- (d) BT taking a more cautious approach to wholesale:

... the main concern around equivalence was that an overly cautious “one-size-fits-all” approach was resulting in an “equivalently average/poor” services rather than “equivalently excellent” services.¹⁰⁹

- 128 SingTel agrees with us that functional separation (which SingTel calls operational separation) is intrusive and disruptive and endorses Professor Cave’s warning against “ ‘copy-cat’ use of a fairly draconian remedy.”¹¹⁰ SingTel agrees with us that functional separation has delayed the deployment of next generation networks in Singapore.¹¹¹

There is already evidence emerging from the United Kingdom that suggests that the costs associated with the implementation of operational separation are significant. For example...the United Kingdom is not witnessing the same level of investment in next generation access networks as seen in some other countries, such as the United States, Japan and the Netherlands

- 129 SingTel Optus’ expert also seems to agree that functional separation has been disruptive and costly to implement:

With functional or operational separation you have to construct a new elaborate layer of regulation to make sure the separate divisions are operating at arm’s length.¹¹²

- 130 Even the spruikers of functional separation would have to admit that its implementation has taken several years of disruption, confusion and pain – and is still a work in progress over two years later.¹¹³ It is inconceivable to believe that BT could have simultaneously with the implementation of operational separation designed, built and rolled out a nationwide next generation network to replace the PSTN, as is proposed here. Wholesale customers acknowledge that BT was almost brought to its knees just trying to re-engineer the OSS for its legacy network:

[T]he required physical division of IT systems has placed a huge strain on BT, in terms of investment and resources.

¹⁰⁷ December Evaluation Report, p. 69.

¹⁰⁸ December Evaluation Report, p. 71 .

¹⁰⁹ December Evaluation Report, p. 70.

¹¹⁰ SingTel IDA Response , para 4.22.

¹¹¹ SingTel IDA Response, para 4.47.

¹¹² Doyle, quoted in “Call to divide broadband victor”, Herald-Sun, 19 June 2008.

¹¹³ BT’s Undertakings were amended by Ofcom in June 2007. Among other things, there were concerns that physically separating operational support systems tied to fibre and electronics could compromise fault management and service restoration. See Ofcom (2007), *BT OSS Separation, Proposed Amendments to Section 5*.

*Openreach has been totally focused on delivery of The Undertakings. The enforced adherence to strict timelines and required focus on particular products and market sectors is considered to have been to the detriment of innovation and service quality.*¹¹⁴

- 131 The Government's objective to roll out the NBN within 5 years is already ambitious enough without requiring that the NBN operator simultaneously engage in an inwards focused process of dividing itself into functionally separated units. In short, functional separation does not provide the Government with a "third way" between those supporting structural separation and those opposing it.

D.5 Conclusion

- 132 There is a fundamental conflict between the Government's investment and service objectives for the NBN and the agenda of the separationists. While the Government's objectives require risk-taking on a scale unprecedented in Australia, a separation model is likely to produce a conservative, risk averse operator. While Ofcom – and the experts we have drawn on – believe that less rather than more regulation is needed to get next generation networks built, the separationists argue for a new, increased form of regulation which even their expert, Dr Doyle, acknowledges is likely to be costly and complex to implement.

- 133 However, in the heightened commercial risk environment of next generation networks, it is not surprising to see onetime passionate advocates of separation recant. Babcock & Brown's plans to structurally separate eircom in Ireland seem to have been put on the backburner as the investment bank confronts the hard realities of operating and upgrading a national network. Rob Topfer of Babcock & Brown recently declined to bid on the NBN, saying:

*... building without customers is the most expensive and scary exercise in the world and many people have lost their shirts doing it.*¹¹⁵

- 134 The fact that a wholesale-only bidder is prepared to lodge a bid for the NBN is not proof that separation will work for the NBN. The bid, as in the case of the G9 SAU exercise, may be a stalking horse to get separation of or lower access prices from Telstra. The Government needs to satisfy itself that any wholesale-only bidder will be able to build the network and, as importantly, that there will not 'hold-ups' in the future upgrade of the network. Some of the potential NBN bid participants were the promoters of unsuccessful wholesale-only networks, as outlined in Part B. The Government also needs to ask itself how much additional risk a wholesale-only bidder will seek to offload to the Commonwealth, consumers and the taxpayer, compared to a vertically integrated bidder.

