Submission to:

The House of Representatives

Standing Committee on Communications, Information Technology and the Arts

Inquiry into Structure of Telstra

By

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This submission is prepared by research associates of the Interactive Information Institute and the former Centre for International Research on Communications and Information Technologies (CIRCIT) at RMIT. The submission is offered in the public interest, as a viewpoint which is wholly independent of any carrier or service company within the telecommunications industry. It makes four key points about the relevance of the structure of Telstra to the achievement of national objectives, as a basis for further discussions if the Inquiry wishes to pursue them:

1. Consideration of the structure of Telstra is a timely, not outdated, issue

2. An appropriate industry structure is needed to meet the future telecommunications requirements of Australians: the structure of Telstra is a critical component

3. The core requirement of enhanced infrastructure cannot be dealt with by competition policy alone: the natural monopoly of the terrestrial access network owned by Telstra must be recognised and managed

4. Alternative models for developing infrastructure need to be considered: these include possible "infrastructure utilities"

These points address a strategic view of the question, against which the issues of competitor benefits, shareholder value, transition costs, management tensions, etc., can be referenced.

1. Consideration of the structure of Telstra is a timely, not outdated, issue

In recent years, suggestions that the structural separation of Telstra was a strategic option which needed proper attention have tended to be dismissed as outdated.[1] It is heartening to see that this Inquiry will now consider this question of Telstra's future in a rigorous and systematic fashion.

In embarking on this examination, it is important that there is a general recognition that times have changed greatly since the 1980s and early 1990s when the then Telecom successfully campaigned against the initiative of structural separation.

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[1] See, for example, the interaction in "Crossed Lines", ABC Lateline, Broadcast 9/3/2000, transcript http://www.abc.net.au/lateline/archives/s108990.htm (accessed 27/1/2003)

When the issue of structural separation was first debated, the technical and business aspects involved in the interconnection of private infrastructure to the public network were still relatively rudimentary. The first technical standards for interconnection to the public network were developed in 1985. Since then considerable further work has been undertaken by standards bodies both in Australia and overseas to allow applications to be connected to the network. The family of technical standards which support the Internet are a striking example, particularly relevant to the present issue, because Telstra is restructuring its network architecture to capture the advantages that accrue from the use of these standards.

Interconnection arrangements - including charging, billing, quality of service and legal aspects - have, similarly, undergone considerable development since structural separation was last considered as an option for Government policy. The industry now comprises a myriad of service providers, offering a range of services and applications, who connect seamlessly to the Telstra network.

Telstra has also changed markedly in this industry transition period. One way of depicting this change is to observe the strategic positioning and intentions of Telstra in the early 1990s and contrast these with the present. In the early 1990s, Telstra's view of its "Strategic Intent" was developed utlising the construct of an Electronic Communications Industry (ECI) Plane which reflected the degree of the company's intended operations in carriage (telephony or data), information organisation (including call management, directory structures) and content on one axis, and geographic regions of operation on another.

The following schema shows the primary orientation of Telstra's then core business to carriage within Australia – and the intention to extend this business into higher levels of information organisation and content, and into other regions[2].

