

Closing the Technology Gap? Changing rates of Internet connections in the Northern Territory from 2006 to 2011

(Issue No. 201407)

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KEY FINDINGS

- From 2006 to 2011, rates of internet access increased significantly across the Territory for both Indigenous and non-Indigenous households.
- Connection rates for Indigenous households in Greater Darwin were very similar to Indigenous households throughout the rest of Australia.
- Although connection rates increased substantially to reduce the gap between Indigenous and non-Indigenous households, rates for Indigenous households remained below other households, especially in remote parts of the Northern Territory.
- Broadband connections rose markedly in all areas for both Indigenous and non-Indigenous households.
- Dial-up connections significantly decreased across all regions and household types.

RESEARCH AIMS

To examine changes in the rates and types of Internet connections for households across three geographical areas in the Northern Territory.

We compare Indigenous and non-Indigenous households to assess whether the 'technology gap' is decreasing.

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1. INTRODUCTION

In recent years, a number of policies and programs aimed at improving rates and the quality of access to the Internet for Australians living in rural and remote areas have been enacted. Research by Taylor (2012a and 2012b) and Bandias (2010) has outlined the social and economic importance of increasing Internet access for Indigenous people in remote areas of the Territory. Taylor, in particular, suggested that subsequent to the roll-out of Next-G towers from 2007 onwards, rates of mobile phone ownership and daily usage grew rapidly. Both researchers suggested a range of possible impacts, opportunities and challenges from the widespread use of the Internet facilitated by mobile phones and other devices.

However, comparative research on this topic was conducted in 2011 by Radoll (2011) on factors affecting three Australian Indigenous rural, remote and urban communities' by the adoption of information communication technologies (ICTs). Radoll found that practices which motivate or inhibit Indigenous household's adoption of ICTs are distinct and not "polar opposites" – that individuals using ICTs in daily activities outside the "Indigenous field" or domain can create new practices, introduce them into the Indigenous realm, and adopt ICTs in the household.

In another study, Taylor (2012a) explored whether and how a range of technology developments in three medium-sized remote Indigenous communities in the Northern Territory impacted on the lives and aspirations of residents. Taylor found rates of mobile phone ownership and use were very high in all three communities and daily usage was common, especially amongst young people who were regular users of Internet chat rooms. As usage of internet enabled devices becomes even more widespread and the quality and range of access for remote communities continues to improve, we can expect residents in remote Indigenous communities to continue to adopt more complex functionalities (for example, internet based purchasing, educational functions, travel related functions, and entertainment).

For the first time in 2006, and again in 2011, the Australian Bureau of Statistics (ABS) Census of Population and Housing included a question on the types of Internet connections in dwellings. This question facilitated comparisons in connection rates, household type (for example, Indigenous occupied), and according to geographic areas for Indigenous and non-Indigenous households in the Northern Territory and the rest of Australia.

We compare and contrast connection rates across three geographies within the NT to the rest of Australia to assess progress towards 'closing the gap' in technology adoption and use between Indigenous and non-Indigenous households:

- Greater Darwin – the Darwin, Palmerston and Litchfield municipalities;
- Territory 'Midtowns' – the combined populations of the towns of Alice Springs, Katherine, Tenant Creek and Nhulunbuy (excluding Jabiru due to geographic boundary changes from 2006 to 2011);
- The rest of the Northern Territory (RoNT), excluding Greater Darwin and the Midtowns; and
- The rest of Australia (all other parts of Australia).

We also examine changes in connection rates for different types of internet connections (Broadband, Dial-Up and 'Other' connection) between 2006 and 2011 to reflect on household preferences in the face of changing technology products and services.

2. METHODS, DATA SOURCES AND GEOGRAPHY

The data for this research was constructed using the ABS custom software TableBuilder from the 2006 and 2011 Census databases. Internet connections are a characteristic of household dwellings. In the 2006 Census, householders were asked which type of connection they had, if any. In 2011, the question was modified to ask about the 'highest' connection and the most frequently used connection (ABS, 2006 & 2011). The Census variable analysed was Type of Internet Connection (NEDD). Table 1 explains the different types of connection associated with the reporting fields for that variable.

Table 1. Types of Internet connections (NEDD)

Types of Internet Connections - Counting Dwellings, Place of Enumeration database	
Broadband connection	ADSL, Cable, Wireless, Satellite, Fibre and Mobile connections.
Dial-up connection	Includes Analog modem and ISDN connections.
Other connection	'Other' connection is Internet access through mobile phones, etc.

Source: Australian Bureau of Statistics, Census Dictionary Australia 2011, cat no. 2901.0.

We analysed changing connection rates across the four geographical areas described above, which were constructed using custom aggregations of Statistical Area Level 2 (SA2) geographies (ABS, 2011).

