

April 2023



# MAPPING THE DIGITAL GAP

Measuring Digital Inclusion and Media Use in Remote Aboriginal and Torres Strait Islander Communities 2021-24

## DJARINDJIN & LOMBADINA, WEST KIMBERLEY WA COMMUNITY OUTCOMES REPORT 2022



## Acknowledgement of Country

We respectfully acknowledge the Goolarrgoon people of the Bardi nation and the Bard people and pay our respect to their Elders, past, present and emerging. We also acknowledge the Traditional Custodians and their Ancestors of the lands and waters across Australia where we work, live and undertake our research.

## About the Mapping the Digital Gap Research Project

Mapping the Digital Gap is a 4-year research project working in partnership with local organisations in 10-12 remote First Nations communities, to generate a detailed account of digital inclusion and uses of digital services including news and media, track changes over time, and inform appropriate local strategies and services enabling informed decision making by remote Aboriginal and Torres Strait Islander people. It is being undertaken through RMIT University as part of Centre of Excellence for Automated Decision Making and Society, in partnership with Telstra.

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### Community Research Partner

Djarindjin Aboriginal Corporation

[djarindjin.org.au](https://djarindjin.org.au)

### Community Co-Researcher

Audrey Shadforth

### Research Participants and Stakeholders:

Thank you to all the community residents and local agency staff who generously participated in the surveys and interviews, providing the personal experience to make this research meaningful. As well as 95 community residents surveyed, we undertook 6 interviews with local residents and stakeholder agencies including:

- + Djarindjin Aboriginal Corporation
- + Lombadina Health Clinic
- + Christ the King School
- + Dampier Peninsula Police
- + Pilbara and Kimberley Aboriginal Media

### Research trip dates:

16- 22 June 2022

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## 1. EXECUTIVE SUMMARY

Djarindjin and Lombadina are discrete communities, located adjacent to each other on the Dampier Peninsula in Western Australia's Kimberley region, about 196km north of the regional centre Broome. The traditional owners of Djarindjin are the Goolarrgoon people of the Bardi nation, with predominantly Bardi people in Lombadina. According to the 2021 Australian Bureau of Statistics (ABS) Census, the combined population of Djarindjin and Lombadina is 253 with 81.4% identifying as Aboriginal and/or Torres Strait Islander<sup>1</sup>. According to ABS (2021), 43% of residents speak an Aboriginal language at home, primarily Bardi (38%), Karajarri (2%) and Kriol (1.5%), with 53% speaking English only at home.

Our first research visit to Djarindjin and Lombadina communities was undertaken from 15th to 22nd June 2022, with stakeholder interviews also conducted in Broome. The RMIT University team worked with community research partner Djarindjin Aboriginal Corporation (DAC) and our wonderful co-researcher Audrey Shadforth, with support from DAC CEO Nathan McIvor and staff. Our research team had a very productive week of resident surveys and conducting interviews with representatives of local stakeholder agencies, despite members of the team contracting COVID and isolating from mid-way through the trip (thanks to Lombadina clinic for their care and support). We thank all residents and agency staff who participated in the research and made us feel very welcome. A special thanks to Audrey Shadforth for her guidance, friendship and dedication, helping to collect a record 95 surveys during the week including three days of working solo.

Based on 95 surveys and 6 stakeholder interviews, this report outlines the initial findings from our 2022 visit and highlights the current access and use of media, telecommunications and online services, as well as the digital inclusion and service delivery challenges in Djarindjin and Lombadina. The report is intended to support local and regional agencies, including DAC, Lombadina Aboriginal Corporation (LAC), Pilbara and Kimberley Aboriginal Media (PAKAM) and Western Australian Government to better understand the barriers to digital inclusion and community needs and aspirations for the future. This report reflects the community views at the time of our visit, noting that significant work was underway to address the communications needs of residents, service providers and community enterprises, including a 4G small cell tower being installed in Djarindjin. The report details this progress as well as outstanding challenges, and proposes a range of potential strategies for a local digital inclusion plan, for community stakeholders to use as they see fit. The report will be updated following research visits in 2023 and 2024.

This report is part of our commitment to Indigenous data sovereignty, to ensure data and research findings from the project are available to the participating communities for their own analysis, planning and advocacy. Please note that this report provides initial analysis using the raw survey data collected during our fieldwork. It is likely that, following data cleaning and weighting, final results may differ slightly. The finalised Mapping the Digital Gap survey results will be available on the Australian Digital Inclusion Index dashboard and website in July 2023, and it is this data that should be treated as authoritative.



# 95

surveys conducted



# 6

interviews conducted

(5 agency representatives and 1 community resident)

<sup>1</sup> An additional 7.5% did not state their identity.

## Summary of Findings

The following key findings are based on the initial analysis of surveys with 95 residents of Djarindjin and Lombadina communities and six interviews with staff from local agencies.

### **A range of communication and media services are available and in working order, however household phone and Internet access has been limited prior to June 2022.**

- + The communications and media services available in Djarindjin and Lombadina are mostly in good working order. These include a Telstra 3G/4G mobile service, NBN satellite services, fixed line telephony and ADSL, VHF radio, public Wi-Fi, ABC and PAKAM radio, and VAST TV working on most houses.
- + Access to phone and Internet services is primarily at community agencies, enterprises, staff housing, or public spaces, including free Wi-Fi outside the community office and store from 6am to 6pm weekdays.
- + Prior to our visit, the coverage from the 4G macro-cell tower was described as patchy and slow, with low signal penetration inside most houses. This has limited household access to communications and online services.
- + A new 4G Telstra small cell tower was being installed near the Djarindjin store during our visit. This was activated in June 2022, reportedly improving coverage, reliability and penetration inside homes in both communities.

