TELSTRA CORPORATION LIMITED

Submission to the Human Rights and Equal Opportunity Commission

Inquiry into Rural and Remote Education

30 September 1999

Introduction

Telstra's submission to this inquiry primarily focuses on the terms of reference examining the quality of educational services, including technological support services.

Telstra notes that in an earlier inquiry "Bush Talks" the Commission concluded that the quality of telecommunications technology is inadequate for teaching and learning in many parts of Australia.

As a telecommunications provider, Telstra is investing in access technologies that facilitate on-line learning. But supplying access to infrastructure technology is only one of many elements that are needed to develop successful on-line education.

In addition to the supply of infrastructure, Telstra believes that developing sustainable demand for regional on-line education is also a key issue that needs to be addressed as part of this inquiry. Factors that can inhibit take up of on-line education services include:

- skills development for on-line student literacy as well as professional development for educators; and
- applications development to deliver relevant educational content to students and educators.

Telstra considers that stimulating the adoption and acceptance of new technologies in the education sector will be important in overcoming any perceived disadvantages in regional educational opportunities.

Investment in Access Technologies

This section examines investments in infrastructure and access technologies that are currently being provided on commercial terms by telecommunications providers, or are being provided by respective Federal and State governments.

Telstra is a major investor in new services to rural and regional Australia. Telstra is spending some $12 billion in capital programs over the next 3 years. Approximately $3 billion of the total capital program is being spent in the provision of new services

to rural and regional Australia. Telstra's investment per customer in areas outside capital cities is nearly 50% more than for metropolitan customers.

According to last year's industry development plans, other licensed carriers are spending less than $3 billion in capital programs over the next 3 years, primarily in the mobiles, CBD and eastern seaboard markets.

This pattern of investment suggests that regional competition amongst service providers will be limited in the future, unless there are specific incentives for industry investment in regional areas.

Investing in high speed access technologies

One of the perceptions of rural educational disadvantage also relates to access to higher bandwidth services that can be used to access the Internet, email and other data applications.

Telstra has made significant new investment in access technologies to ensure that all areas of Australia can now reasonably access the Internet and send and receive high speed data.

For example, ISDN links are significantly more widely available in Australia than in at least two other countries for which data are available (see Table 1). Telstra is able to make available a basic rate ISDN service to over 96% of the Australian population on demand. The Canadian and US carriers, on the other hand, can only supply ISDN to respectively 70% and 80% of their subscribers. In the US, only 27% of the customers served by the NECA local exchange carriers, which typically serve those areas with 20 or fewer customers per square mile, have access to ISDN.

Table 2:   ISDN access by population coverage[1]

Australia	Canada	United States
96%	70%	80%

Even more importantly, Australian rural ISDN users do not get charged more than their urban counterparts. In contrast, US charges for ISDN and T1 lines are significantly higher in rural areas, with one study[2] noting a difference of approximately US$1,800 a month for the same service. In New Zealand users in country areas are charged NZ$360 per year more than urban users for ISDN line rental. Telstra, in other words, provides access to a basic rate ISDN service at the same price irrespective of location.

Telstra has also invested in a national high speed Internet service powered by satellite. The BigPond® Advance service delivers Internet connection at speeds of up to 400Kbps, which is significantly faster than conventional dial-up methods.

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[1] The USO after 1997 – meeting user needs in an open market, Michael Rocke, Telstra. Forum, November 1996; BT. *How can I get ISDN?*, 1998, http://www.isdn.bt.com/whatis/getmain.htm.
[2] 'Telecommunications Services in the Bush, Are Rural Consumers Getting a Raw Deal? A Comparison of Fixed Telecommunications Services in Rural Australia with Urban Levels of Service and with Service Levels in Canada, New Zealand, the United Kingdom and the United States', Report Prepared for Telstra Corporation, Network Economics Consulting Group, Canberra.

As the BigPond® Advance service is available nationally, the same opportunities for accessing and communicating across broadband networks are available to regional users as well as metropolitan customers. The service is asymmetrical and uses the satellite connection for the down channel (at speeds up to 400kbps) and the PSTN for the low speed backchannel. This is ideally suited to Internet usage.

Telstra is also investing over $400m to introduce CDMA (Code Division Multiple Access) across Australia. Further investment will be made to expand capacity and introduce new services consistent with network growth. The rollout of the CDMA network will provide a service that meets the requirements of our regional and rural customers in respect of mobile services and will minimise the impact of the closure of the AMPS network.