**Telstra in the Electronic Communications Industry (ECI) Plane – early 1990s**

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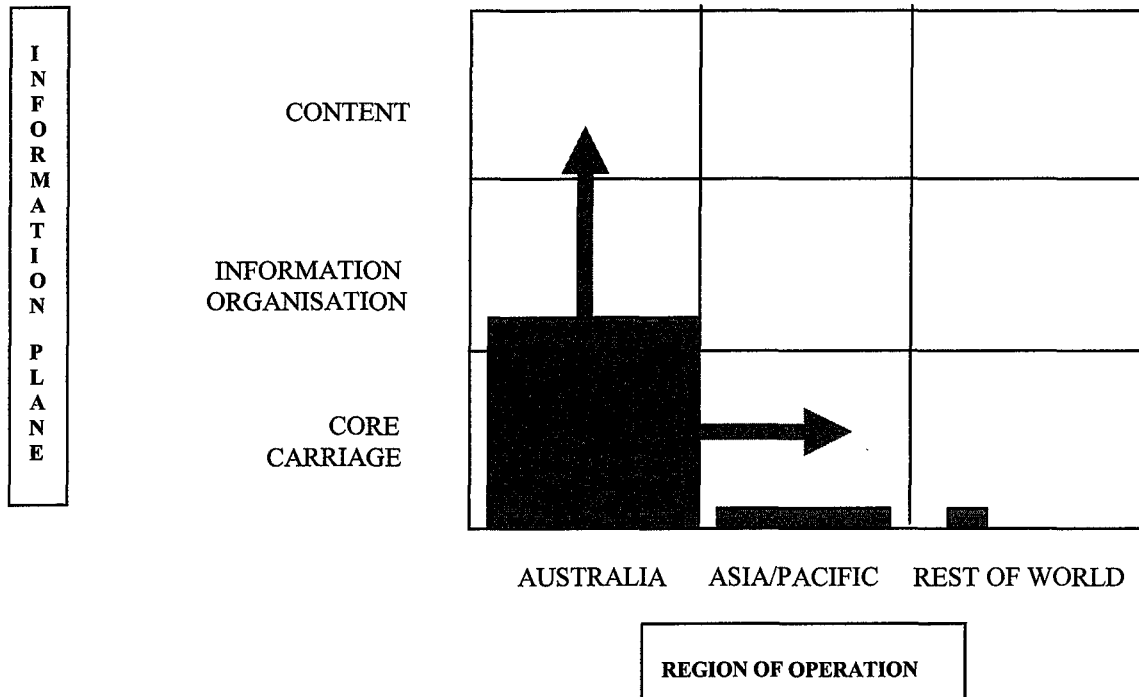
[2]   This diagram is adapted from the version popularised by former Telstra CEO, Frank Blount, in Mair D., Blount F., and Joss R., *Managing Australia,* Lansdowne Publishing, Sydney (1999), p.86.

While the option of divestment of the network was canvassed in business discussions within the company at that time, there was a consensus that structural integration of Telstra's business was necessary to support the emergence of the information and communication services company it had set out to become.

In the intervening decade, Telstra has largely achieved that intention – the following schema may be taken as a reasonable representation of the current situation. Telstra has achieved considerable market share in information organisation services. BigPond holds the predominant position in the Internet service provider industry. The Foxtel joint venture, foreseen in Telstra's Strategic Intent, is now established and dominates the Pay TV market. For these reasons, Telstra's value-added businesses are considerably less dependent on ownership of the network than was previously the case.