### **There is limited use of fixed internet by households.**

- + 89% of respondents surveyed do not have any form of fixed home Internet, with 11% of respondents having NBN Sky Muster for household use. 23% use a portable 4G modem to enable indoor Wi-Fi connectivity.
- + Most agencies reported using NBN Sky Muster or ADSL as their primary internet service, with the school and multi-function police facility having fibre optic connections. Some interviewees described Sky Muster as having limited speed and being unreliable, especially during rain periods in wet season.

### **Pre-paid mobile is the primary means of phone and Internet access.**

- + 91% of respondents said they owned or shared a mobile phone. 82% of respondents regularly used their mobile phone for phone calls, with 14% using someone else's mobile phone.
- + Of the 86 people with mobile phones, 91% had smartphones and 86% used pre-paid services.
- + Only 9% of survey respondents had a fixed home telephone. 11% reported using the public phone.

### **There is a moderate level of digital ability in Djarindjin and Lombadina.**

- + 89% of survey respondents had used the Internet within the last three months. Of these:
  - o 52% said they used the Internet almost constantly, with a further 37% at least once a day.
  - o 92% used their smartphone for Internet access. 32% used a desktop computer and 26% a laptop.
  - o In the previous 6 months 81% had used online banking, 78% had accessed a government service and 73% had done online shopping.

- 75% had used the internet to keep in touch with family or friends in the previous 6 months, and 74% had used entertainment services (e.g., streaming video/music, playing online games);
- 66% responded that the statement 'I know how to send and receive emails' is 'very true' or 'mostly true' of them; 65% chose 'very true' or 'mostly true' to the statement 'I know how to open a new internet browser tab', and 67% for 'I know how to complete online forms'.
- 61% of respondents reported slight to significant increase in Internet use during COVID-19 lockdowns.

### Affordability of Internet access is a concern for people on low incomes.

- + 25% of survey respondents who have used the Internet in the last three months indicated the main reason they do not use the Internet more often was "The Internet is too expensive for me". Cost was an issue for 30% of low or non-Internet users.
- + 42% said they have sometimes cut back on essential household costs sacrificed essential household costs (food, bills, etc.) to afford Internet access in the past 6 months, with 21% reporting always or often.
- + There is an average of 3.2 mobile phones per household, with average household cost for mobile services of \$164/month (26% pay over \$200/month).

Full survey results are available in Appendix 1. An overview of communications and media services available in Djarindjin and Lombadina is outlined in section 3, with a detailed Audit of services and demographics in Appendix 2.



Figure 1: Photo of research team - left to right: Julian Thomas, Bernadette Angus, co-researcher Audrey Shadforth, and Daniel Featherstone



## What is Digital Inclusion? How is it measured?

Digital inclusion refers to equitable and reliable access to and use of information and communication technologies for participation in social and economic life.

The Australian Digital Inclusion Index (ADII, Thomas et al., 2021) is an annual national survey that measures three dimensions of digital inclusion: Access, Affordability and Digital Ability. ADII scores range from 0 to 100. The higher the score, the greater the level of digital inclusion. ADII scores are relative: they allow comparisons across different social groups and geographic areas, and over time.

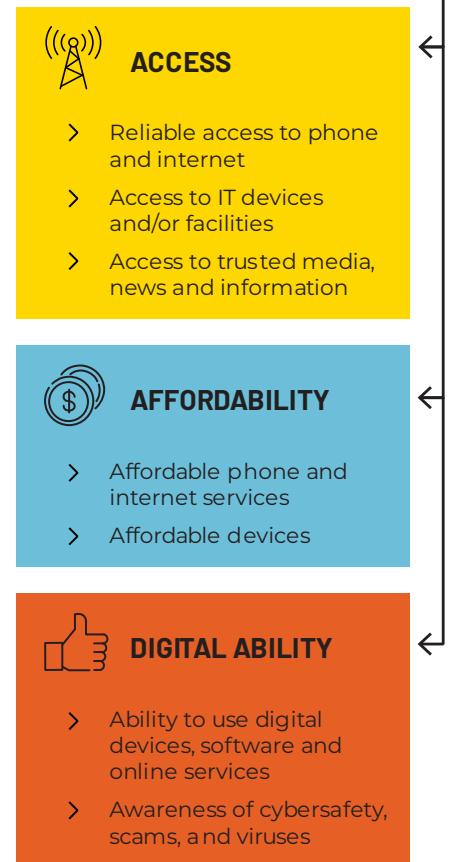
People living in Australia's 1100 remote Indigenous communities are likely to be among the most digitally excluded Australians. The ADII has previously found that people in remote communities often have extremely limited access to digital infrastructure and services and encounter very high costs for Internet access, especially in relation to their income (Thomas et al., 2018; Thomas et al., 2019).

The Mapping the Digital Gap project uses an amended version of the survey that underpins the ADII (the Australian Internet Usage Survey) to collect digital inclusion data. The Mapping the Digital Gap survey results will be available on the ADII website, with interactive charts that will provide insight into community-specific results as well comparison with other participating communities and national results collected by the ADII.

In 2021, access to information and services enabling participation in informed decision making regarding their own lives was introduced as a new Closing the Gap outcome (17). This new target 17 includes a goal of equal levels of digital inclusion for Aboriginal and Torres Strait Islander people by 2026.

