TELSTRA CORPORATION LIMITED

Submission to the

Parliamentary Inquiry into Structural Separation

31 January 2003

Contents

Executive Summary

Telstra welcomes this opportunity to provide comments to the House of Representatives Standing Committee on Communications, IT and the Arts inquiry into the "economic and social impact of structurally separating Telstra's core network from its other businesses, and reducing the Commonwealth's current shareholding in Telstra's non-network businesses."

The structural separation or the break-up of Telstra into wholesale and retail businesses or splitting off the copper network would have a significant impact across the Australian economy. It would lead to a reduction in national efficiency, an increase in telecommunications costs and to higher prices for consumers. Breaking up the Telstra business and network would eliminate the economic efficiency benefits that come from operational integration. Creating an artificial boundary line – between what Telstra could and could not do – would inevitably be arbitrary and the long-term effects damaging. Breaking-up Australia's communications network would reduce industry flexibility, and delay or prevent the adoption of new technology – at a time when rapid innovation is more important than ever to our global competitiveness. Moreover, such a drastic policy intervention would inevitably create serious investor concerns about the degree of regulatory risk investors in Australia are exposed to, and would therefore discourage badly needed investment in Australian infrastructure.

In Australia, competition is protected by guaranteed regulated access to bottleneck infrastructure and strong laws against anti-competitive behavior. A policy of structural separation would add a costly and destructive layer of regulation without any offsetting regulatory relief.

The substantial weight of evidence, both from Australia and overseas, is that in telecommunications, structural separation imposes costs that far outweigh any potential benefits. For this reason, although most OECD countries have examined the policy option, they have overwhelmingly rejected it. In the United States, the divestiture of the Bell Systems ordered in 1982 was a court negotiated punishment rather than the result of a regulatory policy. At that time, access regulation was in its infancy, and divestiture was seen as the only means of permitting competition. Since then, the world has moved on, as it has become clear that access regimes offer a far more effective way of creating a competitive environment while preserving the inherent efficiencies of network integration. Moreover, the fixed network is no longer the only means of telecommunications – Australia has approximately 10 million fixed lines and 13 million mobile handsets. Currently, even in the US, regulators are moving to unwind the effects and restrictions of the divestiture decision. This is yesterday's 'solution' to a non problem.

In light of the international experience and of its own analysis of the issues, Telstra remains firmly opposed to the structural separation of Telstra's core network from its other businesses and submits that there are four major problems with any such proposal:

- First, *any break-up of the network would be arbitrary and impose significant structural rigidities, which would hamper innovation and technological improvements.* As a general principle, proponents of structural separation blandly suggest that Telstra should be split into wholesale and retail components or core and non-core services. However, analogies to gas, rail and electricity ignore the fundamental differences between these relatively 'simple' networks and the far more complex and 'intelligent' telecommunications networks. In particular, the complexity of the modern telecommunications network means there is no sharp demarcation, at any layer, between a core network and the rest of the telecommunications activities in which an entity such as Telstra competes. In a static environment, the use of arbitrary demarcations may not create substantive technical or regulatory difficulties. However, unlike electricity, gas and rail, technology in telecommunications is undergoing constant and dramatic change. This process of far-reaching innovation already has, and will even further in future, blur the boundaries that might once have kept services apart. Attempts to define sharp distinctions between network layers or between services consequently lack any technical foundation and run the risk of imposing a technological and economic freeze on an industry in which constant innovation is critical for Australian economic success and consumer welfare. Artificial regulatory barriers will inevitably stifle investment and the adoption of new technologies.

- Second, regardless of where the cut is made, *structural separation would impose significant costs on Australian consumers.* Telstra's full-service, fully integrated business model generates substantial efficiencies that greatly reduce the costs of supplying communications services in Australia. Telstra has spent approximately $500 million over the past five years in back-of-house systems development alone. New systems would need to be developed in the new entity and whilst some re-use may be possible, the cost would still be in the order of $400 - $500 million. The duplication of these back-of house systems would also cost approximately $80 million per annum in incremental running costs. Estimating the cost of a full-scale break-up depends on the final form of the structural separation. The US telecommunications company, Verizon estimated that structural separation would have cost it US$800 million (that is, approximately AUD$1,454 billion). Scaling the US carrier Verizon's estimate of the restructuring costs (relating to a proposal to separate its network and retail operations) to the case of Telstra, leads to an estimated one-off cost of $2 billion, an estimate that does not include the costs of structural separation in broadband supply. Inevitably prices would have to rise as Telstra's ability to supply existing and new services in a cost-effective and competitive manner was undermined. To

recover these costs, Telstra's prices would need to increase by close to 8 percent on average. However structural separation was imposed, it must increase the cost of telecommunications to the community. Inevitably, the result would be higher prices and lower service standards for Australian consumers.

- Third, *structural separation will reduce the operating efficiencies that are currently used to help fund uneconomic services, particularly in rural and remote Australia.* Telstra relies upon the efficiencies generated by its full service integrated network to help fund the high cost of providing basic services at an equitable cost to all Australians regardless of where they live. This includes the unfunded component of the universal service obligation, below cost monthly access rentals and meeting ever more stringent quality of service requirements. Were structural separation imposed, it would become even costlier and more difficult to provide these benefits. Equitable access to basic services would inevitably be threatened unless additional and substantial alternative funding was provided. The Federal Government could bring the funding of these social obligations on budget and directly fund the network part of the separated entity at an estimated cost of the $1 billion or more per annum those social obligations currently cost the integrated Telstra. In lieu of alternative funding, small customers and rural communities which currently enjoy the most significant benefits due to the efficiencies created by Telstra's integrated operations would be the major losers from structural separation.

- Finally, *structural separation will send strong negative signals to investors, especially international investors, as such a dramatic policy intervention increases sovereign risk and runs against the trend of regulation elsewhere around the world.* If structural separation were to be imposed upon Telstra this would inevitably result in a significant reduction in the value of the investments of Telstra's 1.8 million shareholders. This would also have a marked effect on investor confidence and inevitably increase the sovereign risk premium attached to investing in Telstra specifically and Australia generally. The enforced break-up of Australia's largest corporation would represent the greatest threat to private investment short of nationalisation. The impact on investors' views of Australia would be especially great given the fact that so many jurisdictions have explicitly rejected structural separation in telecommunications. Concerns would be created about whether Australia is in fact a predictable and safe investment destination, and hence our ability to fund the national infrastructure would be compromised.

These consequences of structural separation show this policy proposal to be ill conceived and against Australia's national interest. Domestic and business consumers would face higher prices and less innovation in key new technologies. Telstra's shareholders would suffer an unjustifiable capital loss while investors' confidence in the predicability and stability of the Australian investment environment would be shaken. The only beneficiaries from structural separation

would be the shareholders of Telstra's major competitors, whose businesses would face significantly less competition from a Telstra weakened by artificial regulatory inefficiencies. Essentially, structural separation would make competitors more profitable by making Telstra less efficient and increasing costs to the whole community. It is for this reason that the most vociferous supporters of structural separation are Telstra's competitors and not consumers, who quickly realise that such a policy offers little for them.

Telstra believes that it should be incumbent upon proponents of structural separation to spell out clearly why very substantial value should be transferred from Australian consumers and Telstra's shareholders to the largely foreign shareholders of Telstra's competitors. For the most part, these foreign-based competitors actively dispute the benefits of structural separation in their own domestic operations.

Competitors must demonstrate how the structural separation of Telstra would make the industry more efficient, lower costs to consumers and improve innovation rather than just simply making Telstra less competitive. Without such evidence the proposals for structural separation would appear to be entirely self serving and inconsistent with sound public policy. Telstra does not believe that any case for structural separation can be made and would urge the Inquiry to firmly recommend against this policy proposal.

1 Introduction

Structural separation came to the fore as an instrument of regulatory policy with the divestiture of the Bell System, which was mandated as part of a consent decree by a US Federal Court in 1982 and implemented on January 1, 1984. That decree limited the operations of the former Bell System companies to the supply of local exchange services, and required them to divest any financial interest in firms providing long distance services.