The research questions asked were:

- How did connection rates change from 2006 to 2011 in the NT across urban, remote and town populations, and in comparison to the Rest of Australia?
- How do connection rates differ between Indigenous and non-Indigenous households and how have these changed?
- How did rates change across different types of Internet connections?
- What patterns can be established on the uptake of broadband connections given the rollout of the National Broadband Network?

3. RESULTS

3.1 Changing rates of Internet connections by geographic regions

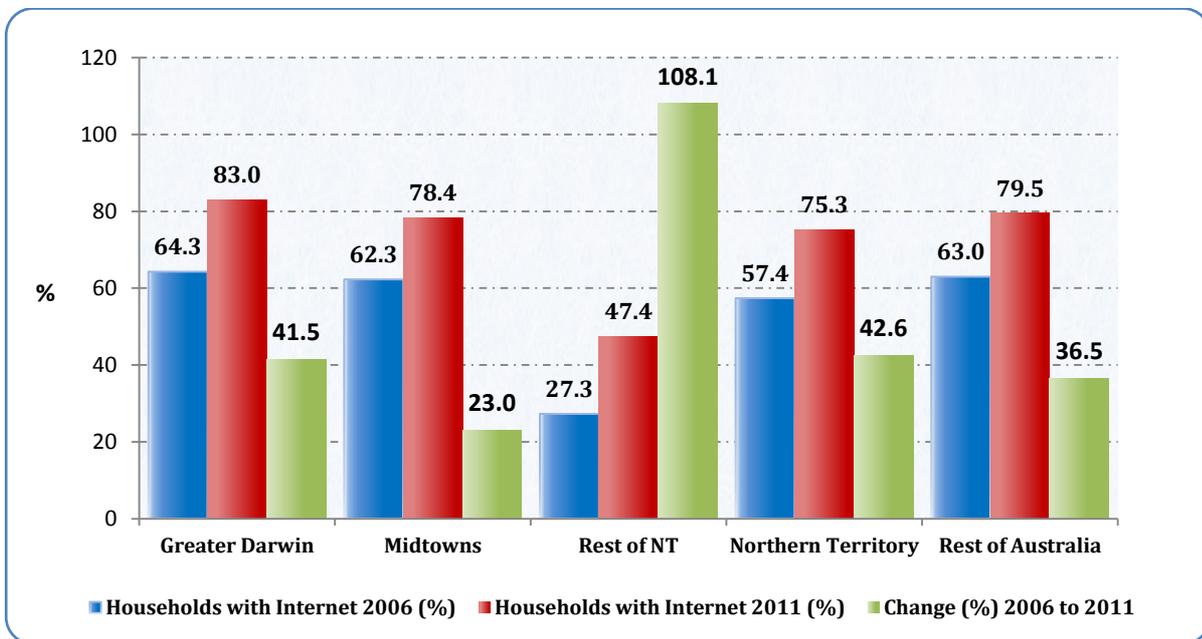
In 2011, approximately 75% of all households in the Northern Territory had Internet connections of some type, up by nearly 43% from 2006. In Greater Darwin, connection rates increased from 64% to 83%. For the Midtowns, connection rates increased from 62% to 78%; the RoNT increased from 27% to 47%; and the rest of Australia increased from 63% to 79% in 2011 (Table 2 and Figure 1).

Table 2. Changing rates of Internet connections by region – 2006 to 2011

Region	Households with Internet 2006 (%)	Households with Internet 2011 (%)	Change (%) 2006 to 2011
Greater Darwin	64.3	83.0	41.5
Midtowns	62.3	78.4	23.0
Rest of NT	27.3	47.4	108.1
Total NT	57.4	75.3	42.6
Rest of Australia	63.0	79.5	36.5

SOURCE: ABS Census 2006 and 2011, Table Builder

Figure 1. Changing rates of Internet connections by region – 2006 and 2011



SOURCE: ABS Census 2006 and 2011, ABS Table Builder

3.2 Changing rates for types of Internet connections by region

By 2011, the distribution of Internet connection types had shifted significantly towards broadband. Outside of the Territory, over 90% of households with an internet connection of some type had broadband (Table 3). In the NT, rates were comparable to the rest of Australia in Greater Darwin (88%) and the Midtowns (87%). In absolute terms, the transition to broadband was most prominent in remote parts of the Territory, but from a very low base in 2006.

Meanwhile, the share of households in the NT with dial-up connections fell markedly to approximately 4% while 9% had other types of connections. This equates to a decrease of 86% for dial-up, consistent with the other geographies. The declines in the dial-up share of connections reflect the shift to broadband and the diminishing utility of dial-up services.