The Mapping the Digital Gap project is targeted at remote First Nations communities and does not include digital inclusion of First Nations people living in urban and large regional centres. However, it is hoped this project will provide data that will help in measuring the scale and nature of this digital gap over time, as well as insights into strategies to address key obstacles and reduce the digital gap for all First Nations people.

## DIGITAL INCLUSION



## 2. INTRODUCTION

Djarindjin and Lombadina are adjacent communities located on the western coastline of the beautiful Dampier Peninsula north of Broome. According to the 2021 ABS Census, Djarindjin and Lombadina communities have a combined population of 253, of which 81% are Aboriginal and/or Torres Strait Islander. There are 111 private dwellings, of which 65 are households of permanent residents.

The Dampier Peninsula region has a rich cultural history for the Bardi and Jawi people, however since colonisation has been exploited for pearling and pastoralism, with most people relocated from their traditional homelands to missions at Beagle Bay and Sunday Island<sup>2</sup>. Lombadina was established as an outpost of the Beagle Bay Mission in 1911. In 1984 the Lombadina Aboriginal Community took over the lease and assets of the former Mission and the separate community of Djarindjin was established shortly afterwards, with both communities having independent administrations<sup>3</sup>. The Christ the King Catholic School services both communities, as does the Lombadina clinic.



Figure 2: Welcome sign on entrance to Djarindjin community

At the time of our visit, there was 3G and 4G mobile coverage to both communities from a Telstra base station about 4km south on the Cape Leveque Road. However, due to the location of the tower and thick vegetation, the coverage is patchy across Djarindjin and Lombadina communities with congestion causing slow speeds and regular dropouts, with the service often switching back to 3G. Residents described poor penetration of the signal inside the primarily metal dwellings with most residents having to walk outside to access mobile services. There was frustration with the poor service quality, particularly compared with other Dampier Peninsula communities Beagle Bay and Ardyaloon (One Arm Point), which have had mobile services improved in recent years.

After several years of advocacy and delays during the pandemic, a 4G small cell mobile tower was being installed in Djarindjin at the time of our visit. Residents and service providers eagerly anticipated having reliable 4G available. Since its activation in June, the speed and penetration of the mobile service has reportedly improved significantly.

<sup>2</sup> Source: Page 60, Dampier Peninsula Planning Strategy Final Report, April 2015. WA Planning Commission, Perth.

<sup>3</sup> Source: <https://djarindjin.org.au/historical-story-lombadina-mission/>

Both Djarindjin Aboriginal Corporation (DAC) and Lombadina Aboriginal Corporation (LAC) require fast and reliable communications to operate a large range of community services, municipal programs and enterprises. LAC runs tourist accommodation and camping, tours and a bakery in Lombadina. DAC operates the community store, Djarindjin roadhouse, mechanical workshop, a new tourist campground, and the Djarindjin Airport. DAC is also part owner of the Kooljaman resort at nearby Cape Leveque, however this was not currently operating. Loss of communications services, or power supply to run the services, can have a significant impact on the community and these enterprises.

DAC has invested significant capital funding, as well as ongoing operational expenses, to improve communications services to meet community demand and the needs of its commercial facilities. This includes setting up a 4G booster at the roadhouse, installing satellite services to the office and most facilities, and setting up microwave links to DAC-run agencies. At the time of our visit, DAC was having a fibre optic connection installed to the community office, to improve broadband speed, data capacity and reliability, with plans to install fibre optic to the roadhouse and airport.

Currently the multi-function police facility near the roadhouse and Christ the King Catholic School have fibre optic connections, which the school described as “excellent”, enabling city-like use of digital technologies. However, most other local agencies were using ADSL or satellite services, with mixed responses about adequacy of speed, data limits and reliability needed for their operations. Reliable communications are critical for service delivery, with Lombadina clinic staff describing the need for quality communications for tele-health, access to cloud-based patient records and client communications.

Beyond the 4G mobile access, fixed line phone services are provided in both communities via a local copper network to the four public phones, community facilities and agencies, staff houses and a small number of community residences. While most residents surveyed said they make phone calls using a mobile phone, with only a few home phone services, fixed line phones are still well used, including the four public phones, Centrelink or workplace phones. This points to an ongoing need for maintaining the copper network and exchange.

There is regular Internet use by most residents, with 89% of survey respondents having used the Internet in the last three months, with 92% of these said using a smartphone primarily for online access. Most Internet use is via the 4G mobile service, however there was also reports of high use of Internet at the Centrelink office, workplaces and via the free public Wi-Fi. This was available at the Djarindjin community office and store from 6am to 6pm daily, enabling basic access to online services. Lombadina also have free Wi-Fi available at the community office (constrained to 5Mbps download speed to limit streaming), provided by NBN Co through its Communities in Isolation program.

Only 11% of residents surveyed have a NBN Sky Muster service, with 89% having no form of fixed home Internet. However, due to the patchy mobile coverage there is high use of portable 4G modem/devices for data sharing, with 23% of respondents having a 4G modem, 91% of these pre-paid services. Interviewees described locating the Wi-Fi modem in a window or outside to access the 4G service to enable indoor use.

Reliable and affordable Internet access is increasingly important for clients to access government services like Centrelink, MyGov and MyHealth, as services move online as part of digital transformation. While the upgraded 4G service will provide improved Internet access, the free public Wi-Fi services and Centrelink computers will still be needed to avoid shifting to a user-pays model to access services.