Australian telecommunications reform did not follow the US path. Rather, as in the vast majority of OECD countries,[1] the emphasis in Australian telecommunications policy was placed on facilitating the development of efficient competition by means of an access regime backed by stringent conduct regulation. By choosing this approach, the technological and scale efficiencies that come from an integrated network operation were preserved. These efficiencies, which ultimately mean lower prices for domestic and business consumers, were shared by all network users either directly or via the regulated access regime.

Australia's approach has proved to be highly effective both in developing competition and improving services. As successive inquiries have found, the reforms to Australia's telecommunications industry have contributed to rapidly falling prices, improving service quality, the introduction of a wide range of new services and to the ever greater access to advanced telecommunications by all Australians, regardless of where they live or work. At the same time, competition has developed in virtually every aspect of Australia's telecommunications industry, placing ever greater pressure on firms in the industry to be innovative and efficient. Despite strong performances by Telstra – including in introducing new products and services and improving existing products and services – Telstra's competitors have acquired substantial market shares in all segments of the industry. For example, by 2000/2001:

- competitors were estimated to have obtained approximately one quarter of national long-distance call services and more than half of international call services;[2]

- Telstra had lost one fifth of the retail fixed access line market by revenue;[3]

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[1] The US and Japan are the only OECD countries to have pursued a policy of structural separation in telecommunications.

[2] Figure for June 2000. Productivity Commission (December 2001), Telecommunications Competition Regulation, Report No. 16, AusInfo, Canberra, p. 122.

[3] Productivity Commission (December 2001), p. 114.

- Telstra BigPond had only a 23.7% share of residential Internet dial-up subscribers;[4]

- Telstra had only a 60% share of frame relay service revenues;[5]

- Telstra's share of ATM revenues was just 42%;[6] and perhaps most importantly

- Telstra's average annual increase in total factor productivity was approximately 5.1 percent in the three year period prior 1990/91, but after the entry of competition it rose to an average of 8.0 percent during 1990/91-2000/01. This compares with average productivity growth in the economy as a whole of less than 2 percent.[7]

Australia now has in its telecommunications market over 80 licensed carriers including a number of large international telecommunications providers such as Vodafone, Singapore Telecom Optus and Telecom New Zealand AAPT.

Structural separation is therefore plainly not a necessary condition for pro-competitive reforms to work, and to work effectively. Indeed, even in the United States, the issue today is not whether to reverse the policy of structural separation but rather how soon that reversal can be effected. Today, all of what were the original local Bell operating companies that were once forbidden to enter certain downstream lines of business, most notably long distance service, in their own geographic markets, now have vertically integrated operations in at least some of the States in which they operate.[8] Vertical integration and re-integration on this scale would hardly be likely unless substantial efficiencies were at stake.

Despite this, structural separation again appears on the Australian public policy agenda. In part, this seems to be a reaction to the financial distress of many Australian-based telecommunications carriers at the end of "dot com bubble". These difficulties incited at least some industry participants to seek "quick fixes" when

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4   Figure for July 2000. Productivity Commission (December 2001), p. 135.

5   Telsyte (June 2002), *Telsyte's 2002 Industry Profile: Australian Frame Relay Services Version 1.0*, p. 34.

6   Telsyte (June 2002), *Telsyte's 2002 Industry Profile: ATM Services Version 1.0*, p. 34.

7   According to the Australian Bureau of Statistics (ABS), the average annual increase in multifactor productivity during the most recent growth cycle (1993-94 to 1999-2000) was 1.8%. The average annual productivity increase during the preceding seven growth cycles was 1.1%. See: http://www.abs.gov.au/ausstats/abs@.nsf/94713ad445ff1425ca25682000192af2/62b8c60571b49b21 ca256bdc0012241b!OpenDocument

8   The Tauzin-Dingell Broadband Bill which liberalises RBOCs' entry into long distance broadband markets was passed by the US House of Representatives on Feb. 27 2002.

market realities came home to roost. That said, the debate seems to be coming to a head at a time when the Australian telecommunications industry has largely recovered from the 'tech wreck' and the financial position of Telstra's competitors is increasingly healthy.

Whatever may motivate the calls for structural separation, the fact of the matter is that Australia's system of telecommunications regulation is far from perfect. Too often, it confuses protecting competitors with protecting competition. Additionally, it gives little real weight to efficiency considerations, and imposes regulatory burdens that reduce the value the community derives from our telecommunications infrastructure.

However, structural separation is no solution to the weaknesses of our regulatory arrangements. Indeed, the full suite of regulations would need to remain in some form to ensure third party access and guard against anti-competitive behaviour on the part of the residual network holder, regardless of structural separation. In short there would be no offsetting regulatory relief. Rather, a policy of structural separation would simply add an additional costly and destructive layer of regulation, and would make matters worse rather than better.

More specifically, Telstra believes that proposals for structural separation ignore the fundamental interdependencies that link together the products and services Telstra provides:

- **Technologically,** Telstra's networks and services do not fall into discrete elements that could meaningfully be used as boundaries for structurally separated operations. Rather, the reality is that continuing and rapid technological change has already greatly blurred, and will further blur in the years to come, the distinctions that may once have existed within the Telstra network.

- There are also crucial **commercial** links between what might loosely seem to be 'core' activities on the one hand and 'non-core' activities on the other. These links, which allow Telstra to secure economies of scale and scope, are especially important in permitting the successful development of innovative products and services.

- There are substantial **financial** linkages too between the various elements of Telstra's activities. These linkages are of particular relevance to Telstra's ability to meet community expectations with respect to Universal Service Obligations and to service levels. The economies of scale and scope Telstra secures through integrated operation substantially lower the cost of Universal Service Obligations, increasing their sustainability. Telstra also relies on the cash flows from its activities as a whole to help finance these

obligations. Structural separation, by undermining these linkages, must compromise the continued delivery of services on a universal basis.

Precisely because these interdependencies are so great, structural separation would impose substantial costs – and hence would ultimately increase prices, and lower service levels and result in delayed innovation for Australian consumers and the Australian economy more broadly. In addition, structural separation would impose a major loss on investors in Telstra. This is likely to translate into a higher cost of capital, and hence reduce Telstra's ability to maintain and renew the telecommunications infrastructure on which Australia relies.

The adoption of a policy course that was so sharply at odds with trends overseas would also raise concerns about the exposure of foreign investment in Australia to sovereign risk. It would consequently become more difficult to fund Australia's infrastructure industries as a whole, increasing costs and reducing our competitiveness in global markets.

Each of these impacts is dealt with in more detail below. Specifically, the structure of this Submission is as follows:

- **Section 2** explains the technically integrated nature of Telstra's networks and services, and on that basis demonstrates the arbitrary nature of proposed boundary lines between 'core' and 'non-core' network or services (vertical separation);

- **Section 3** examines the commercial interdependencies between the various products and services Telstra provides, and explains why the ability to provide a wide range of products and services is essential to successful innovations, even if the services appear to the uninformed to be 'non-core' (horizontal separation);

- **Section 4** draws on the material above to discuss the overall costs that structural separation would impose on Telstra, and ultimately on the community and on consumers;

- **Section 5** outlines the financial linkages between Telstra's ability to supply a wide range of products and services and the ability to meet Universal Service Obligations and to provide the increasingly stringent levels of service the community demands;

- **Section 6** then considers the impact on domestic and foreign investors;

- **Section 7** sets out the main conclusions from Telstra's Submission.

10

2 Vertical Separation: the integrated network

Policy proposals for imposing structural separation requirements on Telstra are largely advanced in a 'technology free zone.' Little or no analysis is typically provided as to how these requirements would be framed; rather, it is implied that where the boundary points would be drawn for vertical separation is essentially self-evident or a matter of detail that could safely be left to the regulator.

In reality, it is virtually impossible to define in any manner that is not profoundly arbitrary where the point of separation should be located. Importantly, the appropriate boundary also appears to be a highly dynamic point. If a cut were made today, it would lack any clear technical foundation and would impose an economic and technological freeze on an industry in which constant innovation is critical for Australian economic success. Leaving the task of defining and revising this decision to the regulator would both create an unprecedented level of regulatory risk and in practice, burden Australia's telecommunications system with commercially unsustainable and unnecessary delays.

