Remote Indigenous Australian Communities and ICT

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INTRODUCTION

Australia has approximately 1,291 indigenous communities, of which 1,210 are geographically isolated or located in rural areas some distance from centres of population (ABS, 1999). These remote communities are characterized by low socio-economic status and are highly disadvantaged in terms of basic health, education and other services.

Access to Information and Communication Technology (ICT) is also limited, most obviously because telecommunications infrastructure is concentrated in the population centres in the south-east of the continent, where the major customer base is located (DCITA, 2000). The degree of disadvantage varies considerably in different communities: some larger communities have either a computer-equipped administration office or a community access centre with several computers, Internet access and a trainer or manager; while others are small camps and outstations of sometimes less than twenty inhabitants without even a single telephone (DCITA, 2002b).

ICT offers new opportunities for the development of these remote communities and new opportunities for better communication and better service delivery. However, a number of issues need to be addressed before these benefits can be realized because the very remoteness of the communities, their small populations and environmental challenges mean that implementation of technology is difficult and costly (DCITA, 2002a). To a large extent these issues coincide with access problems that other Australians living in rural and remote Australia experience, but there are also a variety of social, educational and cultural factors which are specific to Indigenous communities. Generally, ICT improvement in such communities is a digital divide issue (OECD, 2001).

BENEFITS FOR REMOTE COMMUNITIES FROM ICT

There are many potential benefits that remote Indigenous communities can gain from ICT. Essentially, ICT reduces the disadvantage of location (Daly, 2001). With high levels of poverty in these communities, the World Wide Web can increase employment and business profitability by providing direct access to global markets for indigenous products and services without the need to go through a middleman (Dyson, 2004). Further indigenous job opportunities derive from the need to develop culturally appropriate Websites to sell these products. Locally-based jobs in ICT implementation and in ongoing computer maintenance, management and training are also necessary and unlikely to be adequately provided by outside personnel, given the geographic isolation (DCITA, 2002a). An important benefit is the better delivery of a wide range of government services by means of the Internet and videoconferencing (DCITA, 2002a). ICT offers new ways of re-establishing social networks and enhancing cultural maintenance given the

Table 1. Potential benefits from ICT

E-commerce Internet sales of arts and crafts Websites to promote cultural tourism ICT jobs Web design ICT installation and maintenance Computer training Management of Community Access Centres Improved Service Delivery: Education Education Distance learning Web-based training of teachers Health Telemedicine clinics using videoconferencing Online Medicare claims		
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Online Medicare claims		
Justice Videoconferencing of court hearings		
Family video link-ups with prisoners		
Welfare Online benefit claims		
Online information about welfare entitlements		
Government Participation through e-democracy		
Banking Online account enquiries, transfers and loan		
applications		
Postal services Online delivery enquiries and money orders		
Enhanced Communication:		
Indigenous 2-way radio networks within communities		
Videoconferencing between communities		
Mainstream Website promotion of Indigenous culture		
Mainstream media access		
Cultural Maintenance:		
Local Sacred-site management systems		
Cultural databases and CD-ROMs		
Distance Videoconferencing of cultural events		
Indigenous TV and radio programming		

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historic disruption of indigenous lines of communication and fragmentation of many communities and cultures (Nathan, 2000). Communication with the broader Australian and world community via the Web is also needed to correct false representations and stereotypes of indigenous people and their culture (McConaghy, 2000). Table 1 summarizes some of these benefits.

CRITICAL ISSUES IN ICT ACCESS

Factors which limit remote communities' access to ICT can be divided into supply and demand (Daly, 2001). On the supply side are issues of technology, the infrastructure which is needed to support it, as well as environmental and geographical factors which impact on its operation and accessibility. On the demand side are a range of human issues which can be classified as social, educational, cultural or business. Many governments see the roll-out of technological infrastructure as the fundamental issue in bringing ICT to remote regions (OECD, 2001). Indeed, indigenous communities suffer many of the same technological problems as other remote Australians, for example, delays in telephone installation and repair, slow data speeds and cost (DCITA, 2000). However, for indigenous Australians these problems are exacerbated by entrenched poverty and poor living conditions. Indeed all of these factors interact in complex ways to create major barriers to ICT access.

Supply Factors in ICT Access

Issues of supply which impact on ICT access are summarized in Table 2 with some examples of solutions.

Critical Issues	Examples of Solutions	
Technological Factors:		
Affordability	Communal ownership through Community Access Centres and Internet kiosks	
Availability	Satellite telephony Satellite Internet access Bandwidth-sharing technologies, e.g., CDMA Web content designed for narrowband delivery	
Geographic Isolation:		
Distance from ICT infrastructure	Satellite technology	
Environmental Constraints:		
Heat and dust	The Pitjantjatjara Council's (2003) Niri niri workstation, which withstands dust, sand, mice and black-outs	
Isolation by poor roads and weather	Locally-based technical support	
Lack of Supporting Infrastructure:		
No power	Solar power for radio networks and Internet kiosks	
Intermittent power	Battery back-up	

Table 2. Supply factors in ICT access

Technology Affordability

Cost is a major inhibitor of indigenous Australians accessing ICT, whether living in urban or rural areas. Only 10% subscribe to a standard home telephone service compared to 50% of non-indigenous Australians (DCITA, 2002a). Ownership of computers is low: for example, the Outback Digital Network found only 1,000 computers across a remote-area population of 45,000; and only 10% of people with computers had Internet access (DCITA, 2002a).

The cost of laying a telephone line in regions of low population density in Australia is six to ten times the cost per line in more settled areas (Cribbett, 2000). In addition to the standard price of a new telephone connection must be added the network extension fee for providing cable to the property entry point from the carrier Telstra's point of presence, plus trenching costs to the dwelling. For the Balkanu community these additional costs were estimated at \$2,300 on average per residence (DCITA, 2002a). Moreover, providing telephone maintenance is costly, leading to poor repair times. Satellite phones and 2-way satellite broadband service are too expensive for most Indigenous communities. To these costs, which affect all Australians living in remote regions, can be added the extra expense of developing indigenous content and training associated with users who have had little exposure to computers (DCITA, 2002a).

Technology Availability

Many remote communities have no telephone service. In addition, remote Australia is poorly covered with respect to mobile telephony. Mobile phone coverage via terrestrial base stations is only 18% of the Australian landmass, largely concentrated around cities, towns and highways. Commercial considerations probably preclude further expansion (DCITA, 2002b). Of the 1,291 remote communities, only 200 now receive mobile signals. By contrast, mobile satellite technology covers 100% of Australia and provides an alternative to terrestrial base stations: however, affordability then becomes the determinant factor.

Internet access is also an issue when communities have no telephone service. Access to broadband technology, in particular, is limited since many indigenous communities are located far from Australia's fibreoptic and microwave backbone networks. Broadband is usually only available via Telstra's 2-way satellite service, which, like other satellite ICT, is expensive. 4 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: <u>www.igi-</u> global.com/chapter/remote-indigenous-australian-communities-ict/11450

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