Having staff support to use online services is also critical. Currently staff from the Centrelink agency, DAC, Lombadina clinic and other agencies have regular requests for assistance to use online services, complete online forms, activate new phones or SIMs and access online information. The WA Government

funded Community Resource Centre previously housed access computers, however these were removed in 2019 and the facility re-purposed as a local merchandise printing enterprise and café. There was community demand for more digital mentor support and access to computers for learning, local enterprise and online service use. DAC are planning to establish a training facility in 2023 to deliver an adult literacy and digital skills program.

While digital ability was relatively high among the people surveyed, 11% of those surveyed rarely or never use the Internet. These were primarily elderly people, people on very low incomes and those living with disabilities. The primary reasons cited by low or non-users were lack of need or interest in using the Internet, concerns around privacy and scams, lack of confidence and cost.

Affordability of communications services and devices is a key issue for people on very low or unreliable incomes. With 55% of survey respondents receiving some form of government benefit or pension, and the average personal income of First Nations people in Djarindjin and Lombadina being only \$360 per week (ABS 2021), the expense of pre-paid mobile data and devices are a significant cost burden on top of high costs of food, fuel and other essentials. 42% of survey respondents said they had sometimes cut back on essential household costs to afford Internet within the past six months, with 21% saying always or often. 63% of respondents said they compromised the speed and/or quality of their connection to prioritise affordability. There was reportedly a small increase in data use during the COVID-19 restrictions, for accessing news and information, social media and streaming services, however this was constrained by the limited 4G service.

Djarindjin and Lombadina had relatively good access to free-to-air TV and radio services compared with other remote communities visited in this project. 82% of survey respondents reported having VAST direct-to-home satellite services working at home, compared to a 52% average across the eight sites reliant on VAST services. While there is limited radio access at home, with most radio listening in the car, our survey found relatively high radio listenership, particularly to the PAKAM First Nations radio service. PAKAM played an important role in producing and distributing locally targeted health information during the pandemic, via radio, ICTV and social media channels, to counter misinformation. Local health agencies were also proactive in raising awareness and addressing concerns, with vaccinations successfully rolled out prior to the virus reaching the community.

To address the media and communications needs identified in this report, and support digital inclusion and service delivery, it is recommended that a Digital Inclusion Plan be developed for Djarindjin and Lombadina. Based on the audit of existing infrastructure and services outlined in section 3 (and Appendix 2), analysis of surveys and interviews with community residents and stakeholders in section 4, a list of potential strategies for consideration for a Digital Inclusion Plan is included in section 6. As part of ongoing research with the Djarindjin and Lombadina community in 2023-24, the Mapping the Digital Gap team can assist with developing this plan.

## 3. MEDIA & COMMUNICATIONS IN DJARINDJIN/ LOMBADINA

### Existing Telecommunications Services

**Backhaul to community:** A Telstra fibre optic cable runs up the Cape Leveque Road from Broome, providing backhaul for mobile, telephony and ADSL services at Beagle Bay, Djarindjin, Lombadina and Ardyaloon.

**Mobile coverage:** There is a 4G macro cell tower on Cape Leveque Rd, about 3.6km south of Djarindjin. A new 4G 700MHz small cell tower was installed near the Djarindjin community office in June 2022, providing more reliable 4G to both communities and penetration inside houses.

**Landlines:** The copper network provides telephony and ADSL capability to local agencies, staff houses and some households in both Djarindjin and Lombadina. 9% of residents surveyed had home landlines.

**NBN services:** Djarindjin / Lombadina, and other communities in the Dampier Peninsula, have no NBN fixed line or fixed wireless coverage, with Sky Muster satellite services being the only option under NBN zoning. 11 survey respondents had Sky Muster satellite services on their homes.

**Public Phones:** We identified four public phones in Djarindjin and Lombadina, with three of these working at the time of our visit in June 2022. Telstra have now made the public phones free to use.

**Wi-Fi:** There is a free public Wi-Fi hotspot available at the Djarindjin community office and store (using Sky Muster backhaul) from 6am to 6pm, as well as at the Djarindjin roadhouse. There is also a free public Wi-Fi hotspot available at the Lombadina office, provided by NBN Co (using Sky Muster backhaul) with funding support from the Australian Government.

**HF / UHF Radio:** HF radio is used by State Emergency Service and WA Police for emergency and rescue communications, by airport staff for aircraft communications, Royal Flying Doctor Service as well as by Rangers for land and sea management. Djarindjin AC staff and airport staff use UHF radio for communications between vehicles and staff. UHF radio is also used by tourists. No information on other agency use.

**Telemetry:** Telemetry is used for monitoring and operation of power, water and wastewater services, with responsibility for services being transferred to Horizon Power and Water Corporation. Telemetry is also used at the airport for the Bureau of Meteorology weather station.

### Media Services

**Radio services:** PAKAM Radio (106.1FM) is the regional First Nations radio service with hourly shows from Remote Indigenous Broadcasting Service (RIBS)



**253**

Population - ABS Census 2021



**81.4%**

Aboriginal and/or Torres Strait Islanders (plus 7.5% not stated)



**196km**

North of Broome



**1990km**

North of Darwin



**111**

Private dwellings



**3.3**

Average people per ATSI household (ABS 2021)

communities across the Pilbara and Kimberley regions. There is also an ABC regional radio service (104.5FM). There was no local RIBS broadcaster at the time of our visit.

*TV services:* All houses in Djarindjin / Lombadina require Viewer Access Satellite Television (VAST) direct-to-home satellite for free-to-air TV services. These were working in most houses.

*Regional and Local news:* Local news is shared via Facebook, a monthly DAC newsletter, notices on the noticeboards at the Djarindjin office and store, and via word of mouth. Regional news is shared via PAKAM, ABC radio and Facebook. When operating, the Djarindjin RIBS shares local news over the PAKAM network.