In the language of the terms of reference for this Inquiry, Telstra believes that there is no sound technical, commercial or economic basis for determining what constitutes the "core network "and what activities are "other business". For reasons set out below, attempts to define distinctions such as these run counter to the entire direction of technological change in modern telecommunications.

2.1 The boundary problem

Structural separation refers to a prohibition on supplying specified activities through an integrated corporate structure. For example, in the context of a gas network, structural separation requires the provision of the services of transmission (pipeline) assets through an entity separate and economically distinct from that which supplies the services of distribution assets. Although the precise legal content and scope of this requirement differs across industries and jurisdictions, all forms of structural separation share a common goal: that of preventing the joint supply, through integrated corporate structures, of services which are viewed as needing to be provided separately.

It follows that a key aspect – indeed, *the* key practical aspect – of a policy of structural separation lies in specifying the boundary that divides the services to be provided by each corporate entity.

In networks such as those used for the supply of gas, electricity and rail, such a boundary can be more or less readily defined. For example, in gas networks, the

point at which transmission pipelines are connected to the lower pressure systems used for local distribution forms a natural boundary, which can serve to guide structural separation requirements. In electricity, there is an obvious demarcation between the high voltage grid – which forms the transmission infrastructure – and generation at one end and low voltage distribution at the other. Finally, in rail, the distinction between track and rolling stock is conceptually clear, though issues can and do arise about the location of control functions.

These boundary points, in gas, electricity and rail networks, are not merely well-defined but also have been relatively stable over time. This is not to say that the technologies on either side of the boundary point have remained static – far from it. However, the point at which the major component parts of these network interfaces have not changed substantially over the years, and the implementation of new technologies on each side of that point has been reasonably readily accommodated by revising the technical standards governing the interface point.

What is important here is that the boundary point has proved to be both stable and capable of clearly separating the functions that need to be carried out on either side of that point. These conditions – a *clearly identifiable, stable* and *effectively separating* boundary point – simply do not apply to modern telecommunications networks. In fact, the entire trend of change in telecommunications in recent years has been to blur, if not completely eliminate, the demarcations that once characterised the telecommunications network – and the future is likely to see this trend become even more pronounced.

2.2 Old world certainties

Some thirty years ago the network served to carry a single service – voice telephony – with other services (such as telex, facsimile and data) being both very much smaller in size and being served through over-lays on the network used to provide for voice. In the network as it then was, it was reasonably possible to identify some boundary points in the network's structure.

To begin with, the delineation between "local" and "long distance" service was relatively clear, as the functions required for the local service were almost entirely provided by the local exchange and by the local transmission network, while all long distance functions used higher level exchanges and dedicated long distance transmission plant. The international operations were even more clearly distinguished from those used for local service, as specialised exchanges (capable of handing the signalling used in the international network) were needed and the international transmission assets served only to carry traffic between Australia and points overseas. Planning and investment decisions could proceed relatively independently for each of these component elements, so long as technical standards

12

for inter-working were properly updated and respected, and so long as sufficient capacity was made available at the interconnecting points.

By the same token, "basic" features and network functions could be more or less separated from "advanced" features and network functions. The former essentially resided in the local exchanges, while all intelligence in the network – in the sense of the capabilities required for more than simple call set-up, monitoring and clear-down – resided in higher level exchanges and (to a lesser extent) in separate and specialised network control equipment. In turn, the specific functions needed to handle non-voice applications resided in distinct overlay networks, which were more or less piggybacked on the transmission plant used by the voice telephony service.

As a result, it was possible, though not necessarily efficient, to segment service provision as between local and long distance service, within long distance as between domestic and international, and as between 'basic' services and services that relied on 'intelligent' processing.

2.3 New world realities

Developments since that time have, however, made these distinctions completely anachronistic. To understand the extent to which this has occurred, it is useful to consider the scope for drawing boundary points within current and next generation telecommunications networks on the basis of each of the following characteristics:

■   Geography and related to it, service type – that is, whether a service is local, domestic long distance or international;

■   Mobility – whether the service is 'fixed' or 'mobile'; and

■   Network capabilities and functionalities – whether supply involves a 'network' or a 'service', is sold at 'wholesale' or at 'retail'.

Each of these distinctions has been suggested by proponents of structural separation as a basis for determining the boundary point; each is considered in more detail below.

2.3.1 Blurring the boundaries between services

The traditional geographically-based boundaries, between different types of network assets and different service types, that once seemed so clear have now largely disappeared.

The CAN versus the IEN

To begin with, there is no longer any simple sense in which a sharp and stable distinction can be drawn between the "Customer Access Network" ("the CAN") – that is, the link between the customer and the point of traffic aggregation – and the "Inter-Exchange Network" ("the IEN"), where network functionalities reside.

This is especially important as the distinction between the CAN and the IEN is often claimed to be the basis on a which a delineation can be drawn between parts of the network that are "natural monopolies" and parts that are at least potentially competitive. These claims are incorrect commercially and have little meaning from a technological perspective.

Commercially, the reality is that Telstra faces competition in very substantial parts of the CAN. For example, Optus' Hybrid Fibre Coaxial (HFC) cable passes 2.2 million homes.[9] Additionally, Telstra's competitors have substantial and growing direct connection networks in all of the CBD's of Australia's capital cities.

This is not to say that Telstra's local distribution networks have been comprehensively duplicated. The reality is that price controls over Telstra's wholesale and retail prices materially reduce whatever incentive might otherwise have existed for such comprehensive duplication to occur. Additionally, comprehensive duplication is unlikely with wire-line technology, though developments in wireless networks may make duplication increasingly widespread. The point, however, is that the view that says that the local network is a "monopoly" while the inter-exchange network is not, is simplistic and over-looks the dynamic nature of telecommunications competition.

This leads to the second and perhaps crucial weakness of the claimed distinction – namely its lack of any connection to *technological* realities. The dividing line between the CAN and the IEN is increasingly blurred and is shifting in line with advances in network engineering. Thus, functions that previously were only supplied in the IEN are increasingly located in the CAN; and the balance between these will move further as network intelligence is decentralised ever closer to the end-user.

This on-going shift in functionalities between the CAN and the IEN is a crucial component of the move to end-to-end deployment of fibre optics in the fixed network. Indeed, as fibre optics have been extended ever closer to the home, the average copper run (the length of the copper connection between the customer and the network) in Telstra's network design has halved, when current designs are compared to those being implemented a decade ago.

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9 *Optus Press Release,* 1999, Cable & Wireless Optus and Excite@Home form joint venture company, 10th June, http://www3.optus.com.au/newsroom/1,1450,42,00.html (accessed 4 February, 2003).

This trend will continue and even accelerate in the years ahead, and with it, the need for on-going flexibility in changing the interfaces between and composition of the CAN and the IEN. More specifically, as the cost of optical components continues to decline, it will become increasingly important that decisions can be taken to further adapt the structure of the local distribution network, replacing what would historically have been considered CAN by network elements that, at least in theory, are best considered as forming part of the IEN.

The need for this flexible, ongoing redeployment is plainly at odds with the notion that a sharp and stable delineation can be drawn between the CAN and the IEN. Attempting to freeze such a boundary point would only serve to seriously obstacle the continued up-grading of Australia's local transmission networks, increasing the cost and reducing the quality of the services provided to end-users.

Local versus long distance

Just as the boundaries between the CAN and the IEN have blurred and are shifting, there is no longer any sense in which one can sensibly distinguish a 'local' service from a 'long distance' service in terms of the network capabilities providing each of these requires. A local call can require a wide range of advanced functions, for example, for handling call diversion (in the case of number portability) or for services such as mass calling. These advanced functions may be provided at the local exchange, at a transit exchange, through a specialised signalling network, or all three.

Where these functions are best located is a decision that needs to be taken on efficiency grounds, and the appropriate choice varies both as between places and over time. The trend in recent years has been to shift into the local exchange a range of functions that were previously carried out solely in the long distance network. However, there are also moves, in the context of the Intelligent Network Architecture, to concentrate some processing capabilities in dedicated servers, that sit aside both the local and transit exchanges.