Table 3. Connection types for households with Internet – 2006 and 2011 (%)

Region	Broadband			Dial-up			Other		
	2006	2011	Change 2006 - 2011	2006	2011	Change 2006 - 2011	2006	2011	Change 2006 - 2011
Greater Darwin	56.9	87.9	118.6	41.2	4.0	-86.3	1.9	8.1	492.8
Midtowns	60.1	87.0	78.0	38.2	4.1	-86.8	1.7	8.9	534.8
Rest of the NT	40.7	79.9	308.3	55.5	4.3	-83.9	3.7	15.7	776.7
Northern Territory	56.3	86.8	119.7	41.7	4.0	-86.2	2.0	9.2	544.1
Rest of Australia	64.0	90.8	93.8	35.0	4.0	-84.6	1.0	5.2	596.9

SOURCE: ABS Census 2006 and 2011, ABS Table Builder

3.3 Changing rates by types of households

By 2011 approximately 41% of all Indigenous households in the Northern Territory had an Internet connection of some type, compared to nearly 85% of non-Indigenous households (Table 4). Connection rates were up by 93% for Indigenous households from 2006, while for non-Indigenous households increased by 34%.

For Indigenous households, rates of connections grew across all geographies, with proportional increases being highest in remote parts of the Territory (RoNT). Here, the number of households with an Internet connection of some type grew from 6% to 18% (an increase of 635 households or 224%). Nevertheless, the 2011 rate for the RoNT remained well below that of Greater Darwin (68%), the Midtowns (51%) and Rest of Australia (68%).

Rates of connection for Non-Indigenous households in the Territory also grew significantly (by 82%) in the RoNT (Table 4). The highest connection rates in the Territory were for non-Indigenous households in the Midtowns (86%), up from 72% in 2006.

Table 4. Changing rates of Internet connections by region and household type, 2006 and 2011 (%)

	Greater Darwin			Midtowns			Rest of NT			Northern Territory			Rest of Australia		
	2006	2011	Change 2006-2011	2006	2011	Change 2006-2011	2006	2011	Change 2006-2011	2006	2011	Change 2006-2011	2006	2011	Change 2006-2011
Indigenous households	43.7	67.9	78.9	32.0	51.1	68.5	5.8	17.8	224.4	22.9	41.0	93.9	44.5	68.2	95.1
Non-Indigenous households	68.5	85.1	36.9	72.4	86.0	13.2	63.8	81.1	81.8	69.0	84.9	34.4	64.2	80.0	35.9

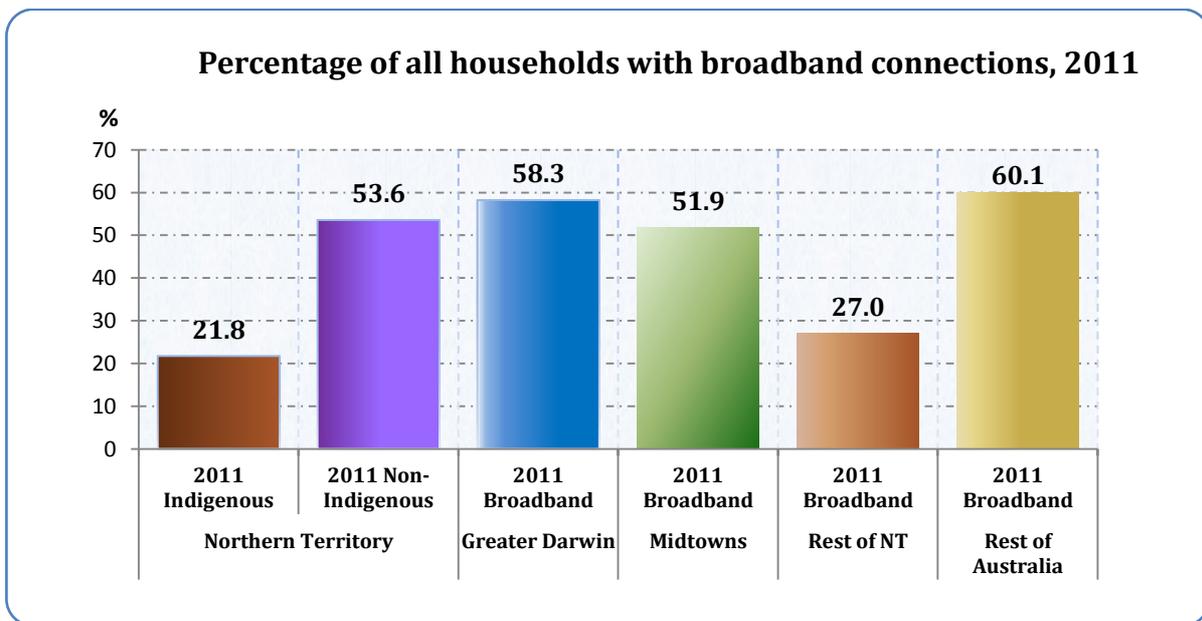
SOURCE: ABS Census 2006 and 2011, ABS Table Builder