*Newspaper:* There is no access to printed newspapers.

## Access and Support Facilities

*Community Access facilities:* The Centrelink office has one computer available to residents to access online government services. The DAC-run Community Resource Centre also has an online computer for community use and access to government services.

*IT Support:* Support in accessing and using online government services is available from DAC staff at the Centrelink and community office. The Lombadina clinic provides some support in using online health services.

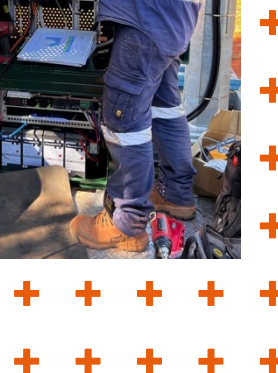
*Mobile phones and recharge sales:* A basic range of smartphones and flip phones (calls only), as well as pre-paid Telstra recharge vouchers, are available from the Djarindjin store and roadhouse.



Figure 4: (left) A new 4G 700MHz small cell tower was installed near the Djarindjin community office in June 2022



Figure 3: (right) Technician installing the mobile tower.



## 4. INTERVIEW ANALYSIS

This section provides key findings from the 6 interviews conducted with community leaders and stakeholders, as well as observational data and survey results, along with some results from the 95 surveys undertaken.

See Appendix 1 for the full set of unprocessed survey results. As outlined in the Executive Summary, the finalised survey results may differ slightly once data cleaning and weighting has been completed. These will be available via the Australian Digital Inclusion Index website and data dashboards in mid 2023.

Due to the research team members being in COVID-19 isolation for part of the visit, several interviews were conducted online. Additional interviews will be conducted during the 2023 research visit, including with community leaders and residents.

### Communications Access

#### **Djarindjin community has improved communications services to meet increasing demand, at high cost**

Djarindjin Aboriginal Corporation (DAC) runs the municipal program (funded by WA Government), community services for Djarindjin and Beagle Bay (safe house refuge, aged care facility, early childhood parenting program, men's shed program, youth program, community resource centre with print shop and café) as well as commercial businesses - community store, roadhouse, campground, 100% shareholders of Djarindjin Airport Pty Ltd, and 50% shareholders of Kooljaman Wilderness Resort.

However, the community have struggled with limited communications services, including patchy 4G mobile coverage, to meet growing community and enterprise needs. DAC have been actively seeking to improve mobile and Internet communications to meet the needs of the community, municipal programs and enterprises, including tourist use at the Roadhouse and campground.

DAC currently have installed satellite services to the office, staff houses and other community facilities – Community Resource Centre (CRC), women's safe house and roadhouse - to supplement the existing ADSL service. DAC has also set up a microwave repeater from the Roadhouse to the community office and a 4G booster at the Roadhouse to reduce congestion. A fibre optic connection was being installed to the community office at the time of our visit.

However, the ongoing expenditure on communications is a significant issue for DAC:

- + "We've spent hundreds of thousands of dollars on trying to get connectivity for Djarindjin. ... [We've now got] the Telstra bill down to about fifteen hundred bucks a month. ... Just for the office, we're spending roughly around about \$400 a month on Sky Muster." (Nathan McIvor, DAC CEO, 2022)



Figure 5: DAC have installed satellite services to many community facilities at significant cost, including the Community Resource Centre (CRC)

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## There is limited connectivity in much of the Dampier Peninsula

While there are mobile towers along the Dampier Peninsula Rd near Beagle Bay, Djarindjin and at Ardyaloon (One Arm Point), interviewees referred to limited connectivity in other sections of the 220km long road from Broome.

- + “All along the the whole Dampier Peninsula Rd. It'd be great if you could get connectivity right the way through because ... [after] about 40km out of Broome, [mobile reception] drops out then. You have a bit of a signal at Beagle Bay, and then the next time you have a signal is when you come into this community where the towers are.” (Sharon Leray, Principal, Christ the King School 2022)

The 4G services at Ardyaloon (One Arm Point) and Beagle Bay provide good coverage and speed across the community.

- + “[The mobile reception is] terrible in Djarindjin. It's reasonable in Beagle Bay and One Arm Point. ... [And] there's [large areas] on the peninsula where the there's just absolutely no coverage.” (Andrew Henshaw, Senior Sergeant, Dampier Peninsula Police, 2022)

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## Mobile coverage has been patchy and unreliable in Djarindjin and Lombadina

Djarindjin and Lombadina have struggled with patchy coverage and slow speeds. The current mobile coverage comes from a tower about four kilometres south on the highway towards Broome. Due to its distance and thick vegetation, the coverage is patchy across Djarindjin and Lombadina communities with congestion causing slow download, often switching back to 3G. Interviewees also referred to issues of dropouts.

- + “People complain about the connectivity here in community all the time, not able to make phone calls to family, friends, and business as well. [We've] got to put boosters in the buildings just to be able to get a good signal. ... If I'm trying to contact people in the community, they're not gonna get my phone message ... so I've got to go walk down to [talk to them]. ... In a place where you've got 400, 500 people, there should be no reason why people can't make phone calls.” (Nathan McIvor, DAC CEO, 2022)

People referred to having to find a location with strong enough signal to use the mobile service. There is very limited reception inside houses, with most interviewees referring to having to go outside of the house to get reception to receive and make calls. This was described as a health and safety issue.