It is not clear precisely how these technology changes will develop over time. What is clear, however, is that the location of key network functions will continue to evolve. Defining a particular set of functions as "local" and others as "long distance" would impede this evolution, and prevent the network's structure from innovating or adapting to constantly changing technology.

Future networks

Finally, the irrelevance to future networks of geography as a basis for defining boundary points is already apparent in today's Internet. The essence of the Internet is that traffic is handled in a manner that depends not only on its origin and destination but also that responds flexibly to the constantly changing availability of network resources. As a result, an email from one side of Melbourne to the other may be

routed via New Zealand and the United States, if that is the most currently efficient way of providing its transport with the routing resources required. In this way, scarce resources, such as those associated with the highest level servers, can be used as efficiently as possible.

It is difficult to see how an operation providing Internet services could be segmented as between serving 'local' and 'long distance' traffic. There would be no easy way of distinguishing between these types of traffic, and any attempts to provide differential traffic treatment would most likely simply result in significantly higher costs and lower service quality.

Over time, today's telecommunications networks are likely to move from the current structure of the Public Switched Telecommunications Network (which was designed to handle voice telephony traffic) towards greater reliance on network architectures similar to those of the Internet. While the exact extent of the move in this direction is still controversial, there is little doubt that future telecommunications networks will be even flatter - in terms of the functional hierarchy associated with geography - than is the current PSTN. In these networks, distinctions based on geography will, from a technical point of view, be meaningless and certainly incapable of acting as a relevant 'boundary point' for a policy of structural separation.

2.3.2 Increased integration of mobility

The development of effective systems for mobile communications as of the late 1970's, and the diffusion of these systems into mass market use in the 1990's, points to another possible 'boundary point' for structural separation - the point of interconnection between the fixed network on the one hand and mobile networks on the other.

It is obviously possible for a supplier to operate solely as a provider of fixed or mobile services - indeed, specialisation in mobile networks has been the hallmark of Vodafone's corporate strategy. Additionally, even within integrated corporate structures such as Telstra's, the tendency, until recently, has been to view mobile networks and commercial operations as somewhat separate, and to reflect this in internal organisational arrangements.

Commercial changes

The more recent developments, however, seriously undermine this separation. In part, this reflects developments on the commercial side, rather than in the underlying technology. Customers, particularly but not solely those with larger accounts, view mobile services as merely an element in the complex of telecommunications services they require. Increasingly, they plan their procurement of these services as an integrated whole, and seek supply on an integrated basis. Competitiveness in this

16

supply consequently requires the ability to optimise over the whole bundle of services being provided; especially for the largest customers, this typically involves developing an integrated network design, which encompasses fixed and mobile elements.

Technological changes

These developments in the commercial market place are accompanied by powerful technological forces that go in the same direction. More specifically, as mobile networks make the transition from being heavily oriented to voice telephony towards other, data transmission based, applications, they will become ever more integrated with the physical structure of the fixed network.

A key factor here is the ever-greater capacity of mobile networks to handle high and very high data rates. Third generation mobile networks ("3G"), based on Wideband CDMA, are an important step forward in this respect. However, it is in fourth generation networks that the move to full broadband capability will likely occur.

The precise structure of 4G, and its commercial relationship to 3G, is an area of obvious uncertainty. As far as the technology is concerned, there is some prospect that 4G networks will be entirely oriented to IP, in the sense of using the Internet Protocol to manage the air interface (the link that connects the end users to the wired part of the network by radio). This has the advantage of allowing better management of congestion than is possible in 3G networks, and hence permits higher data rates to be operated at acceptable levels of end-to-end service quality.

This is important because there are strong signs of rapid growth in demand for portable data services. More specifically, an ever wider range of portable devices – PDAs, laptops, portable game devices, and even cellular phones – have the capacity to handle very high data transmission rates. Users seek an environment in which they can move, in a relatively seamless way, from operating these devices in one location to another. Reflecting this, service providers will increasingly supply a "docking" environment, in which the device is automatically docked to a fixed network at its home location, to a fixed wireless network (such as those based on the IEEE 802.11 wireless local network standard) when it is away from that location but not in movement, and to 3G and then 4G networks while it is in movement. Integrated design and operation of these environments will play an important role both in optimising the capital investment required and in ensuring that users experience the transition between these environments as seamless.

In this sense, the "fixed" network and its "mobile" counterpart will increasingly become parts of a single whole – in which shared functions may be efficiently located in a fixed wireline-linked element, a fixed wireless-linked element, or a mobility services element. Although physical and virtual points of hand-off between these will continue to be defined, investment planning will need to coordinate decision-making across these elements, and ensure optimality in the decisions as to where functions and capacity are located.

The notion that fixed and mobile services are plainly separable is therefore inconsistent with both the commercial trends and with the underlying dynamics of telecommunications technology. It may accurately describe the past, but it is little use as a guide to the future.

2.3.3 Functionality

More recently, proponents of structural separation have sought to identify functional distinctions within the network as a means of defining the boundary point. They attempt to define some services as "network services", that would be provided by the network operator, and other services as "non-network services", that would be provided by those entities that purchased "network services" from the network operator. These distinctions are clearly analogous to the distinction between the "core network" and "other businesses" drawn in this Inquiry's Terms of Reference.

In practice, however, these delineations are of little practical use. This can be seen by examining two distinct approaches to giving them empirical content:

■   first, a simplistic model that depends on a "wholesale" versus "retail" customer delineation; and

■   second, a more technically complex model that builds upon engineering concepts to determine a boundary point.

Customer delineation

One approach that has been suggested to distinguishing "network" or "core" services from "non-network", "non-core" services is on the basis of to whom the service is supplied – that is, on the basis of **customer type**. Thus, services sold to wholesale customers would be classed as falling within the former, while those sold to end-users ("retail customers") would be classed in the latter. As a result, a "network" operator would be limited to selling to wholesale customers, who in turn would provide the "non-network", "non-core" services to end-users.

As a practical matter, it is important to note there are many gains Telstra's wholesale customers make from Telstra's ability to directly service the retail market. For example, Telstra shares the costs of many platforms as between these segments, and the costs of dealing with added intermediaries that it avoids by selling direct reduce the charges needed for cost-recovery in the wholesale service. Equally, because of its involvement in retail activities, Telstra is well placed to identify the need to develop new services, and can efficiently spread the costs and investment risks involved in doing so.

However, even putting these cost issues aside, there are at least two obvious problems with the proposed delineation between 'wholesale' and 'retail' customers.

The first is that there are many services that are sold in identical form to both customer groups. For example, many of Telstra's wholesale customers purchase end-to-end services such as the local call service. Equally, many corporate customers purchase services that involve network components, and might be thought of as being of primary use to service providers. Requiring the "network firm" to only supply services to the wholesale customer group would merely cause many users to bear the costs of added layers of intermediaries, so as to obtain services that are identical to those they now purchase directly.

Second, there is no unambiguous way of distinguishing 'wholesale' customers from end-users. Thus, many end-users are larger, in terms of the scale of their service acquisition, than the vast majority of 'wholesale' customers. These larger customers would have no difficulty in establishing 'wholesale' entities, which would obtain services directly from the 'network only' firm and thus avoid the need to deal with added layers of intermediaries. As a result, the only customers affected by the requirement, in the longer term, would be households and smaller businesses – who would end up bearing the cost of sales channels that were more indirect than they needed to be.

Functional delineation

Given that defining a boundary point on a customer basis provides little or no guidance, an alternative approach would look at the range of **functions** the service provides so as to distinguish "network" or "core" services from "non-network", "non-core" services.

To understand the flaws inherent in this approach, it is important to understand how "functions" are defined in telecommunications networks.

Designers of telecommunications networks generally conceive of the services these networks provide as involving **layers** of functions. Some of these layers are concerned with the physical processes involved in carrying signals between distinct points (the "lower level" layers), while others are concerned with the management of those physical signals (the "higher level" layers). The best-known form of this description of the elements involved in a telecommunications service is the Open Systems Interconnection ("OSI") Reference Model. This model defines a hierarchy of seven layers, with the lowest layers being ways of describing the physical states involved in the communications service, while the higher layers describe the management of these states and the presentation of the service to the user.