CDMA will provide customers with a high quality replacement network with not only comparable coverage to the existing AMPS network, but also additional features not currently available, including security to protect against voice eavesdropping, calling number display (CND) and in the future, text messaging and data and facsimile transmission.

CDMA coverage in regional and rural Australia would extend into many areas beyond where the analogue network was already present. There are over 100 towns and areas across country Australia that are covered by Telstra's GSM network but have no AMPS coverage, and Telstra plans to rollout CDMA into these areas, commencing early 2000.

Medium speed data access is also available across the public switch telephone network. Under its Access Renewal Program Telstra plans to spend $730 million on enhancing, upgrading and rehabilitating the Customer Access Network in the next financial year to ensure that Telsra's 10.3 million commercial and consumer customers continue to get access to voice, data and broadband services that are available as computer and telecommunications technologies converge.

The Access Renewal has been designed with a number of primary objectives and these include:

- replacing and rehabilitating old and fault prone plant
- simultaneously increasing capacity to meet growth
- improving capability to provide for future data working
- changing the CAN architecture to facilitate easy rearrangement and dedication
- Rehabilitating areas of higher fault rates and building:
  - a network that is resilient to the weather
  - capacity in areas where demand for growth is greatest
  - capability into the customer access network – to provide access to convergent technologies.

In addition to these commercial investments, the telecommunications Universal Service Obligation, ensures that, in the absence of commercial delivery, every Australian has reasonable access to a standard telephone service, payphones and

prescribed carriage services wherever they reside or carry on business. Telstra is currently the declared national Universal Service Provider.

Telstra's USO Plan sets out the minimum level of service that it will provide nationally. This is currently defined as a voice grade network providing a minimum transmission speed of 2400bps.. The Government has recently included a digital data service obligation in the USO arrangements to ensure that general digital data services and special digital data services are reasonably accessible to all Australians on an equitable basis, wherever they reside or carry on business. General digital data services provide a digital data capability broadly comparable to that provided by a data channel with a transmission speed of 64 kilobits per second (kbps) supplied as part of the basic rate ISDN service. General digital data services are required to be reasonably accessible to at least 96% of the Australian population upon request. For the remainder of the Australian population who cannot access ISDN, the obligation is to provide an on-demand one-way digital data service comparable to a transmission speed of 64kbps (ie. special digital data services).

Education Initiatives

Telstra has also undertaken some special initiatives to support regional education.

1. Skyconnect Tutor

Utilising the same satellite capability as Big Pond® Advance, Telstra has contracted industry partners to develop and provide a service known as Skyconnect Tutor. This service, which was launched in July 1999, enables a virtual classroom capability combing individuals and groups in multiple locations to participate in education and training sessions. The service includes specially developed software for remote classroom based education. Trials undertaken with the NSW Department of Education and Training and the Broken Hill School of the Air demonstrated the effectiveness of Skyconnect Tutor in replacing the traditional School of the Air HF network. Prior to this a successful, small scale trial was conducted with the Western Australian School of Distance and Isolated Education, with remote Aboriginal communities in 1998.

2. Edunet

Telstra provides a comprehensive school Internet service comprising access, filtering administration and other value add services to schools in Queensland, South Australia, Victoria and ACT as well as a number of Catholic schools. All schools in each of the States mentioned have equitable access to this service, which has been implemented in conjunction with State Departments of Education and industry partners.

3. Connect.ed

The Queensland Department of Education and Telstra partnered to deliver a statewide schools network for administration and internet services. The service incorporates Edunet and a wideband communications network based on various technologies including satellite and ISDN and connects some 1300 schools with equitable access to

the Internet. Telstra primed a consortium of industry providers to deliver the total solution.

4. Networking Tasmania

As part of its strategic partnership with the Tasmanian Government, Telstra provided a statewide telecommunications network that offers Internet access to schools and other educational institutions at equitable rates.

5. Galaxy Kids

Galaxy Kids is a subscription-based, fully interactive, online content application that is aimed at teaching 3-7 year old children to read. Galaxy Kids is a world first in Internet learning, and its objective is to present a new approach to education through a multimedia platform, thereby shaping an entertaining environment for the early introduction of children to newer technologies. Telstra has worked with Wendy Pye, President of Sunshine Multimedia Ltd to launch this product in Australia. The Galaxy Kids platform and content has been fully developed by Sunshine Multimedia and is offered in Australia as a co-branded service.