Telstra in the Electronic Communications Industry (ECI) Plane – early 2000s

REGION OF OPERATION
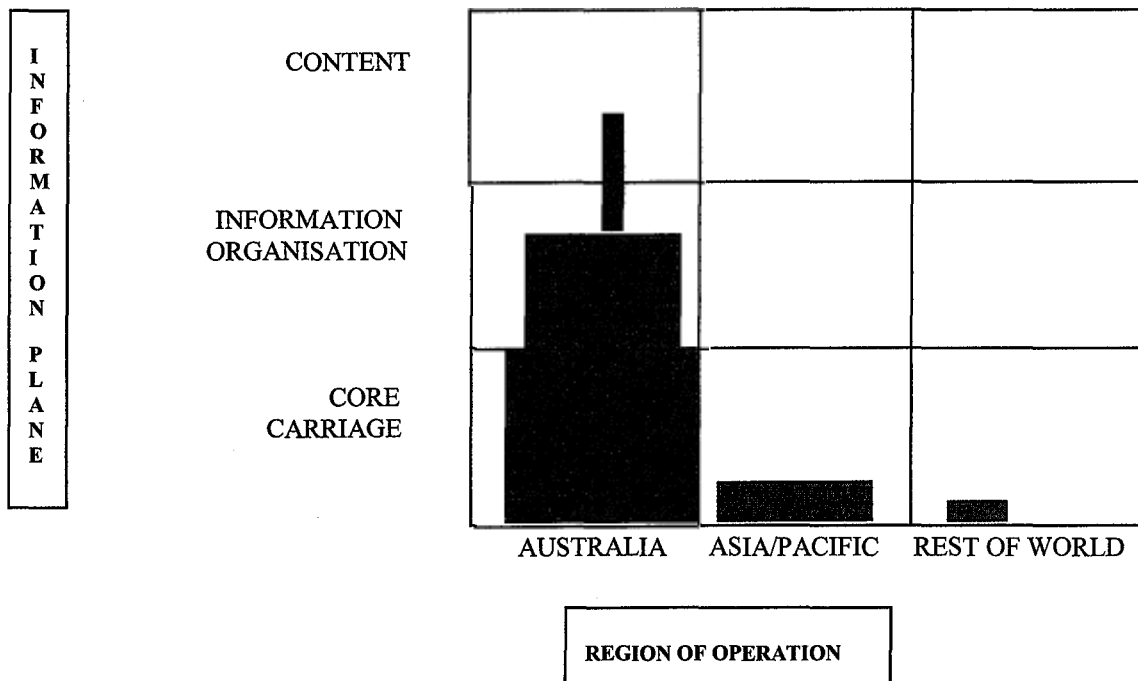
The question of structural separation now needs to be addressed afresh in an industry in which significant objectives of a decade ago have been achieved – while some, in particular those of widespread competition in infrastructure, have proved less tractable, and new objectives, such as national access to broadband infrastructure, have emerged.

Finally, the industry is continuing to evolve. It is crucial that the industry structure which this Committee recommends optimises the national benefits to be obtained in the future and is not tied to the inefficient industry structure of the past.

2. An appropriate industry structure is needed to meet the future telecommunications requirements of Australians

In 1999 CIRCIT conducted a National Policy Forum which was attended by executives from across the telecommunications industry.[3] Both government and the private sector were represented.

The Forum concluded that the Australian communications industry needs an integrated policy, starting from overall national policy objectives, both economic and social, in order to develop long-term, imaginative - but realistic - national strategic programs for future communications. (The objectives stated in the *Telecommunications Act* do not provide a sufficiently coherent set of objectives for telecommunications policy). As shown later in this submission, the free market and competition policy will not deliver outcomes which provide fair access to Australians in rural areas nor ensure the nation's competitiveness in the international market place.

The framework below describes the way in which the telecommunications industry produces outcomes that contribute to national objectives shown, which the Forum agreed were appropriate for Australia. The figure illustrates the role of government (shown in bold) in the achievement of policy objectives.

Achievement of Policy Objectives
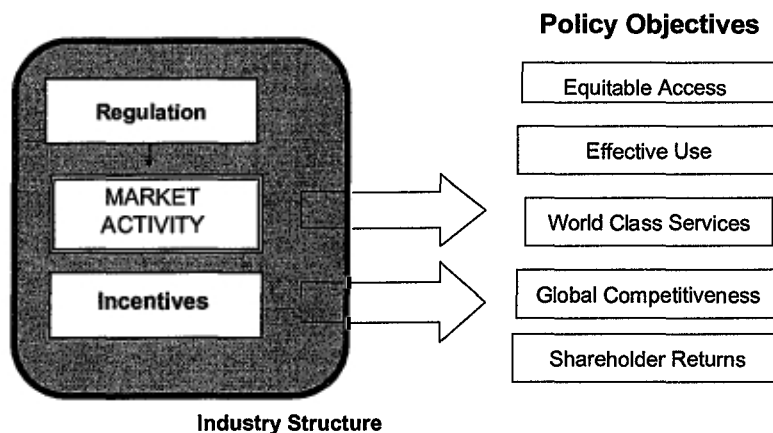
In broad terms the market in its normal operation contributes a great deal to the outputs of the industry. But there are, inevitably, gaps between the industry outputs generated by the competitive regime and the desired outputs to achieve national policy objectives. There is a key role for Governments: to ensure the achievement of the desired objectives by:

- shaping the overall industry structure; this requires a thoughtful development of the competitive regime, beyond the simple free market concept,

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[3] The Report of the Forum, *Telecommunications Policy in Australia: Resolving Tensions in the Implementation of Social, Competition and Commercial Objectives*, is accessible at http://www.circit.rmit.edu.au/publics/polfor99.pdf

- regulating the market to achieve desired outcomes, and

- funding incentives to directly produce the outcomes required; the *Networking the Nation* initiatives fall into this latter category.

The regulatory regime aims to provide specific outputs from the telecommunications industry shown in the figure below: for example, the market provides benefits to both business and residential customers, which are topped up by Government incentives to provide benefits to disadvantaged groups.

Industry Outputs

Industry Structure
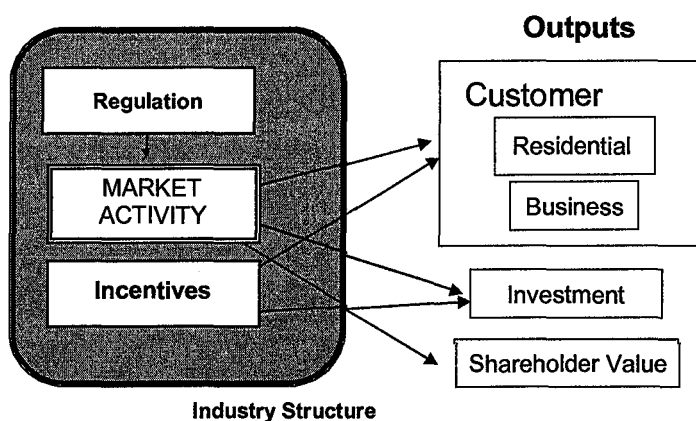
CIRCIT found, however, that regulation of the market via the various levers available produces unintended and undesirable as well as desirable outcomes – there are tensions between various means and objectives.

A tension relevant to the Terms of Reference of the Committee is that between regulation, the ownership structure of Telstra and shareholder value, illustrated diagrammatically below. Regulation has social as well as economic objectives; equitable access is an example. In order to achieve equitable access, the regulator and/or the government via its majority shareholding requires Telstra to undertake unprofitable investment which thereby decreases the shareholder value and thus the value of the holdings of the minority private shareholders. This tension would become more explicit were Telstra fully privatised.

Regulatory and Policy Objectives Tensions
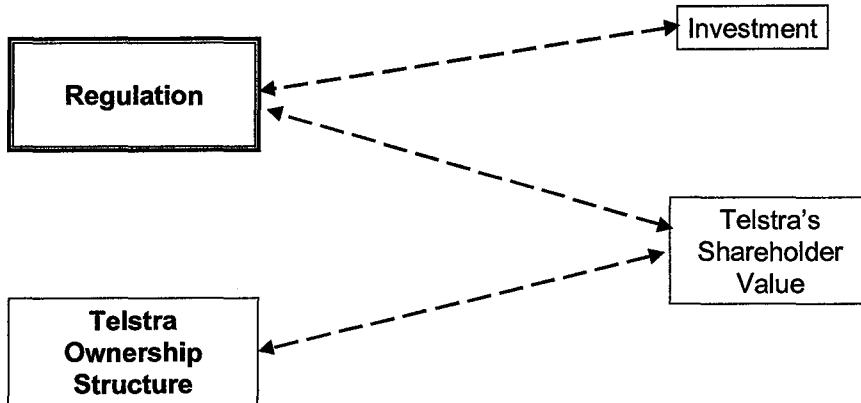
These tensions within the current regulatory regime have the potential to reduce investment by the major carrier in network infrastructure and thus reduce the capacity of the network to deliver adequate services – particularly broadband services - to all Australians. Furthermore, the extensive regulatory resources (including the Department of Communications, Information Technology and the Arts, the ACCC and the ACA) and the overlapping responsibilities impose additional industry costs which must be passed on to taxpayers and end users.