- 135 Separation will be an irreversible choice. To pose the question again, is the Government prepared to wear the risk of Australia's national broadband infrastructure being built by the tomorrow's version of NextGen or Comindico?**

¹¹⁴ December Evaluation Report, page 66.

¹¹⁵ B&B rules out a broadband bid, *The Age*, 22 April 2008.

Schedule A – BT’s track record since functional separation: patch gains off a dismal base

A. The alleged benefits of functional separation

- 1 The benefits of functional separation are said to be:
 - (a) solves persistent problems of non-price discrimination by requiring upstream functions to be “colour-blind” between retail and wholesale customers; and
 - (b) increases investment by the incumbent’s upstream network unit because, once “liberated” from needing to protect the downstream retail arm, it will make investments which promote utilisation across wholesale and retail channels.
- 2 After two years of functional separation, it is clear that the gains are modest, at best, but that the costs have been large . Access seekers are also beginning to express concerns that functional separation has been a distraction for both BT and the regulator and that, as a result, wholesale services levels continue to be poor.
- 3 Just as the shine is wearing off functional separation in the UK, competitors and the regulator in Australia are advocating adoption of the UK approach as some sort of regulatory “cure-all”.

B. BT’s capital expenditure

- 4 Table 3 provides the total BT capital expenditure in the UK over the period 2003 to 2007 (Openreach, which was established pursuant to the functional separation Undertakings did not exist prior to 2006).

Table 3: Capital expenditure 2003-2007 (all amounts are in £million)

BT entity	2007 ¹¹⁶	2006 ¹¹⁷	2005	2004	2003
BT Openreach	1,108	1,038	-	-	-
BT Retail	166	153 ¹¹⁸	170 ¹¹⁹	118 ¹²⁰	109 ¹²¹
BT Wholesale	1,017	975 ¹²²	1,981 ¹²³	1,809 ¹²⁴	1,652 ¹²⁵
Total	2,291	2,166	2,151	1,927	1,761

¹¹⁶ BT Annual Report 2007. BT’s Annual Reports are available at <http://www.btplc.com>

¹¹⁷ BT Annual Report 2007:

¹¹⁸ This is a restated amount to reflect the creation of Openreach (see BT Annual Report 2007 at page 35).

¹¹⁹ BT Annual Report 2006.

¹²⁰ BT Annual Report 2004.

¹²¹ BT Annual Report 2004.

¹²² This is a restated amount to reflect the creation of Openreach (see BT Annual Report 2007, p. 36). The 2006 Annual Report lists this figure as 2,013.

¹²³ BT Annual Report 2006.

¹²⁴ BT Annual Report 2004.

¹²⁵ BT Annual Report 2004.