In theory, the separate layers specified in the Reference Model should be transparent – in the sense that the layers can be designed independently, so long as they are each consistent with the rules that govern the interfaces between them. As a result, it should be possible for one team to design (say) a file transfer protocol without needing to be concerned about the way in which the network forwards data, while another team could focus on designing for reliable delivery without concern for the type of data whose delivery was being assured.

In practice, however, the OSI Model does not provide a viable basis for distinguishing and separating within and between "network services" and "non-network services":

- The OSI model was intended as a "reference model" – not as a hard and fast description of reality;

- Reflecting this, since the model was originally defined, many of the layers have had to be sub-divided, and the final form of the distinctions that have emerged between the layers are not always clear and are differently described by different vendors and commentators. Indeed, there are important network protocols that are not definable in terms of the layers as now specified in the Reference Model. For example, the services of some important network elements – such as bridges and routers – do not lend themselves to easy identification with the layers as now defined, while one of the most important suite of protocols in current use – the TCP/IP (the

20

basis for the Internet) – involves a layering description which differs from that given in OSI.;

■ **While a** goal of the Reference Model was to ensure that the layers would be technically independent, in practice, there are substantial interdependencies between layers. As a result, ensuring that a service works and works reliably often requires a degree of integrated control between and within layers. One important reason for this is that many telecommunications services are extremely complex in their software structure, with interdependencies arising from the software's overall operation. For example, in the provision of multi-media services, issues of 'feature interaction' (in which the features of one aspect of an application create a conflict either with other features of that application, or with elements of other applications that are being run concurrently) mean that the network operator must exercise some control over the menus available to network users if system failures are to be minimised;

■ Additionally, the interdependencies between layers tend to evolve over time, so that the optimal location of any split between 'network' and 'non-network' services cannot be stable. More specifically, experience suggests that reliable delivery of relatively new services requires control over most of the layers involved in the Reference Model, though some decentralisation of that control can occur once service standards stabilise. For example, early experience with ADSL showed that stable operation required providing the service on a highly integrated basis, partly so as to cope with the difficulties arising from differences in vendor implementation of what in theory were common standards. Subsequently, as experience accumulated, it proved possible (though complex and costly) to define a 'wholesale' service that devolved a greater range of functions to the wholesale customer.

As the complexity of telecommunications services rises, and the delay between successive versions of service software declines, these issues are likely to become increasingly important. The reality is that nowadays, many services are released commercially before inter-operability standards for their operation have been specified or fully implemented. Additionally, even when standards are available, the need for the standard-setting process to respect the urgency of getting products to market means that the standards often provide for extensive implementation options, so that different vendors' equipment, even if consistent with the standard, may not inter-work or not inter-work efficiently. The result is that notional interface points, such as those defined by the Reference Model, cannot effectively act as the point of separation between distinct service providers.

In short, telecommunications engineers and system designers have developed powerful ways of describing the logical structure of the processes involved in the

21

delivery of communications services. These descriptions are of significant value in defining new services and managing existing services. But they were not designed to be a basis for segmenting service provision as between corporate entities. Using them to do this would be inconsistent with their purpose and at odds with technical realities.

2.4 No stable boundaries

In short, telecommunications networks, unlike electricity, gas and rail networks, have undergone and will continue to undergo rapid and dramatic changes in their architecture and functioning. One important aspect of these changes is that delineations, which may once have made sense as a way of segmenting these networks, have been substantially undermined. While new bases of segmentation have evolved, experience and analysis shows that they are far more fluid than was the case for their predecessors.

This means that any attempt to use categories such as geography, mobility or functionality as a basis for separating activities into distinct and independent corporate entities will be essentially arbitrary. Even if the difficulties this creates could be addressed at an initial stage – and it is not Telstra's view that they could – the problems would soon re-emerge. This is because as new services developed, boundary line issues would continuously recur, opening the scope for all forms of regulatory gaming and requiring the regulator to take decisions that go well beyond its capabilities.

Ultimately, any policy based on such arbitrary distinctions would impose massive costs as it would eliminate the flexibility needed to cope with a constantly changing technology base. Rather, responding in a timely and efficient way to the opportunities technological change creates demands an integrated operation that can realign its networks, processes and services as new possibilities emerge. The fact that entrants, in all the major liberalised markets, have consistently adopted such an integrated model highlights the strength of the forces at work.

These technological factors are only likely to become stronger in future; so that whatever the scope for structural separation in other industries, it is a policy that can find little or no support in the real world of telecommunications engineering.

3   Horizontal separation: linkages and innovation

As well as the technical interdependencies between networks and services set out above, there are also crucial commercial linkages between the different products and services Telstra supplies. These linkages are especially important to Telstra's ability

to develop and rapidly and successfully implement new products and services, thus ensuring that Australia's telecommunications networks remain globally competitive. Proposals to horizontally separate Telstra – i.e. divest existing linkages and prevent the development of new linkages between core and non-core services – would inevitably delay innovation.

Some of the factors that create this link between integrated supply on the one hand, and the ability to innovate on the other, are straightforward. For example:

■ because Telstra operates on an integrated basis, it is far easier for network planners and service developers to identify areas of emerging opportunity. For example, the development of new services aimed at providing ISP's with alternatives to the use of local exchanges for carrying dial-up traffic has relied on an integrated effort between the different elements in Telstra's operation;

■ because of the scale of Telstra's activities in service provision, the network area can readily justify investments in expanding the infrastructure, as forecasts and market information are freely shared between the areas, and as the risks investment involves can be spread over a wide range of services. The decision to upgrade Telstra's fibre optic links to provide extremely high clear data transmission rates would, for example, have been difficult to take at the time it was taken without the ability to forecast the use those links across Telstra's full service portfolio; and

■ Telstra's vertical integration means that its own services operations are effectively contracted on a long-term basis to the use of network capacity, and in that way too integration reduces the risk that developing and implementing new networks involves.

Telstra submits, however, that a further benefit of an unfettered ability to invest in 'non-core' activities is the ability it affords Telstra to deal effectively with the "chicken and egg problem" that plays a central role in telecommunications innovation. Though less well understood than the other benefits of integration set out above, this impact of Telstra's full service model is no less important today and will be of growing importance in future.

3.1 The chicken and egg problem

The "chicken and egg problem" arises from the interdependent nature of telecommunications innovation. More specifically, for innovation to work, networks and services, functionalities and applications, conduit and content, need to be aligned in a way that makes the innovation attractive to the end-user.

There are many cases in which technically successful telecommunications products and services have failed because "chicken and egg" issues were not properly addressed. For example, the RadioMail service, launched by Telstra in 1995, offered a wide range of functions that, viewed from today's perspective, should have assured its success: wide service coverage; high grade of service, at least by the standards of 1995; and the scope to have an always on, truly mobile, email access service, with the prospect of global roaming. In fact, the service failed completely. This was because despite its technical attributes, the number of email users at the time was too small to provide a viable initial customer base. As the customer base was small, the terminal devices were and remained extremely expensive; and in turn, high prices for the devices meant that there were too few of them in visible use to start a "fad" or more generally create a strong 'word of mouth' effect on demand.

'Chicken and egg' problems also helped stymie the development of the Viatel (later "Discovery 40") service. While the connection speeds that Viatel (a Videotext service based on BT's Prestel) relied on seems very slow by current standards, it was relatively reliable and might have emulated the success of France Telecom's Minitel service (which used significantly lower connection speeds, at least until the mid-1990's). However, the lack of good content meant that users had little incentive to use the service; the lack of users in turn removed the incentive for the development of content; so that the service never attained critical mass and was ultimately abandoned.

3.2 The need for coordinated investment mechanisms

From these experiences and others, Telstra has learnt that resolving or avoiding "chicken and egg" problems requires coordinated investment across all the elements necessary for service viability. There is little point in making substantial outlays on the conduit if there is no content that will attract users to it, and vice versa; so conduit and content investment need to be made in parallel. Securing this coordination is difficult, if not impossible, when the different elements are being provided by separate organisations. There are sound commercial reasons why this is the case: none of the parties wants to bear the initial losses if it has no assurance it will secure the ultimate profits. When the entity owning one element can act in ways that prevent the other from ultimately recouping the costs it has incurred, investment will simply not proceed.