Under the current policy, Telstra will not be privatised until services in rural areas meet an acceptable standard. When this situation is reached, however, there remains the issue as to how these service levels will be maintained into the future - particularly in the light of the evolution of new services. The regulatory measures to enforce this compliance will create additional tensions as they will reduce shareholder value and will add considerably to the resources which will need to be provided.

There is therefore a need for a new industry structure which either avoids the tensions inherent in the current structure or incorporates straightforward ways of managing them.

3.   The core requirement of enhanced infrastructure cannot be dealt with by competition policy alone

One of the most pressing issues for Australia is the establishment of clear objectives for the availability of higher capacity infrastructure. This matter was not adequately dealt with by the government response to either the Broadband Services Expert Group in 1993/94 or the National Bandwidth Inquiry of 2000. It has been recognised by the recent Broadband Advisory Group's proposal for a national broadband strategy. However, the Advisory Group does not appear to have considered the appropriate industry structure – including the structure of Telstra – to achieve enhanced broadband services.

In establishing the most efficient industry structure for this purpose, we will need to extend our emphasis beyond that of competition, and consequently be prepared to recognise possible natural monopolies in the provision of terrestrial networks. Competition policy should be a means and not an end in itself. It is one element of an industry structure which can be utilised to achieve objectives.

Competition is clearly a means of achieving some key objectives, particularly in the availability, price and quality of services. However, even in countries where competition policy has been entrenched for decades, e.g. the US and UK, outcomes continue to primarily benefit metropolitan areas and business

users. This too is the case for infrastructure development, where incumbents and new entrants continue to target high traffic routes and densely populated areas. In relation to the underlying objective of infrastructure availability, an emphasis on competition may be limiting our capacity to achieve essential outcomes across metropolitan, regional and rural Australia. With our emphasis on market approaches, we have not moved forward in infrastructure development in the way that other countries such as Canada and Japan have done in the last decade.

Our national challenge appears to be to place competition in an appropriate perspective as one means. The confusion we still experience is indicated by the background material for the November 1999 Regional Telecommunications Forum proposing that *"the central objective of the Commonwealth Government is to facilitate competitive and sustainable communications services for regional, rural and remote Australia"*.

It is important that the structure includes competition policy where it is appropriate and provides alternatives to competition, where the application of competition policy is not appropriate. The United States Institute of Electrical and Electronics Engineers, generally agreed to be the world's most prestigious telecommunications engineering society, has identified a powerful trend in the evolution of telecommunications networks[4]. In this article, Isenberg identifies - correctly in our view - the move of intelligence from central locations in the telephone network managed by telephone carriers to servers at the edge of the network managed by service providers and users. This evolving architecture, which is driven by the rapid increase in computing power that has occurred over the last decade, will result in a simple "dumb" network which does nothing more than deliver bits of information from one point to another. All other services will be increasingly delivered competitively from servers at the edge of the network. This network structure is far more amenable to the development of new applications than the centralised Telstra network.

Because this model disrupts a telco's integrated business model where customers are charged for calls or "solutions", it is natural that a telco would oppose it. But Isenberg warns that no nation can afford to oppose this trend. Continuance of a telco's ability to insist on the provision only of expensive bundled solutions will retard the development of applications and those sectors of the economy which they benefit.

Implementation of a simple dumb network with the competitive provision of applications at the edges, as envisaged by the IEEE, is completely consistent with the separation of Telstra and public ownership of the network.

