Ninti One Limited

Submission to the joint committee on the National Broadband Network

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About Ninti One Limited

Ninti One Ltd (NOL) was originally established to operate the Desert Knowledge Cooperative Research Centre (DKRC), but now operates as an independent company to manage the intellectual property from the former Desert Knowledge CRC, manage the current research activities and partnerships of CRC for Remote Economic Participation (CRC REP), manage the Australian Feral Camel Management Project and engage in other activities related to the delivery and commercialisation of research for the benefit of Australians living in remote areas. Our mission is to provide the knowledge base essential to create thriving remote communities and economies through research, innovation, expertise, education and outreach. Our network of 50 partners and participants spans the Australian continent.

Our aim is to:

- address social and economic disadvantage of people in remote regions of Australia;
- find solutions to economic exclusion;
- increase people's economic participation;
- improve understanding of Australia's remote regions;
- increase the skills and capacity of their people;
- enhance and protect the natural environment; and
- understand the impact of climate change on remote Australia.

Introduction

Ninti One limited wishes to outline the significant disadvantage that exists for Aboriginal and Torres Strait Islander Australians and how they are impacted by the lack of infrastructure and access to ICT in remote Australia. The lack of ICT access goes beyond internet access as mobile phone coverage and landline access in remote communities are still ongoing issues. In this submission, Ninti One will focus on the key issues related to ICT access in remote communities; the need to explore alternative technology solutions to provide connectivity in remote settlements; and the need for an alternative business model to price and bill internet services in remote Aboriginal and Torres Strait Islander communities.

ICT access in remote Aboriginal and Torres Strait Islander communities

- At last census in 2006, the estimated Aboriginal and Torres Strait Islanders make up more than 2.5 per cent of the Australian population.

- 38% of Aboriginal and Torres Strait Islander people are aged 14 years and under compared with 19% for the rest of the population.
- The median age of the Aboriginal and Torres Strait Islander population is 21 years compared with a median age of 37 years for the rest of the population.
- An estimated 46% of Aboriginal and Torres Strait Islander people live in outer regional areas, remote areas and very remote areas compared with almost %90 per cent of non-Aboriginal and Torres Strait Islander people living in major cities or inner regional areas.
- 25% of the Aboriginal and Torres Strait Islander population live in remote and very remote areas.
- There are 1187 discrete Aboriginal and Torres Strait Islander communities across Australia. Of these, 865 (73%) have a population below 50 and 987 (83%) have a population below 100 people. The highest concentration of small Aboriginal and Torres Strait Islander communities is found in the Northern Territory, Western Australia and Queensland.

Getting communication technologies into remote Aboriginal and Torres Strait Islander communities has been a long-term issue for government. Small communities experience significant limitations when it comes to communication despite the Universal Service Obligation (USO) provisions for telephony, internet access subsidies via the outgoing Australian Broadband Guarantee, and the various programs designed to provide internet access and training to residents of remote Aboriginal and Torres Strait Islander communities. The ICT issues faced by remote Australia are not just related to internet access and speed. It also includes:

- access to basic telephony services, including mobile phone access;
- access to installation and maintenance services;
- costs of internet; and
- access to training to improve digital literacy.

The Department of Broadband, Communications and the Digital Economy states that a key government objective for the NBN is that a person's ability to receive affordable high-speed broadband services should not be affected by where they live or work. The Department says the NBN will enable all Australian communities to have greater access to goods, services, education and employment opportunities. Our concern is that remote Australia is unlikely to experience the obvious social, educational and economic benefits of internet connectivity if some key issues are not addressed through the NBN plan.

1. **Telephony services**

Concerns include that the huge unmet demand for basic telephony services in remote Australia is not being factored into the NBN rollout. Existing telecommunications facilities and services in Aboriginal and Torres Strait Islander communities and outstations are determined to a significant extent by the Universal Service Obligation (USO) provisions of the Telecommunications Act 1999. Specific regulations stemming from this Act relating to the provision of public payphones to Aboriginal and Torres Strait Islander communities require the availability of at least one payphone for a community of 50 or more permanent residents. Targeted government funding has been providing payphone services through diverse programs to supplement the USO services, in some case utilising satellite technology. The Aboriginal and Torres Strait Islander Communication Program targets remote communities of less than 50 people. Whilst these programs have improved access to very basic telephony services, it is far from perfect. The maintenance and repair services are ongoing issues. Additionally, research shows that many Aboriginal and Torres Strait Islander people in remote communities are not aware of government programs offering subsidy for the installation of phones or internet access. Furthermore, the process to access information and assistance to install telecommunications (need to have a phone and an internet connection) are additional constraints. At last census, 54% of NT Aboriginal and Torres Strait Islander communities had access to public phones, 44% in QLD, 60% in WA and 55% in SA. Given that in most of communities, a public phone is the only telecommunication service available, this impacts on people's ability to conduct business, look for employment opportunities and access government services.