- + “[We need to make] sure that we have access inside our houses because of the cyclone conditions. Up here we have steel fabricated houses and they're very much like a Faraday cage. ... So what happens is you have to go outside to take a call. As a principal, for example, I've had sick staff who've had an emergency, their appendix burst and they were living on their own and I couldn't get a a call from that person. And at 1:00 o'clock in the morning, that person dragged himself across the road and banged on my front door calling out help. And they had asked for help 2-3 hours ago. ... So it is a safety problem and that's an area I would really like to be fixed.” (Sharon Leray, Principal, Christ the King School 2022)
- + “I don't have signal anywhere in the house. I have to go outside because I live near the hill, the bush area. ... [In the] middle of the night, we have to walk out on the roads to get better service. ... And then you get scared for snakes or anything.” (Natasha Fejo, Receptionist/digital support, Lombadina Clinic, 2022)

With most residents reliant on 4G for Internet use, this also means there is very limited home Internet access:

- + So I had to buy a Wi-Fi [4G modem] from the shop [for nearly] \$100. So I just connect my phone as a hotspot. So I leave my Wi-Fi [modem] outside, like on the ceiling. ... It runs out very quick [so] I need to recharge twice a week, [costing about] \$60 a week." (Natasha Fejo, as above)

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## A new 4G small cell mobile services was about to be activated

A 2019 Mobile Black Spots Program (MBSP) application was unsuccessful so the CEO sought other assistance, which led to support from Kimberley Development Corporation through Royalties for Regions funding. The prescribed body corporate and Department of Planning, Lands and Heritage were also involved to get permissions for the site.

The 4G small cell was being installed at the time of our visit. It had originally been scheduled to be installed in December 2020 but was delayed by the COVID-19 pandemic and site approval processes.

- + "We [got] the small cell tower installed just this week. ... It will be flicked on within the next few days and hopefully that will help with connectivity [and] making phone calls." (Nathan Mclvor, DAC CEO, 2022)

Community residents and staff have been eagerly looking forward to the new mobile tower being activated.

- + "I'm so happy with this new tower going up now. Is it on already? ... Some people say that they had four bars in their house last night." (Natasha Fejo, Receptionist/digital support, Lombadina Clinic, 2022)
- + "I'm really pleased that there's a Telstra tower now going in the community ... that's going to be servicing a lot of people now." (Sharon Leray, Principal, Christ the King School 2022)

In the July 2022 edition of the Djarindjin Jawal newsletter, the CEO reported:



"The Telstra Small Cell Tower is up and operational. This is a giant leap into the 21st century for Djarindjin (better late than never). It is now possible to get 4G reception inside our houses. No more missing phone calls and messages, no more braving the weather and mozzies just to make and receive calls. Don't have to say how happy we all are about this."

- Report by Nathan Mclvor, DAC CEO, 2022

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## Impact of network outages

Network outages can have a significant impact on remote communities where there is a lack of backup communications options or services. Online systems can no longer be used, impacting EFTPOS, ATM and cloud-based systems, leading to significant unrest within the community.

- + "It happened a couple of times. ... Everything went off, power, Wi-Fi, internet ... People get angry, not because they all want Internet [but they need] to do their business online .... [and] they can't buy their food. ... They got very angry. ... [People had to] wait around or just ask families to help." (Audrey Shadforth, Centrelink office worker/ resident, 2022)

Outages also impact on service delivery and local enterprises.

- + “Everything’s online these days. ... [Without] good connectivity, you can’t run your business appropriately. So, for example, our 24 hours, seven day fuel stock, if [the 4G] drops out, people can’t get [fuel], business [slows] down [and we] lose money. ... Same thing when it comes to EFTPOS machines. If we don’t have connectivity, we lose money. ... [Because 4G is not reliable] we have 4G and we have satellite.”  
(Nathan McIvor, DAC CEO, 2022)

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### Pre-paid mobile is the primary means of phone access, with low fixed line or public phone use

91% (86 of 95 people) of survey respondents owned or shared a mobile phone. 82% of respondents said they regularly used their mobile phone for phone calls and 14% used someone else’s mobile phone. Of those with phones, 91% had smartphones as their main mobile phone, and 86% used pre-paid services. 12% use the phone at a community office or workplace, and 9% use a fixed line telephone in their home. 11% of respondents said they used the public phone for making and receiving calls. We found four Telstra public phones in Djarindjin, with three of these working at the time of our visit.

While there is some uptake of home phones by residents, this is constrained by limited household connectivity and reluctance to sign up for post-paid services.

- + “The cost of putting a landline in [and] then paying the bill ... it’s much easier just to have a pre-paid mobile phone.” (Nathan McIvor, DAC CEO, 2022)

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### There is limited home internet access, including NBN Sky Muster

Most households did not have any form of home internet access at the time of our visit, due to not being able to access the 4G service inside most houses. This will hopefully change with the new 4G small cell tower.

- + “They have to go outside and get internet you know. There’s no signal. You can’t get it in your house, you’re always outside and it’s bad and everybody’s grumbling and saying, oh why are we haven’t got no signal in Djarindjin. Everybody else, like One Arm Point [have] got good signal but Djarindjin hasn’t got anything.” (Audrey Shadforth, Centrelink office worker/ resident, 2022)

Our survey found that 92% of regular Internet users (the 89% of respondents who used the Internet in the last three months) said they use their smartphone as their primary means of Internet access, with very few laptops or desktop computers in homes. The majority of respondents surveyed (89%) do not have any form of fixed home Internet with 11% having an NBN Sky Muster service and 23% using a portable 4G modem for home Internet access. In addition to this, most agency staff also have NBN Sky Muster services.