4. Alternative models for developing infrastructure need to be considered

The previous discussion has highlighted unintended regulatory effects which retard, or have the potential to retard, the overall capacity of the network to deliver services, and the shortcomings of the competition regime in delivering services to outer metropolitan and rural areas. The present approach to developing communications infrastructure relies on a fully- or partially-privatised Telstra as the dominant carrier, which will, subject to obligations, provide a universal service. Other players comprise carriers and service providers - all of whom are driven to primarily serve their shareholders. Legacy infrastructure is augmented and competitive service offerings deployed – all in a 'leapfrog' yet gradual manner so as to manage investment risk. The outcomes are as follows:

- USO-dictated infrastructure delivers lowest common denominator services but at generally affordable prices;

- Higher bandwidth services are marketed and dimensioned at premium prices that are not widely affordable;

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[4] David S, Isenberg, *The End of the Middle,* IEEE Spectrum Online, December 2002, http://www.spectrum.ieee.org/WEBONLY/publicfeature/jan03/clude.html

- Duplicate infrastructure has been targeted to address the more profitable markets, with the side effect of higher overall embedded costs and foregone investment in less profitable markets;

- Oligopolistic pricing occurs in many markets where competition is underdeveloped, and

- Innovative services and applications are severely limited by an artificial scarcity of bandwidth.

The end result is the absence of business drivers that will provide Australians, particularly in regional and remote areas, with leading-edge communications infrastructure that will serve the nation well into this millennium and provide an international advantage within globalised markets.

Leading-edge infrastructure implies the availability of services and applications that can only be delivered via broadband networks, such as those constructed with optical fibre. In announcing the findings of the National Bandwidth Inquiry in April 2000, the Minister for Communications, Information Technology and the Arts, Senator Richard Alston said *"This report provides vital information which will help the Government ensure that affordable, high-speed bandwidth is made available to all Australians. It has found there is likely to be adequate bandwidth in the backbone network on most routes to meet the majority of demand scenarios"*. Although such backbone routes are nowadays solely realised by optical fibre, this is almost universally not the case for the infrastructure directly servicing consumers and small businesses (ie. spanning the 'last kilometre').

When coupled with Internet Protocol, communication services delivered via dedicated optical fibre offer the promise of:

- Prices that are substantially independent both of distance and bandwidth;

- Potentially inexhaustible bandwidth and, in particular, bandwidth supply that does not constrain the demand for new applications;

- Complete decoupling between infrastructure and service provision, in both a logical and physical sense.

Investment in leading-edge infrastructure of this type is most unlikely to eventuate in an openly competitive environment. The achievement of the desired objectives for rural customers therefore requires the creation of the right industry structure to support the deployment of broadband infrastructure.

The reality of telecommunications infrastructure is that the access network (between the customer and the local exchange) almost certainly constitutes a natural monopoly – particularly in outer metropolitan and rural areas. As a result:

- Other carriers are unlikely to compete to provide services in those residential areas where Optus has not installed its broadband network, or in rural areas, where, if it is uneconomic for one network to operate, it is doubly uneconomic for two. The efficiency of competition in providing services in rural areas therefore needs to be questioned.

- If they were to compete wasteful duplication of the infrastructure would result. The overall cost base of the carriers in the region concerned must increase, driving a long-term increase in prices if competition is to be sustained. Higher overall costs - and, other things being equal, prices to customers - therefore result from provision by two or more efficient networks than by a relatively inefficient monopoly network.

- Attempts by government intervention to protect an incoming carrier who has installed a competing network will result in the consumer receiving prices based on the higher unit costs of the incoming carrier rather than the lower costs of the incumbent

- Telstra has an incentive to price access to its network high, and/or to restrict access, in order to prevent competition at the services level (e.g., local calls) and protect higher-level product revenues. This is a logical business response that it must pursue in the interests of its shareholders.

- Potential instability in the market may occur for the following reasons:

- If Telstra retains market share it will earn super profits, thus further strengthening its monopoly position.

- Conversely, should demand aggregation cause Telstra to lose significant customer revenue, sound business practice would require it to reduce service levels to the minimum and lobby to exit the market entirely.

In the more remote areas, natural monopoly characteristics apply even when the level of infrastructure invested is relatively low. The amalgamation of Internet Service Providers in rural towns is an example of the unviability of the competitive regime in rural areas.