3.4 Households with broadband connections in 2011

The extent of broadband diffusion (incorporating ADSL, Cable, Wireless, Satellite, Fibre and Mobile connections) is an important indicator on opportunities for future social and economic engagement using the internet, and litmus of progress of success in government policies for increasing household broadband connectedness through initiatives like the National Broadband Network. In recent years, broadband connections have been facilitated at remote communities by the construction of “Next-G” towers (Taylor, 2012b).

By 2011, approximately 22% of all Indigenous households in the Northern Territory had a broadband connection, up from 8% in 2006 (Figure 4). This compares to 54% of all non-Indigenous households in 2011. Within regions, broadband connection rates were highest in the Greater Darwin region (58% of all households); followed by the Midtowns with almost 52% and the RoNT region, only 27% (Table 5). Rates in Greater Darwin were comparable to the Rest of Australia where 60% of households reported that they were connected via broadband.

Figure 4. Percentage of Households with Broadband Connections 2011



SOURCE: ABS Census 2006 and 2011, ABS Table Builder

Table 5. Rates and numbers of broadband household connections, 2011

Regions 2011	Northern Territory		Greater Darwin	Midtowns	Rest of NT	Rest of Australia
Internet & Household Type	2011 Indigenous	2011 Non-Indigenous	2011 Broadband	2011 Broadband	2011 Broadband	2011 Broadband
Broadband %	21.8	53.6	58.3	51.9	27.0	60.1
Broadband	3,503	35,254	28,376	8,392	4,589	5,446,807
Total households by region	16,089	65,786	48,712	16,178	16,984	9,057,373

SOURCE: ABS Census 2006 and 2011, ABS Table Builder

4. DISCUSSION AND CONCLUSIONS

We have examined changing rates of Internet connections for Indigenous and non-Indigenous households in the Northern Territory. We used Census data from 2006 and 2011 to compare rates across three regions within the NT (Greater Darwin, the Midtowns and the rest of the NT) to the rest of Australia to ascertain the relative 'connectedness' of Territorians and assess the extent of the gaps in connection rates between Indigenous and non-Indigenous households. We also examined changes in connection rates for different types of internet connections to reflect on the diffusion of technology products and services across the four geographic locations and according to household types.

Our findings are promising and indicate a relatively high level of household internet connectedness for Territory households by 2011. Rates of connections, have risen significantly across all regions in the Territory, such that by 2011 two thirds of Territory households had some type of internet connection (broadband, dialup or other), up 43% from 2006. Notably, the proportion of Indigenous households with an Internet connection of some type reached 41% by 2011.

Connection rates for households in remote areas of the Territory, where gaps in technology adoption have always been at their largest, were the fastest growing and quadrupled during the five year period to 2011. More than half of Indigenous households in Greater Darwin and the Midtowns had internet connections and for Greater Darwin, rates in 2011 were comparable to Indigenous households in the rest of Australia.

The results also point to a slightly declining gap in internet connection rates between Indigenous and non-Indigenous households. This gap fell from 46% in 2006 to 44% of households by 2011. However, in remote areas in the RoNT, the gap between the proportion of Indigenous and non-Indigenous households actually increased, despite a 224% increase in the number of Indigenous households with an internet connection of some type. For the rest of Australia in 2011, the difference in proportions of Indigenous and non-Indigenous households connected was just 11.8%, however, for the RoNT it stood at 64%. Past research has indicated that under-reporting of internet use by remote Indigenous residents is common, and particularly for connection via mobile phones (Taylor, 2012). For non-Indigenous Territory households, connection rates are high and comparable to the rest of Australia. Technology is widely recognised as an enabler for social capital which itself is seen as a precursor for economic development (Bandias, 2011).

This study has also demarcated the present day dominance of broadband type connections and the diminishing share of dial-up. From a research perspective, it will be important to monitor the implications of such developments for Indigenous households in remote areas to assess whether and how opportunities for the delivery of education and training as well as business and employment opportunities might be garnered from increasing rates of household broadband connections. Additionally, in light of past studies outlining access and equity issues for low income Indigenous people in remote areas in relation to mobile phone access, research on the impacts of changing products and services for low income earners is needed. A further research brief examining the relationship between income levels and connection rates is being developed and will be available shortly from the Research Briefs page at the Northern Institute (<http://www.cdu.edu.au/the-northern-institute/research-brief-series>).

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