- 5 Table 3 shows that:
- (a) BT's total capital expenditure increased by 30% between 2003 and 2007;
 - (b) in the two years since functional separation was introduced, BT total capex grew by 6%¹²⁶ compared to 22%¹²⁷ over the two years prior to functional separation; and
 - (c) 56% of the increase in capex between 2003 and 2006 was in Openreach.
- 6 BT's 2007 Annual Report indicates that most of the increased capex following the introduction of functional separation has been due to the implementation of functional separation itself:
- (a) BT Retail: "Capital expenditure for the 2007 financial year was 8% higher at £166 million due to extra expenditure on implementation of the systems development required under the Undertakings";¹²⁸
 - (b) BT Wholesale: "Capital expenditure on property, plant and equipment and computer software at £1,017 million increased by 4% in the 2007 financial year. This reflects increased capital expenditure to prepare for the 21CN [BT's next generation core network] and investment in new systems to ensure compliance with the Undertakings";¹²⁹ and
 - (c) Openreach: "Capital expenditure on property, plant, and equipment and computer software was £1,108 million, an increase of 7% in the 2007 financial year. This reflects significant new investment in new systems to ensure compliance with the Undertakings and increased spend to meet LLU demand."¹³⁰
- 7 BT has said that functional separation is rumoured to have cost more than £100 million pounds to implement but the real cost is rumoured to be higher.
- 8 BT has made no commitment to investing in next generation networks. Its much touted 21CN network is essentially an IP core and transmission network upgrade which other carriers, including Telstra, are also undertaking as part of their network transformation projects. Ofcom has acknowledged that the UK is lagging behind the rest of the world in the development of next generation access (NGAs) networks.¹³¹

*In contrast to the UK, where no operator has announced any intention to make wide scale next generation access investments, operators in some other countries are already deploying and operating next generation access networks on a commercial basis.*¹³²

¹²⁶ Capex in 2005 compared to 2007.

¹²⁷ Capex in 2003 compared to 2005.

¹²⁸ BT Annual Report 2007, p. 36.

¹²⁹ BT Annual Report 2007, p. 37.

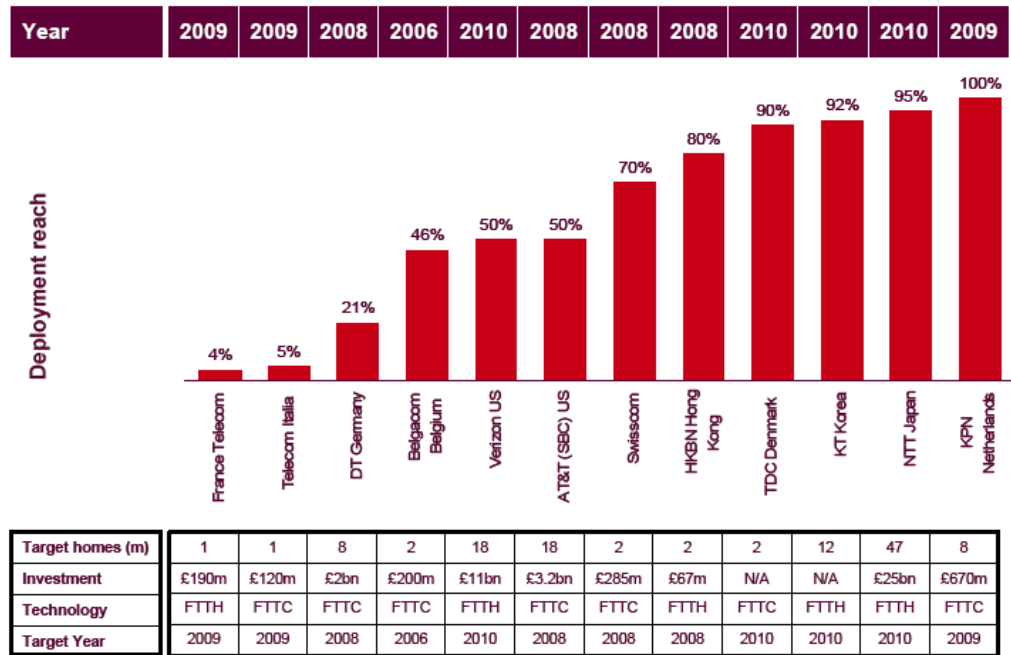
¹³⁰ BT Annual Report 2007, p.37.

¹³¹ Ofcom, *Future broadband - Policy approach to next generation access*, Consultation Paper, 26 September 2007 (**Ofcom NGA Paper**) <http://www.ofcom.org.uk/consult/condocs/nga/summary/>).

¹³² Ofcom NGA Paper, at para 3.4.