The inherent inconsistencies in the application of the competitive market to rural areas therefore give rise to significant gaps in the achievement of national objectives. Intervention by the government by using regulatory levers (for example, costing and tendering of the USO) leads to a range of implementation difficulties in practice. Intervention by incentives (for example, the *Networking the Nation fund*) is potentially a more appropriate response. But there have been comments that the scale of the investments has been too small, in comparison with that of the existing deployed infrastructure, and observations within the industry that the initiatives have not resulted in effective outcomes.

Both these approaches increase the level of administrative and regulatory resources that need to be applied and thus impose extra flow-on costs to telecommunications users.

As a result of these considerations it is appropriate to consider a more strategic industry structure.

An alternative structure could comprise a vertical separation and part privatisation of Telstra whereby:

- The transmission infrastructure (cables, pipes, ducts and possibly the associated transmission equipment) would be wholly owned by the public or by local communities, and subject to requirements of open access.

   Ownership by local government could facilitate the generation of significant cost savings by sharing ducts and other construction with road and street maintenance and other civil works undertaken by various utilities. This can result in dramatic cost savings.

- The remaining parts of Telstra would be fully privatised.

The resulting structure has the following advantages for key stakeholders:

Government:

- Simplified regulation;

- Increased services competition;

- A clear, logical and efficient mechanism for providing rural subsidy to meet social objectives.

Industry:

- Reduction in regulatory overheads and increase in industry efficiency;

- Reduction of barriers to entry for service providers.

Telstra:

- Clarity of company focus

- Flexibility and speed in addressing new market opportunities.

Service Providers:

- Open access to telecommunications infrastructure on commercial terms, since infrastructure provider can not compete with its own customers.

Rural and Other Users:

- Reduced prices through the avoidance of infrastructure replication and the achievement of economies of scope and scale;

- Political accountability of the infrastructure provider and operator at the local level.

Other Utility Customers:

- Reduced prices through sharing of civil works capital expenditure.

Advances in telecommunications technology now mean that it may be cheaper to upgrade or replace rural networks with optical fibre rather than the existing copper pairs. This would provide rural customers with improved quality of service and the opportunity to access a vast range of broadband services as discussed above. The vertical separation of service provision and network operation, and public accountability for access to the network both appear to be necessary for these benefits to be obtained.

Conclusion

This is a critical time to make decisions influencing the future direction of the nation's most important infrastructure component for the information age. It is crucial that the industry structure adopted maximises the opportunities that the technology will make available. The structure proposed, which utilises - where appropriate - the benefits of both private and public investment is capable of reaping these benefits.

In other countries advanced thinking is occurring which will lead the development of the telecommunications industry in those countries in new directions. Broadband optical fibre will be regarded as just another utility facility, like gas, roads and water. New protocols are being developed to give users unencumbered access to this infrastructure and to enable them to communicate effectively with other users. The efficiency that results from this new realisation of the industry will provide competitive advantage in the creation, communication and use of broadband content.

The vertical separation of Telstra into a cable component and a privatised retail business may be the most effective industry structure to enable Australia to compete in the information age.

Contributors to this Submission

John Murphy (B.E. (Elec.) (Hons), B.A.) is engaged in the provision of strategic and technical consultancy to clients within the public and private sectors, including software development and venture capital companies. He has had considerable experience in the assessment of the business implications of technology developments within the telecommunications industry and, formerly, in strategic planning and management of Telstra, the major Australian telecommunications carrier.

As a consultant with the telecommunications industry, he is involved with the assessment of the broadband connectivity available to training institutes on a national basis and the impact of ICT on the physical architecture.

As an Associate of KPMG he determined the feasibility of integrating communications and electricity transmission systems and benchmarked the economic parameters for the implementation and operation of data centres to support the viability of a broadband carrier.

As a Research Associate of the Centre for International Research on Communications and Information Technologies he facilitated high-level industry forums on overall national telecommunications policy and objectives. He devised the framework to underpin the analysis of tensions between elements of the regulatory regime and government funding initiatives. Mr. Murphy has also analysed the impact of integrated utilities on the telecommunications market.