The reasons people gave for not using Sky Muster were primarily that it only has a post-paid (billed) option, which is a risk for payment on low incomes. Other concerns raised were that satellite services are unreliable during wet season and that the low-cost services had insufficient data limits for their household needs.

Of those using Sky Muster services, there were mixed reports about the performance with some users describing issues such as dropouts with cloud cover (especially in wet season), high costs of plans, and need for higher data limits. Some households use both a 4G modem and a Sky Muster service.

Interviewees described challenges with using videoconferencing via satellite, especially during wet season.

- + “[Videoconferencing via satellite can be] quite challenging depending on the time of year. ... On the whole it works, but it can be quite challenging out here because it's stopping and starting sometimes, especially during the rain season.” (Annalisa Denholm, Remote Area Nurse, Lombadina Clinic, 2022)

While Starlink was not an option at the time of our visit, it has since expanded to providing national coverage across Australia including the Kimberleys. It was being considered as an option by DAC.

- + “[I've been told that Starlink] would be worthwhile [as] the download speeds are way, way higher than what we currently have, and also the upload speed is much higher.” (Nathan McIvor, DAC CEO, 2022)

## Free Public Wi-Fi is available at the community office and store

The Djarindjin community office provides free Wi-Fi access during office hours. It is turned off from 6 pm to 6 am to prevent kids using it at night. The free Wi-Fi is well used by community residents:

- + “We always go to the shop and use the shop Wi-Fi as well. So the shop has a free Wi-Fi, [also the] other shop, the garage and office. ... So you'll see mainly all the young kids hanging around there using the Wi-Fi. ... it goes off at night.” (Natasha Fejo, Receptionist/digital support, Lombadina Clinic, 2022)



Figure 6: There is free Wi-Fi available next to the Djarindjin community store and office.

There are some calls for the Wi-Fi access hours to be extended.

- + “The kids come and use free Wi-Fi. ... I don't think it should be a problem [to keep it on] because they are on the phone, sitting one place you know. Should be a good idea for them to use it.” (Audrey Shadforth, Centrelink office worker/ resident, 2022)

Lombadina community office also has a free public Wi-Fi hotspot provided by NBN Co, although we do not have details of times this service is available or any restrictions on data use.

A Wi-Fi mesh delivery model had been discussed as a way of providing households with Internet access, however this was seen as too costly for the community to self-fund.

- + “It would be really encouraging if the community [had] Wi-Fi at every house for safety as well as for learning and education, and digital citizenship.” (Sharon Leray, Principal, Christ the King School 2022)

## Service Delivery and Use of Online Services

### The Centrelink office is a primary point of access for online services and support

The Centrelink office is operated out of the DAC office complex. With a lack of home Internet access and some people having limited digital ability to use online services, the local Centrelink office plays a critical role in ensuring access to services and support:

- + “Some people ... don't have no vehicle to go into town to do Centrelink business. So that's why we have a centre here, to help along the Centrelink and give some money for them you know.” (Audrey Shadforth, Centrelink office worker/ resident, 2022)

Audrey Shadforth works full time for the Djarindjin Centrelink office, helping clients to complete forms, use online services and email, set up MyGov and talk to Centrelink on the phone. She also provides a digital mentor role to support people to learn to use mobile phones to load and use apps, activate SIMs and other digital skills:

- + “[I help with] everything that goes with MyGov, with internet banking, anything about the phone, for Centrelink. If they want help, I help them. ... some of them don't know much about phones and all those things so I help them to set it up ... all those things.” (Audrey Shadforth, as above)

While there is increasing take-up of online services and apps, usage is constrained by limited mobile coverage. The computer and free Wi-Fi at the community office provide basic access to online services. While most residents are now confident with using online service apps on their mobile phones, some people do not have phones, mobile coverage or the digital skills to access services, and come to the Centrelink office for support.

- + “[We] help them with the computers there. ... I had a lady there yesterday, she didn't know nothing about computers or to do MyGov and everything, so I helped her do that and she was very happy with it. They can put everything on MyGov these days. There's no more paper [records].” (Audrey Shadforth, Centrelink office worker/ resident, 2022)

Without the free Wi-Fi and computer, some people would struggle to do Centrelink reporting due to lack of funds to purchase mobile credit.

- + “Some of them haven't got money until next week, so they use Centrelink [computer] to use the MyGov there.” (Audrey Shadforth, Centrelink office worker/ resident, 2022)

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## Good connectivity at school enables use of digital learning tools and apps

The Christ the King Catholic School has about 70 students from Djarindjin and Lombadina enrolled in school and pre-school programs from infants through to year 10. They also support some Year 11 and 12 students to do distance education. The school provides the SCASA [Schools Curriculum and Standards Authority] curriculum using a two-way learning model, with a staff of 7 full-time qualified lead teachers and 12 Aboriginal teaching assistants, cooks and ground staff. Subjects cover literacy, numeracy, maths and culture, as well as digital technologies, art, woodwork, hospitality and a Bardi language course, taught by local language speakers. The school also have external tutors who supports the secondary teacher in specialist areas via Webex.

The school uses a wide range of digital technologies within most subjects as learning tools. Years Three to Six use iPads with a range of apps, and years Seven to 12 use laptop and desktop computers for web-based learning and to develop keyboard skills. The iPads have a a range of apps provided through the CEWA [Catholic Education WA] learning suite, including Reading Eggs, Mathletics, Minecraft STEM technology, an early coding app called Scratch, Procreate, and literacy, numeracy, science and maths apps. Older students use Book Creator or using Word or using Excel spreadsheets. They also use Microsoft Teams and OneDrive to store photos and content, which they download to create digital content using Book Creator, iMovie and iMotion.