- 9 Figure 2 of Ofcom’s Consultation Paper provides a sample of those comparative developments:

Figure 2: Incumbent next generation access deployment plans by target date



Source: Ofcom.

- 10 Concern over the lagging next generation investment in the UK has led the UK Government to set up an inquiry independent of Ofcom to consider how to stimulate investment.

C. Poor levels of wholesale customer service

- 11 Ofcom’s 2003-5 Strategy Review which led to the functional separation of BT, focused on non-price discrimination by BT.¹³³ BT had a very poor record in supplying wholesale services compared to its retail service levels. For example, in some months BT was missing 40% of its wholesale appointments for resale services.¹³⁴
- 12 Ofcom’s latest review of functional separation in December 2007¹³⁵ suggests that there has not been much improvement in wholesale service levels – in some cases things have actually gone backwards. Ofcom noted that “[t]here have been concerns around the service performance of Openreach”:¹³⁶
- (a) Openreach’s provisioning of unbundled local loops (ULLS) and shared loops (LSS) has consistently failed to meet target provisioning times since

¹³³ See Ofcom, *A notice under Section 155(1) of the Enterprise Act 2002, 2005*; M. Cave, L Correa and P Crocioni, ‘Regulating for non-price discrimination: the case of UK fixed telecoms.’ *Competition and Regulation in Network Industries*, 1(3) 2006, pp. 39-71.

¹³⁴ See Ofcom, *Strategic Review of Telecommunications, Phase 2 Consultation Document*, 18 November 2004, para 6.18.
¹³⁵ December Evaluation Report.

¹³⁶ December Evaluation Report, para 6.96

functional separation and has only shown modest improvements over the last two years;¹³⁷

- (b) there has been no improvement in the timelines for provisioning of business WLR lines, with only 86% of new lines being provided on time in both July 2005, pre-functional separation, and in October 2007, two years after operation separation. For the majority of the intervening period the performance was actually lower than 86%;¹³⁸
 - (c) for business and residential WLR, the number of faults per 100 lines actually increased on average since functional separation;¹³⁹ and
 - (d) the time taken to fix faults has improved slightly since functional separation, but Ofcom concluded that “Openreach has been unable to maintain a reliable standard of service.”¹⁴⁰
- 13 Ofcom is proposing to impose service level guarantees on Openreach and BT Wholesale. Thus, while functional separation was designed to improve wholesale service levels, Ofcom is now in the position of having to impose behavioural remedies to correct a problem which functional separation has not only failed to cure but may have made worse. This additional regulation could have been implemented in the first place without functional separation.
- 14 BT’s poor performance is in contrast to Telstra’s consistent record of non-discriminatory non-price performance across retail and wholesale channels. Over the last four years, the ACCC has been tracking Telstra’s performance on a number of key measures, such as service provisioning times. The ACCC has found no pattern of material discrimination by Telstra between retail and wholesale channels.¹⁴¹
- 15 Functional separation was introduced in the UK to address a problem which no longer exists in Australia.

D. Views of access seekers

- 16 UK access seekers have tended to support functional separation in the hope that it can improve BT’s poor record on non-price terms of supply. However, disquiet is beginning to emerge about the effectiveness of functional separation.
- 17 For its December 2007 review, Ofcom surveyed wholesale customers about their experience of functional separation. The survey found that:

*Satisfaction levels around relationship issues such as confidentiality and Account Management have improved; CPs [communications providers] were primarily looking for improvements in operational performance areas such as product set support (new and legacy), product innovation and service delivery.*¹⁴²

¹³⁷ December Evaluation Report, para 6.48.

¹³⁸ see Ofcom, *Service level guarantees: incentivising performance*, 10 December, 2007, paras 4.6 and 4.7.

¹³⁹ see Ofcom, *Service level guarantees: incentivising performance*, 10 December, 2007, para 4.8.

¹⁴⁰ see Ofcom, *Service level guarantees: incentivising performance*, 10 December, 2007, para 4.9.