He headed the team that developed a framework for the identification of national technical standards for the Vocational Education and Training sector. This evaluation framework provided a means of optimising the choice of standard in accordance with the value of the standard and the need to maximise interoperability within the sector. The same team then conducted a series of workshops comprising experts from the VET sector to identify the preferred standards.

As Group Manager, Strategic Directions at Telstra, his achievements include the development of a robust framework which has guided the Company's overall strategic directions for the last five years. As Government policy was formulated to structure the Pay TV industry, he positioned Telstra to be able to strongly participate. Most recently, he led a team which developed and communicated Telstra's Technology Strategy, as a criterion for major investment decisions.

Mr Murphy also worked within Government authorities and private industry in the UK, France and Italy.

He has participated in the work of international Study Groups on telecommunications, the OECD (on the convergence between computers, communications and broadcasting) and was involved with the National Information Services Council.

He has published intensively in the leading telecommunications engineering journals.

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John Burke (BSc, Melbourne; BEd, Monash; MA Education, Stanford) coordinates RMIT University's involvement in the Smart Internet Technology CRC, and was project leader of the Smart Internet and User Needs project in the CRC.

John was Director of CIRCIT (Centre for International Research on Communication and Information Technologies) from November 1994 to December 1999. At CIRCIT he was responsible for overseeing a range of research in policy issues in telecommunications and in the development of an "activities" based approach to examining the user perspective on online services.

Prior to taking up his position at CIRCIT he was a Group Manager in the Corporate Strategy Directorate of Telstra where he had, at varying stages, responsibilities for: developing consultative processes with residential and small business customers; developing the AOTC and Telstra Corporate Plans for government; overseeing the strategic business planning process throughout the corporation; and developing strategies for the introduction of interactive multimedia services.

Earlier work experience included: initial employment with IBM Australia and United Kingdom as a

computer systems analyst (1963-65); involvement in the establishment of a community education resource organisation, the Learning Exchange Co-operative (1972-80); and periods as Executive Officer of the Victorian Association of Citizens Advice Bureaus (1984-86) and as Deputy Director of the Commission for the Future (1987-88).

He was a member of the former Prime Minister's National Information Services Council (1995).

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Ross Kelso has had an extensive career in the Australian telecommunications industry spanning research, engineering business planning strategy and regulatory aspects. He also worked for a few years in Europe for ITT (now Alcatel) and has served as a staff officer in the Directorate of Electrical and Mechanical Engineers, Australian Army.

Since 1997 at the Centre for International Research on Communication and Information Technologies (CIRCIT), Ross authored, co-authored, or contributed to many publications including: *The Law of Internet Commercial Transactions (Issues Analysis and Literature Review)*; *Accessing Directories of Information Technology, Multimedia and General Software Companies, Products and Services*; *Designing for Australia's Online Future: Australia's Progress Towards Effective Use of Online Services*; *Re-transmission over Cable TV Networks*; *National Approaches to Meeting the Communication Needs of Rural and Remote Users*; *E-mail for All*; *The User Perspective on Government Electronic Service Delivery (ESD)* and *Deaf Australia Online II: Final Report*. During 2000 and 2001, Ross travelled to Canada, the USA and Sweden investigating innovative bandwidth arrangements that may be suitable for Australian schools and technical colleges. This work culminated in publication of the report *Innovative Bandwidth Arrangements for the Australian Education and Training Sector -- Stage 1: Assessment of Overseas Approaches*.

Ross also managed the International Telecommunications Management subject for the APESMA MBA course at Deakin University for three years from 1998. He was elected a Director of the Internet Society of Australia in December 2001. His qualifications include a Bachelor of Engineering with Honours and a Master of Engineering Science both from the University of Queensland, and more recently a Graduate Diploma in Media, Communications and Information Technology Law from the University of Melbourne. He may be contacted at kelso@melbpc.org.au.