While mobile phone coverage will go some way to providing a terrestrial option for both voice (phone) and data (internet access) traffic, its effect, is and will continue to be quite limited in Aboriginal and Torres Strait Islander remote communities. Mobile phone services currently reach 99% of the Australian population, the 1% missing out being the Aboriginal and Torres Strait Islander population living in remote areas. Mobile coverage is only available to around 25 % of the Australian landmass, which can be extremely problematic in emergency situations such as road accidents. International studies show that access to mobile phone services has tangible economic benefits, including improving market efficiencies and producer and consumer welfare. The international Telecommunication Union argues that ICT contributes to poverty reduction. For example, one of the economic effects of the roll out of mobile phone coverage in South Africa is an employment increase of 15 percentage points when a locality receives network coverage[i]. Providing mobile phone coverage in remote communities will have tangible benefits. Our concern is that the lack of mobile

phone coverage in remote communities currently seriously limits business and employment opportunities for an already disadvantaged segment of the Australian population.

2. Internet access

At last census, only one-in-five Aboriginal and Torres Strait Islander households in remote and very remote Australia had an internet connection compared with four-in-five of the rest of the population. The portion of households with internet connection is even lower in some parts of the country, including Central Australia where take-up is 2.2 % for Aboriginal and Torres Strait Islander households[ii]. These figures demonstrate that Aboriginal and Torres Strait Islander people living in regional and remote areas are not in a position to take part in the digital revolution, which has and will continue to change our social and working lives. Access to communication services, especially the internet, is essential to achieve the targets agreed by COAG for closing the gap in Aboriginal and Torres Strait Islander disadvantage[iii]. Improved access to ICT for Aboriginal and Torres Strait Islander people in remote communities is required for participation in contemporary Australian economic, political and social life. In 2009, four in five Australians had used the internet in the past three months. Yet, only 1 in 10 Aboriginal and Torres Strait Islander children living in remote communities have access to internet. How will the current NBN model guarantee installation and reliable access to the internet in remote communities?

3. Internet speed

The current NBN plan offers less than satisfactory bandwidth for remote communities. Under current NBN planning, 93% of Australians will have access to the fibre solution; the remaining 7% will receive a satellite or wireless solution. The Aboriginal and Torres Strait Islander population leaving in remote Australia (over 108,000 people) will not have access to the fibre solution.

The fibre solution will have symmetric speeds of up to 100Mbps while remote Australia will receive asymmetric rates up to 12Mpbs when connected via satellite and wireless solutions. The offer of up to 12Mbps would effectively limit economic and social development opportunities. This will only provide minimal improved bandwidth, which will still be unsatisfactory when using video and multimedia. This also limits access to e-government services such as e-health initiatives and has significant implications in terms of business and employment development opportunities in the arts, tourism and environment sectors.

The issue of speed and connectivity will also affect regional centres such as Alice Springs. Indeed, high bandwidth broadband connection for a number of institutions in Central Australia is at risk in 2012. This has implications for the tertiary education and research sector communities and their research partners, including Charles Darwin University, CSIRO, Ninti One and the Northern Territory Department of Education. These organisations currently have a 155 Mb Telstra link from Adelaide to Alice Springs and on to Darwin. They will be getting better connectivity to Darwin via one of the NBN Blackspots programs, which will provide 10G via the Eastern States (Brisbane, Longreach, Tennant Creek, Darwin) to Darwin. This link is due in November 2011. The new Blackspots link does not extend to Alice Springs however, nor does it include a second backup loop (referred to in the industry as 'diversity' of connections) in the case of failure of the main connection to Darwin (not an uncommon occurrence in the Northern Territory). Consequently, there is a critical need for a link to or through Alice Springs to be installed in the near future.