¹⁴¹ see ACCC *Imputation Testing and Non-price Terms and Conditions Report relating to the Accounting Separation of Telstra for the December Quarter 2007*, April 2008.

¹⁴² December Evaluation Report, p. 69.

- 18 Wholesale customers felt that BT and the regulator had been distracted by the enormous task of implementing functional separation:

Openreach has been totally focused on delivery of The Undertakings. The enforced adherence to strict timelines and required focus on particular products and market sectors is considered to have been to the detriment of innovation and service quality.¹⁴³

the required physical division of IT systems has placed a huge strain on BT, in terms of investment and resources. More generally some CPs noted that, while necessary, the separation of systems had placed in extra layers of communication. BT also did not agree with the need for physical rather than logical separation of systems. It may be appropriate for Ofcom to review whether this separation is actually required or whether halting this activity would have any merits (or if activities are already too far in train).¹⁴⁴

- 19 Wholesale customers also expressed concern that the organisational division between Openreach and BT Wholesale had been overdone:

The asymmetric split between BT Wholesale and Openreach is acknowledged by almost all to be an awkward one. Some of the product boundaries are unnatural (e.g. should WLR be in Openreach or BT Wholesale?). consequently the relationship between Openreach and BT Wholesale can be hard work, and there is a perception amongst some CPs that Wholesale has lost its identity and sense of purpose.¹⁴⁵

communication across the group can be stilted – there is certainly nervousness, and no-one wants to be “fired” because they breached an Undertaking.¹⁴⁶

- 20 Wholesale customers thought that the Undertakings may have been too prescriptive and inflexible, limiting BT’s scope to provide tailor-made commercial wholesale solutions:

The Undertakings have been overly prescriptive (and in some areas unnecessary, e.g. separation of systems or IPStream Connect), taking up a huge amount of BT’s bandwidth and creating a slow and awkward innovation cycle.¹⁴⁷

In the main, communications providers were broadly positive about delivery of equivalence. Their primary interest lay in quality of service and, consequently, the main concern around equivalence was that an overly cautious “one-size-fits-all” approach was resulting in an “equivalently average/poor” services rather than “equivalently excellent” services.¹⁴⁸

- 21 Wholesale customers actually complained that BT spend too much time consulting with them and not getting on with the wholesale business:

it appears that both BT and the industry are frustrated with BT’s belief that it needs to consult on products and development issues. It might be helpful for

¹⁴³ December Evaluation Report, p. 66.
¹⁴⁴ December Evaluation Report, p. 69.
¹⁴⁵ December Evaluation Report, p. 69.
¹⁴⁶ December Evaluation Report, p. 69.
¹⁴⁷ December Evaluation Report, p. 71.
¹⁴⁸ December Evaluation Report, p. 70.

*Ofcom to clarify what it regards as an acceptable level of product development customisation and when BT does/does not need to consult with the market.*¹⁴⁹

E. Conclusion

- 22 Functional separation was adopted in the UK to remedy a clear record of poor, discriminatory service provision by BT in the supply of wholesale services.
- 23 The implementation of functional separation has involved huge expense and effort on BT's part but so far has only delivered modest, patchy gains. While the "feel good" factors between BT and its wholesale customers have improved, this is yet to translate into a real step change in BT's wholesale service provisioning. Some service quality parameters have actually gone backwards, while many are failing to meet targets.
- 24 For wholesale customers, it may also be a case of "be careful what you wish for." They are beginning to complain that the "unnatural" organisational division between Openreach and BT Wholesale chills legitimate inter-working between the two to deliver the products wholesale customers need. There are concerns that BT has become too inward looking as it struggles with implementation and is now too cautious in its approach to wholesaling.
- 25 The ACCC's existing record keeping rules show that Australia is not bedevilled by the problems of non-price discrimination which Ofcom was seeking to address with functional separation. Vertically integrated Telstra's performance appears still to be ahead of BT's even after two years of functional separation.