For example, it proved difficult to convince commercial entities to make content available for the videotext service. Naturally, they were concerned that once they had incurred the losses involved in developing the content, the profits might go to late-comers with 'me too' offerings. Since the platform was being provided on a strictly

open basis – so that latecomers would be treated on a non-discriminatory basis – the risk involved was a real one.

Similar considerations applied to the initial development of Telstra's Hybrid Fibre Coaxial network, as content providers could not be attracted to the VisionStream platform. These providers would have had to bear substantial costs in growing the market, but given the open nature of the proposed platform, they had no assurance that they would recoup these costs as penetration increased.

Given these factors, ensuring that new services can succeed often requires the network service provider to be involved, either directly or through joint venture vehicles, such as FOXTEL, in the supply of the complementary products required to under-pin the new services' commercial viability.

Telstra's experience in mobile telephony well illustrates this point. Originally, mobile phones in Australia were supplied on a basis where the cost of the handset was entirely borne by the subscriber. It was only in the early 1990's, as competition developed, that Telstra entered into the business of effectively acquiring phones on customers' behalf. Clearly this was a "non-core" service, by any of the definitions of the distinction between "core" and "non-core" services that proponents of structural separation have advanced. However, entry into this business allowed Telstra to resupply the phones, as part of a package bundling "core" and "non-core" services, on terms which made subscribing to the mobile service attractive and propelled the growth in mobile penetration from levels that were very low by international standards to among the highest in the world.

In the mobile telephony case, Telstra could relatively readily enter into purchase arrangements with suppliers of the other elements (in this instance, handsets) needed to make the overall service attractive to consumers. This is because the items involved were essentially available "off the shelf" and could be obtained, through appropriate long term contracts, from a range of competing suppliers.

There are, however, instances where supply is not available on an "off the shelf" basis and/or where the markets for the services required are poorly developed or for other reasons not effectively competitive. In those instances, ensuring that the full package can be offered to consumers on attractive terms requires greater Telstra involvement than is needed to purchase handsets in bulk. Rather, Telstra may either need to produce the items itself (as it has done in respect of some content for its web-site), invest in companies that have the capabilities it needs to drawn on, or establish joint venture arrangements with suppliers. Telstra, in other words, acts both to help organise the supply of the package of elements required and to efficiently share the risks this supply involves.

Encouraging the more widespread take-up of broadband access provides a current and highly topical example of the issues involved. Lack of attractive broadband

content has dampened consumer demand. To offset this, Telstra has attempted to aggregate content products so as to develop consumer demand for the services delivered on Telstra's infrastructure. By developing content and promoting consumer demand, Telstra is able to justify the investment required to expand the broadband infrastructure, which in turn should help create a wider market for the aggregated broadband applications .

Telstra's strategy in thus addressing interdependencies between content and conduit, networks and applications, is no different from that of its counterparts overseas. Like its foreign counterparts, Telstra, by adopting this strategy, ensures that innovations that have clear potential to benefit consumers have a reasonable chance of commercial viability. At the same time, it ensures that Telstra's shareholders can make the best use of Telstra's proven capacity to innovate. True, this strategy means going beyond what some consider to be communications services narrowly defined; but what needs to be recognised is that the alternative is to pass up the opportunity to innovate and develop new services.

Structural separation or other attempts to define Telstra's business parameters cannot but hinder this ability to innovate. Decisions that are properly and currently taken by Telstra's Board – about the choices of business in which Telstra operates, the range of services it provides and equipment it makes available – would be vested in Courts and regulators. This would distance service providers from consumers while adding delays and costs. As in the US, providing new services would become a field day for lawyers, with interminable arguments being heard about what side of purely artificial dividing lines each service lies on. That this makes no sense from the point of view of the Australian community should be obvious.

4 Increasing costs for consumers

All of the impacts set out above would ultimately translate into higher costs for consumers. Prices would have to rise as Telstra's ability to supply existing and new services in a cost-effective and competitive manner was undermined.

4.1 Implementation costs

The most immediate cost shocks would come from the process of divestiture itself. The exact scale of these shocks is obviously difficult to estimate without making more detailed assumptions about the exact nature of the structural separation that would be imposed. However, even the most limited of the structural separation scenarios would have serious cost consequences.

For example, full separation of Telstra's retail business from its wholesale and network operations would be a huge logistical exercise, requiring large-scale duplication of IT systems and massive staff transfers. In Telstra's experience, even the mere development of the back-of-house systems that would be needed is a substantial exercise. For billing, payroll, finance and HR systems alone, Telstra has spent approximately $500 million over the past five years in systems development. New systems would need to be developed in the new entity and whilst some re-use may be possible, the cost would still be in the order of $400 - $500M. The duplication of these back-of house systems would also cost approximately $80 million per annum in incremental running costs.

Significant as these back-of-house costs are, they are likely to be swamped by the systems costs in the network. The exact nature of these costs will depend entirely on the model of structural separation that was to be implemented and exactly where the boundary within any model was drawn. If, for example, Telstra were to be separated in a way that divided its customer access network (CanCo) from its other network assets (ServCo), the one-off costs of separation in terms of network systems would inevitably be extremely high. This is because separation of Telstra in this way would require the segregation or duplication of many of the systems that lie on the boundary between the local loop and the remainder of the network. There would then need to be development of interfaces between the two separated sets of systems, software changes and testing, and testing of the full business process from the network through to the customer receiving the service, which includes the ability to order, provision, test, fix and bill for a service.

Similarly, if structural separation were instead to be a separation of the copper customer access network from the remainder of Telstra's network, very substantial costs would be required to carve up and separate out the local network infrastructure. Again, the IT costs alone would be extremely large. Telstra's Infrastructure Services (Telstra IS) group has approximately 580 applications, 221 (approximately 38%) of which are estimated to contain functionality that support **both** the local network and other parts of the network. In the event of structural separation of the local network, these shared applications would require duplication or replication of the system environment. This would involve definition of the business requirements for each scenario, in-depth analysis of the systems, segregation or duplication of applicable systems, interface development, software changes and testing, and testing the full business process from the network through to the customer receiving the service.

While the exact amount of these implementation costs will differ depending on the precise nature of the divestiture required, estimates produced by the US telecommunications company, Verizon, of how much structural separation would cost indicate the magnitudes involved. Verizon estimated that structural separation would cost it US$800 million (that is, approximately AUD$1,454 billion). Scaling the

27

US carrier Verizon's estimate of the restructuring costs (relating to a proposal to separate its network and retail operations) to the case of Telstra, leads to an estimated one-off cost of $2 billion,[10] an estimate that does not include the costs of structural separation in broadband supply. Without claiming that the costs would indeed be of that magnitude, Telstra submits that there is little doubt that the one-off costs of actually implementing the policy would be very high.

4.2 Loss of scale and scope economies

In addition to these one-off costs, there would be continuing efficiency losses as structural separation undermined Telstra's ability to achieve economies of scale and scope.

Economies of scale exist whenever the costs of production fall as volume of production increases and economies of scope exist[11] when there are cost savings from performing two or more different economic activities at the same time. Economies of scale and scope are prominent features of the telecommunications industry. Moreover, vertical economies of scope between upstream and downstream markets are unusually important in telecommunications as compared with other regulated industries. For instance, there are minimal efficiency benefits to be gained in electricity or gas by having the same entity perform the task of generation/extraction and retailing – primarily because electricity or gas produced by one entity is indistinguishable from that produced by another[12] – and in rail, the benefits of

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[10] Verizon's estimate was $USD800 m. Telstra serves about 10 million access lines, while Verizon serves only about 7 million in Pennsylvania. Scaling by access lines gives $USD1,143 million, or about $AUD2,000 million using an exchange rate of AUD1 = USD0.55. See Structural Separation of Bell Atlantic-Pennsylvania, Inc. Retail and Wholesale Operations (Opinion and Order), Docket. No. M-00001353, at p. 10. Estimates of the costs of the AT&T divestiture are also very large (see for example, G.W. Brock 1994, *Telecommunications Policy for the Information Age*, Harvard University Press, at pp. 167 ff).