4. Internet affordability and digital literacy

Across Australia, the main barrier to the internet is cost. The biggest disparity between those who access the internet and those who don't is their level of income. In the 2006 census, the mean equivalised gross household income for Aboriginal and Torres Strait Islander persons was $460 per week compared with $740 for the rest of the population. In remote areas, income levels decline to approximately $296 per week[iv]. The pricing figures released to access fast broadband may prove too prohibitive for Aboriginal and Torres Strait Islander families. Additionally, recent media coverage indicates that people living in rural and remote areas may have to pay more for internet access under current NBN rollout. This is not good news for rural and remote Australia, which are already disadvantaged by distance. This is worse for Aboriginal and Torres Strait Islander people whose income levels are much lower than the rest of the Australian population. Our concern is that without the introduction of an alternative business model to provide connectivity in remote communities, Aboriginal and Torres Strait Islanders will simply not be able to afford access to the internet.

Additionally, In the Aboriginal and Torres Strait Islander population, non-use is also due to not knowing how to use the technology. It is critical that Government continues and improves delivery of training in remote areas.

Alternative telecommunication technology solutions for remote Aboriginal and Torres Strait Islander communities

In Australia and overseas, research teams have developed or are currently developing innovative telecommunication technologies to provide ICT in isolated parts of the world or for emergency situations. These could potentially provide solutions for remote Aboriginal and Torres Strait Islander settlements.

For example, The Sparse Ad hoc Network for Desert (SAND) project is an initiative of Ninti One and the University of Wollongong. The aim of the project is to develop and provide cost-effective and innovative telecommunications technologies for remote settlements of Australia. The SAND project team has developed a number of wireless mesh networking prototypes for remote communications in rural and remote areas as well as applications to enable configurations for the mesh devices. Field trials of the technology demonstrated the potential for high bandwidth communication over significant distances and the deployment of remote sensing in a rural scenario. Potential applications include provision of cost effective ICT solutions for sparsely populated settlements without or limited ICT infrastructure; provision of ICT solutions in disaster situations and use by the pastoral and mining industries. The SAND applications can provide low cost solutions to provide ICT solutions for remote Australia. In 2008, preliminary costing indicated that the SAND device could be commercialised at around $1,000. At the time, no telecommunication entity expressed interest in taking up SAND technology because there is not the critical mass of customers to invest in it.

Key recommendations

We believe there are alternative innovative telecommunication solutions and the NBN needs to explore all possibilities to provide connectivity to remote Australia. Using innovative technologies may well provide ICT solutions for remote Australia at minimal costs. Given the current estimated cost of the NBN at $43 billion, this would be a marginal investment for Government to look at alternative solutions for remote Australia.

There is also a critical need to explore an alternative business model around billing and pricing options for remote Aboriginal and Torres Strait communities. Given that the average household income per week in remote communities is below $300, internet access at home will not be an option under the current pricing and billing model. We suggest a different approach, which would see communities provided with shared community Wi-Fi networks, community-level account holders and billing options.

We recommend:

- Exploring alternative technologies to provide ICT solutions for remote settlements;
- Commissioning a report to establish a program to serve remote Australia to assist with implementation of cost effective ICT solutions;
- Government assistance programs for internet access should include provisions for shared community Wi-Fi networks, community-level account holders and billing options; and
- Additional funding toward ICT training for Aboriginal and Torres Strait Islander communities.

It is critical that Aboriginal and Torres Strait Islanders have the same level of access to digital infrastructure and digital literacy programs as other Australians to become active participants in the modern Australian economy.

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[i] Does ICT benefit the poor? Evidence from South Africa by Stefan Klonner, Cornell University, 2008

[ii] Home Internet for Remote Aboriginal and Torres Strait Islander Communities – A consumer research report by the ARC Centre of Excellence for Creative Industries and Innovation, the Centre for Appropriate Technology and the Central Land Council, July 2011

[iii] Refer to Closing the Gap: National Partnership Agreement on Remote Aboriginal and Torres Strait Islander Public Internet Access

[iv] ABS 2006 and a statistical overview of Aboriginal and Torres Strait Islander peoples in Australia 2008 published by the Australian Human Rights commission: www.hreoc.gov.au/social_justice/statistics/index.html