6. IT&T Skills Taskforce

The development of IT&T skills has been identified as critical to Australia's success in the information age. The issue is important to Telstra's business and to Australian business, and Telstra with the AIIA and ATIA, has established the IT&T Skills Taskforce. A priority for the Task Force has been to promote a competitive marketplace for IT&T education and training and develop better linkages between industry and education providers in order to meet the skills needs of industry. The IT&T industry has proposed to join with Government and education providers to develop a proposal for an Australian Institute of IT&T Skills. The Institute would have three main functions:

- Intelligence gathering so that industry and education suppliers could better anticipate emerging skills needs;
- Broker and package programs for re-training and upskilling in emerging areas of industry skills needs; and
- Increase community awareness of career opportunities in IT&T.

Telstra, industry and government are currently exploring options to develop regional pilot programs to train unemployed people with IT skills.

Role of Governments

Whilst Telstra is a major commercial investor in communications infrastructure and services, Governments also have a major role in facilitating the development of on-line infrastructure and services development in rural and regional Australia.

A 1997 report from the Federal Information Policy Advisory Council recognised that leverage from government take up and use of services can be used to shape an area's demand and infrastructure. Further, a needs-based approach and aggregation of

separate demands that focus on community and business needs, are more likely to provide sustainable competitive supply of services.[3]

The participation of governments and other institutions that have market strength and and can leverage to accelerate the availability of services to communities. This approach has been demonstrated in the various initiatives noted where State Governments and Telstra have cooperated to deliver a total solution, such as the Queensland Department of Education Connect.ed service.

Government tendering for communications services also means that in a competitive supply market, providers other than Telstra are being asked to compete in the supply of infrastructure and services to government agencies.

Developing Sustainable Regional Demand

Supply of telecommunications infrastructure is one, but not the sole element that needs to be examined in developing accessible on-line education for rural and regional students.

There are a number of challenges that need to be met in overcoming any regional education disadvantage. They include:
- altering the economics of regional service provision for regional economic sustainability;
- involving local communities in upgrading skills and business capabilities through on-line learning; and
- developing applications that are relevant to regional schools and their communities.

Addressing other impediments to on-line take up by regional schools is necessary in overcoming any regional educational disadvantage. The up-front costs of purchasing a personal computer, modem and any associated software may also discourage some users from developing skills in accessing email, Internet and other data services.

Provision of adequate technical support within a school or educational institution to deal with ongoing teacher and student learning issues is important to the development of an ongoing on-line learning environment.

Targeted assistance to particular users, or disadvantaged schools is one way that Governments could overcome regional disadvantage and encourage broader take up of on-line education services.

Other approaches that could be explored by government, industry and local school communities include
- Community of interest approaches to the provision of Internet and related services. Schools are already a hub of their local communities and can be used to stimulate community and small business access to the Internet, implementation of e-commerce and other services as well as developing

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[3] IPAC Report of Working Party Investigating the Development of Online Infrastructure and Services Development in Regional and Rural Australia: 'rural&regional.au/for all', March 1997.

initiatives to shift some costs from the school to the community in exchange for increased value and capability. The ability to develop a model to aggregate demand of the school community will improve the prospects for attracting investment to regional areas.

- Combined Federal/State approaches to the development of on-line education should be considered. Currently, only those educational institutions with available resources and expertise are able to investigate and development curriculum and media initiatives suitable for on-line delivery. Hence, such initiatives are developed in isolation and rarely applied across multiple institutions or geographic boundaries. As a consequence, Australia is duplicating resources and expending more money than otherwise would be the case.

Another barrier to take up of on-line services amongst regional users is on-line literacy. Some state governments have developed community on-line skills programs, such as SkillNet in Victoria. In other states, schools are the entry point for developing community skills in the basics of on-line literacy – word processing, email and Internet access.

Basic skills in which to operate on-line are needed if regional students and educators are to optimise their use of existing technologies and broadband services.

Telstra believes that there would be value in further work by governments and education providers in the area of on-line curriculum development, to ensure that regional students are exposed to the same learning opportunities as students in metropolitan schools.

Similarly, developing content that is relevant to regional students and education professionals is another key component in creating effective on-line learning. Programs like Telstra's Care For Learners provide educational resources for students and teachers accessing the Web to facilitate ease of use.

Conclusion

Telstra is investing to ensure that all Australians, including regional schools and educational institutions have high speed access to the Internet. Telstra has made a significant commitment to the regional education sector through its specific education programs which have been developed in conjunction with education providers, schools and state governments.

However, Telstra believes that there is scope for further work by governments, education providers and the industry in developing sustainable models for regional demand as a necessary component to ensuring that rural users have similar choice of technologies and service providers that exist for metropolitan users. The development of educational content and basic on-line skills literacy as part of curriculum development is also important in optimising the education value for regional users who are accessing new broadband technologies.