[11] When a firm produces more than one product, as is the case in telecommunications, making the idea of economies of scale operational raises some complications. However, the general idea is captured by the idea that the average cost of a fixed bundle of outputs falls as output of that bundle is increased. This is virtually universal in telecommunications.

[12] One caveat is that having the retailer and supplier of electricity as the same entity does bring an economy of scope in supply by guaranteeing capacity, which can be important in energy supply because of the difficulty of matching demand and supply in such markets. Hence the well-known problems following electricity deregulation in California. The Californian electricity market crisis would have been far worse if the enforced divestment of generation capacity by electricity retailers had been more extensive. The lesson to be taken from this is not that structural separation in electricity always fails, but that even in industries where economies of scale and scope are less prominent than they are in telecommunications, not taking account of these economies can lead to design problems and ultimately problems in achieving desired outcomes.

vertical integration between track and carriage service providers are small in comparison to those in telecommunications[13].

Scope economies in telecommunications benefit both the supplier and consumers of telecommunications services. On the production side, important economies exist in network costs, customer acquisition, customer support, billing, and, perhaps most importantly, product innovation, especially in allowing customer demand to drive developments and when development requires underlying network change. Additionally, there are significant economies of scope in consumption, for example, through the provision of unified point of contact with the communications supplier, and a single bill. Ultimately, being able to operate and supply the full service range allows the telecommunications service provider to charge a lower total package price for more highly valued services.

Structural separation would raise another set of costs by creating an additional layer between the customer and the network management divisions of Telstra. Because the development of new services requires close coordination and commitment between the retail and network divisions, these two operations will typically need to collaborate even after structural separation. This would require elaborate contractual means to coordinate their activities and resolve the bargaining and incentive problems that are avoided through vertical integration. The net effect would further raise Telstra's costs, again raising prices.

4.3 Structural separation is bad for consumers

In sum, structural separation will:

■ reduce Telstra's capacity to exercise economies of scale and scope in production, raising industry costs and prices,

■ reduce consumer benefits from bundling and in innovation, and

■ raise transactions costs, raising prices.

Quantitative assessment of these impacts is obviously sensitive to the precise divestiture scenario postulated. However, it is not unreasonable to assume that the one off costs could prove to be in the order of $2 billion, and the ongoing additional

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13 The Productivity Commission highlighted a number of problems that can arise from vertical separation in a 1999 report on the rail industry. The problems cited include: a lack of coordination between rail entities distorting investment decisions, and various complications associated with timetabling, capacity management and train scheduling allocation. Productivity Commission (August 1999), *Progress in Rail Reform Inquiry Report - Report No. 6*, p. 108.

administration costs could amount to some $800 million per year. To recover these costs, Telstra's prices would need to increase by close to 8 percent on average. In practice, the bulk of the price increases would inevitably affect smaller consumers and consumers outside the metropolitan areas, who have fewer competitive alternatives. These consumers could therefore face prices some 10 percent higher than they would otherwise be – a perverse outcome indeed for a policy claimed to benefit consumers.

5 Undermining equity for all Australians

In addition to the economic and commercial concerns discussed above, structural separation also raises significant equity concerns. As part of the current integrated model of telecommunications, Telstra provides a range of services that ensure equity in the Australian telecommunications market. These span from providing and funding the bulk of the universal service obligation and service guarantees through to ensuring equity for regional consumers via averaged prices and service levels.

Structurally separating Telstra into its constituent parts would increase the costs meeting these equity goals involves, while reducing the Telstra cash flows that have largely funded them to date. For these social obligations to continue to be met access prices would need to rise or the Federal Government directly fund specific initiatives from the annual budget. Both options are likely to be unsustainable and will put at risk the social safety net as it currently stands.

5.1 Telstra's current social obligations

Telstra is required to meet an extensive list of social obligations, for none of which it receives anywhere near adequate compensation; instead these obligations are funded largely by Telstra itself. The key obligations, amongst many others, include:[14]

- the Universal Service Obligation: Telstra must ensure that standard telephone services and payphones are reasonably accessible to all people in Australia on an equitable basis, wherever they reside or carry on business, and that any additional carriage services that might be prescribed by

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[14] For a full listing of the obligations imposed specifically on Telstra (and to a much lesser extent the broader telecommunications industry) see Telstra's submission to the Regional Telecommunications Inquiry at www.telinquiry.gov.au

regulation are provided. Telstra funds around 80% of this obligation estimated at around $220m by the Australian Communications Authority;[15]

■ service standards: As a carriage service provider, Telstra is required to meet certain customer service performance standards defined by the Australian Communications Authority. Under the new Network Reliability Framework, these standards have effectively been tightened but only for Telstra – other carriers can continue to offer existing levels of service. Telstra obtains no funding from either other carriers or the Government to help defray the costs of meeting these service level obligations;

■ access charges: Telstra is required to supply basic access services at rates that are currently capped below the economic costs of supply. Telstra funds in excess of 80% of this obligation estimated at in excess of $1 billion per annum;

■ directory assistance charges: Telstra cannot impose a charge for the supply of directory assistance services to residential customers. Telstra obtains no funding from either other carriers or the Government to help defray the costs of meeting this obligation estimated at $50 million per annum; and

■ long distance charges: Telstra does not distinguish between customers in the rates it charges for the supply of long distance and international services despite the significant cost differentials in the supply of these services across Australia. Telstra obtains no funding from either other carriers or the Government to help defray the costs of meeting this obligation.

5.2 Social equity programs would be unsustainable

Structural separation would create serious issues of sustainability with respect to the obligations set out above.

To begin with, integrated supply reduces the costs of meeting these obligations. For example, the costs Telstra incurs in supplying basic telephony services in regional areas are significantly reduced by the fact that Telstra also provides a wide range of non-telephony services in those areas. As a result, fewer areas are classified as loss making for the purposes of the Universal Service fund, and the costs of that fund are lower than they would otherwise be.

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[15] The ACA's estimate of USO costs largely reflects the cap placed on USO costs by the Minister in 1997/98. In that year, the ACA assessed the cost of the USO at $580m, and the Government legislated the cost at $253m

31

At the same time, integrated supply has made it substantially easier for Telstra to finance the obligations that bear upon it.

In practice, Telstra funds all, or the bulk of, these social obligations through a system of cross-subsidies. The losses incurred in the supply of standard telephone services to people living in the Torres Strait Islands and the Great Sandy Desert are offset via above cost pricing for the supply of the same regulated services to customers in Collingwood and Bankstown. Since the introduction of competition in 1991, this system of cross-subsidisation has come under significant pressure as a result of cherry picking by new entrants. Structural separation would finally destroy the ability of Telstra to continue this process. This is because it would remove the revenue generating parts of the business (all or part of Telstra's retailing arm) from the parts of Telstra that effectively incur the costs of meeting social obligations (essentially the network parts of the business).

For the proponents of structural separation, this raises an extremely important set of questions. Do they plan for these social obligations to continue and if so what credible source of funding do they propose? There are really only three options available to the proponents of structural separation:

- first, they could seek to par back the set of social obligations, potentially greatly reducing the cost burden on the network business forced to meet these obligations. This would mean, however, that prices would rise and service protections decline for consumers across Australia – particularly those in high cost areas such as rural and remote Australia;

- second, access prices charged to carriers could rise as an explicit industry tax designed to fund these social obligations. This would have a significant impact as, for the first time, the full costs of the social obligations are made explicit and are borne entirely by *all* consumers (rather than as occurs now where the costs are shared predominantly by Telstra consumers, shareholders and workforce). Experience proves that Telstra's competitors would seek to avoid this impost, but a policy of selectively taxing only Telstra would quickly become impossible to sustain; or

- finally, the Federal Government could bring the funding of these social obligations on budget and directly fund the network part of the separated entity at a cost of $1 billion or more per annum that social obligations currently cost the integrated Telstra.

Each of these options raises significant equity, competition or fiscal concerns and serious doubts need to be raised about their political and economic viability as real options. The proponents of structural separation must face up to these difficulties and detail exactly how they plan to resolve them, if their proposed policy is to be treated seriously.

6 Negative financial market impacts

Finally, structural separation raises significant concerns for Australian financial markets in three distinct ways:

- First, it would reduce the wealth of Telstra's 1.8 million ordinary retail investors and the many millions of other Australians that hold Telstra shares through their superannuation funds;

- Second, it would raise the sovereign risk premium for all Australian companies as local and foreign investors seek to make sense of a regulatory regime that destroys the wealth of investors by implementing a policy the rest of the world has rejected; and

- Finally, it would destroy the world class debt rating that Telstra currently enjoys, rasing the cost of debt. Access to capital will be more difficult, increasing the costs to Australia of rolling-out next generation communications infrastructure.

6.1 Harming Telstra's shareholders

The costs of implementing structural separation, as well as impacting on consumers, would have a detrimental impact upon Telstra's 1.8 million ordinary retail investors and the many millions of other Australians that hold Telstra shares through their superannuation funds. Shareholders would be harmed to the extent that the Federal Government did not compensate them for:

- any separation costs that cannot be recouped through higher prices. As noted above the costs of separation would be substantial, easily in the billions of dollars. Importantly, these costs would fall largely on Telstra, giving its competitors a potential cost advantage (although some of these costs would flow through via higher access prices). This in turn would place some limits on the ability of Telstra to pass on the costs of separation to consumers, inevitably resulting in a reduction of Telstra shareholder value;

- any losses that arise from the competitive detriment to Telstra that would occur as a result of having management focusing on implementing structural separation rather than competing for customers; and

- the handicap that Telstra would suffer as purely artificial constraints are imposed on its activities and not on those of its competitors.

In short, if shareholders were to be informed that Telstra's growth assets were to be stripped from it by Government fiat and that the company was to be dismembered, the share price reaction would be very significant. Telstra's share price fell 12 cents simply on the basis that this Inquiry was announced. Inevitably, the experience of this sharp fall would affect the market's willingness to hold Telstra stock in future.

6.2 Increasing Australian sovereign risk

It is fanciful to suggest that investors in Telstra would be compensated by the Federal Government or the prime beneficiaries of structural separation (Telstra's competitors) for this wealth destruction. Instead, it is probable that investors in Telstra will bear the full losses. Australian investors may understand this decision – international investors certainly would not. International investors would be particularly perplexed because this decision would go against international regulatory trends:

■   in the United Kingdom, despite some interest in the issue by a House of Representatives Select Committee and by BT itself, struggling to deal with a massive debt burden, the idea has been firmly shifted off the agenda by a clear OFTEL finding on the benefits of integration;

■   in Europe, the structural separation route has been largely ignored in favour of access regimes in the European Commission's various directions to member countries on telecommunications regulation;

■   the OECD report from the Competition Directorate supporting structural separation in telecommunications has been largely debunked by a report of the Telecommunications Group in the OECD, which clearly indicated the superiority of access regimes over structural remedies in the telecommunications sector;

■   in Sweden, in the mid 1990's Telia decided that it would progressively and voluntarily restructure its business operations to streamline operations and better match new market opportunities. The Telia Group now comprises separate units for Networks (retail market and wholesale market), Internet, International and Mobiles. However, while the units are distinct entities they actually answer to the same owner (which is 70.6% Government), and it is the entities' Boards, not the regulator, who decides what goes where and how issues of coordination are resolved. Moreover, Telia's decision was made on strictly commercial grounds and can be over-ridden or even completely reversed whenever it is commercially appropriate to do so;

■   in Japan, the Government announced last year that it would delay any decision on structural separation of NTT for two years;

■   in Canada, the US type structural separation model has been explicitly rejected in favour of competition between vertically integrated entities. A recent report by the Canadian regulator highlighted the importance of convergence and detailed the reasons why it thought structural separation was incompatible with such convergence; and finally

■   in the United States, at a Federal level, the 1996 Telecommunications Act has sought to unwind the separation of the Bell system imposed by the courts in the 1980s. At a state level, the Pennsylvania Public Utility Commissions investigated the possibility of structurally separating its incumbent carrier but eventually rejected this proposal on the grounds that costs outweighed the benefits. Illinios, Florida and Michigan have each rejected the proposal when it was put to them on similar grounds.

Given these precedents, international investors would instead ask the very legitimate question – if the Australian Government is prepared to countenance such wealth destruction in the context of telecommunications, where else?

As a result, structural separation would inevitably increase the sovereign risk premium placed upon investments in Australia, raising the cost of capital for all Australian businesses and especially for the infrastructure industries. The proponents of structural separation must explain how they propose to either compensate investors in Telstra or limit the sovereign risk problems, if their policy proposal is to be treated seriously.

6.3   Increasing the cost of debt

Similarly, the impact of structural separation in debt markets would be substantial. Telstra currently enjoys a AA- debt rating, the highest rating of any telecommunications carrier in the world. This rating allows Telstra to finance its investments in telecommunications infrastructure at attractive rates. This helps reduce the significant cost penalty that providing the telecommunications infrastructure to a vast, sparsely populated continent necessarily involves. Structural separation would destroy the Telstra balance sheet that underpins this debt rating and hence raise the cost of financing Australian telecommunications infrastructure.

It would also be necessary to restructure Telstra's existing debt of approximately $13 billion. In view of the wide ranging sources and forms of this debt (including hedging transactions that remove foreign exchange and interest rate exposures) this would probably be quite complex and challenging. Telstra has numerous debt

raisings from the capital market (e.g. Eurobonds, Global Bonds, US Bonds, Domestic Bonds, and in Domestic Bonds both retail and wholesale issues), and also banks (it has syndicated loans and other bank facilities involving in excess of 10 banks).

Assuming that investors (lenders) would have a view as to the relative desirability and quality of the debt of each of the structurally separated entities, it would not be appropriate for Telstra or the Government to arbitrarily determine how existing borrowings were allocated to the new companies. A possible approach would be to offer current lenders a range of options. This could involve the capacity to accept full assignment of their existing debt to the new companies on the required ratio, to seek a selective allocation, or to seek full or partial repayment. Repayments would need to be refinanced through some new form of borrowings unless the Government was prepared to fund early retirements. Communicating with investors and managing this process would be complicated and likely very costly. It may need shareholder involvement in approving the processes.

For Telstra, extensive work would be required initially in drawing up with the Government the formal documents required to approach the various bond holders, investors, banks, etc. to explain the process and present any options that may be necessary eg. an offer of early repayment if appropriate. This would probably need a mail out and advertising exercise to attempt to contact all lenders seeking their response to the offers. There would then be considerable work in establishing registers of holders for each of the new entities and the appropriate loan documents including terms and conditions for those new entities. Considerable support resources would be needed to handle from the interaction with lenders/investors. Telstra still has retail bonds on issue to more than 10,000 members of the public, and doubtless, many issues with arise in actually restructuring these bonds and others.

Though large, these transition costs are likely to ultimately be dwarfed by the consequences of the structural separation for the market's assessment of the quality of Telstra debt. Even a minor deterioration in the terms on which Telstra borrows has significant consequences for the extent and timing of its investments. The shock of separation, and the regulatory and commercial risks inherent in a post-separation world, would inevitably harm Telstra's ability to finance its operations – all the more so as it would be competing for finance with overseas telecommunications carriers (including the owners of its major competitors) that are not themselves structurally separated.

The effect of the policy would therefore be to redirect debt funding from Telstra to telecommunications carriers overseas – at the obvious expense of Australian consumers and of Australia's economy.

7 Conclusions

Australia's dependence on an advanced and efficient telecommunications network hardly needs to be emphasized. Our vast internal distances and our remoteness from our major trading partners mean that there is a great deal at stake in getting telecommunications policy right. At the same time, ensuring that we do have the telecommunications infrastructure we need is and will remain a continuing challenge.

Taking income from Telstra's customers and shareholders and giving it to Telstra's competitors is no way of addressing this challenge. Yet that is the best structural separation could do: and even that it would do at a huge cost in terms of added regulatory uncertainty, reduced productive efficiency, slowed innovation and the undermining of equity goals that Australians have long held to be important.

For Australia to pursue a policy of structural separation would therefore be a counter-productive diversion from the real issues that lie ahead. Telstra recommends that the Inquiry reject this impractical and inefficient policy option.