- + “So digital literacy is is just part of what we do nowadays. And it's the general [coursework] rather than [being] taught as digital literacy [as a stand-alone subject].”

Digital technology is now used in] all the different subjects ... [as well as being available] as a pure year 11 and 12 subject.” (Sharon Leray, as above)

The school has a fibre optic link, with satellite backup system, with broadband networked to each classroom.

- + “We actually have good equal capacity as what is being used in Perth ... We have the same technology, our bandwidth and our speed is excellent. We also have a backup satellite so if anything does go wrong, we are able to keep it running.” (Sharon Leray, as above)

There are units of digital citizenship and cyber safety taught at the school, which the Principal Sharon Leray believes is an important life skill now with the high level of online access and risk of cyber-safety issues. Digital citizenship is a term being used within the national curriculum:



“Digital citizenship is around that whole way that we communicate and use our devices, the language, the way we text [or email or speak on the phone], the way we even approach to use the digital technology within subjects. So it's also about the way that we relate and communicate to other people ... [It's] that whole idea of [being] a good practice citizen living in a global world and being able to use the latest technology and digital devices and be able to share that knowledge in an ethical and responsible manner.”

- Sharon Leray, Principal, Christ the King School 2022

The Principal described the value of having digital skills to expand their education and work opportunities:

- + “Our secondary students are doing online learning [in] how to use Word and Excel spreadsheets and different types of platforms [like] Webex ... and Skype ... that leads them on to further study [at boarding school, then TAFE or University]. ... [With] education, there's also that self-esteem. They're earning money and they become really responsible as parents.” (Sharon Leray, as above)

Some Aboriginal Education workers are currently enrolled in courses at Notre Dame University or at TAFE, with some having completed a Diploma in Business.

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## The health clinic needs quality communications for tele-health, records and client communications

The Lombadina clinic services Lombadina and Djarindjin, with a staff of two full-time nurses, Aboriginal healthcare workers, a receptionist and security guard, as well as visiting specialists. Reliable communications services are essential to the clinic's busy day to day operations, including client communications, tele-health, talking with external health professionals and agencies, and access to patient records.

- + “[Our] records are ... 50% on the computer and 50% on paper, which is a little bit frustrating. ... We scan everything [onto] the computer [and] keep the paper records, so that's a big paper trail and a lot of storage.” (Annalisa Denholm, Remote Area Nurse, Lombadina Clinic, 2022)

While staff could not share information on clinic-based activities, they said there is strong interest from community residents in using tele-health to avoid the need to travel to Broome or Perth for medical treatment.

- + “People like to be at home on country. Nobody wants to be sent to Perth ... for a very basic appointment.” (Annalisa Denholm, Remote Area Nurse, Lombadina Clinic, 2022)

However, tele-health use can be constrained by Internet speed over the shared satellite service.

- + “[We don’t use tele-health] as much as we would like. ... If there’s someone having a meeting, it limits the speed for the rest of the service.” (Annalisa Denholm, Remote Area Nurse, Lombadina Clinic, 2022)

Natasha Fejo works as Receptionist at the clinic. Within her role, she provides digital support for clients to use online services, particularly older people.

- + “The elders ... don’t have phones [or] access to a computer. ... [So] I help them [get a Medicare number, by filling out] a form [and] scanning it to Centrelink. ... [I help them with the My Gov] questionnaire [with questions] they don’t understand.” (Natasha Fejo, Receptionist/digital support, Lombadina Clinic, 2022)

Demand for this support increased during the COVID-19 pandemic, as services increasingly moved online and support agencies were unable to visit but has since reduced.

With poor mobile coverage in the communities, contacting clients can be very challenging.

- + “A lot of people will not receive any phone calls or text messages when they’re at home [as there’s no reception] inside the house. ... So they have to go outside the house in order to be able to get reception [or] get the message.” (Annalisa Denholm, Remote Area Nurse, Lombadina Clinic, 2022)

As a result, contacting clients mostly requires a house visit, with Natasha’s local knowledge often critical to help find people. The poor mobile connectivity can increase risks to health and safety of residents and clinic staff.



“We have had emergencies where people have had to drive all the way to the clinic to get our attention [because they couldn’t] get reception or they didn’t have access to a phone. [If we need to call for] outside help we have to leave the building and stand outside and sort of relay the message, run it back in and out ... which is very third world [and] frustrating. ... And sometimes you sound like a robot at the other end.”

- *Annalisa Denholm, Remote Area Nurse, Lombadina Clinic, 2022*

With mobile devices often shared or transferred within families, there can be privacy issues for service providers trying to contact clients via their mobile number.

- + “[There are] lots of different confidentiality problems. ... Amongst certain family groups, they don’t like you to humbug their family members.” (Annalisa Denholm, Remote Area Nurse, Lombadina Clinic, 2022)

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## Impact of COVID-19 on education and work

COVID-19 restrictions led to increased use of online services for telehealth, online meetings and training, but unreliable communications make it challenging. Staff from some agencies worked from home during COVID-19 restrictions. However, working remotely was not possible for many agencies.

The school had difficulty maintaining lesson delivery due to the lack of devices and connectivity at homes:

- + “Unfortunately we couldn’t give them anything online [because] they don’t have their own devices [or] Wi-Fi at their houses. ... So we had to give the students written learning packs to do.” (Sharon Leray, Principal, Christ the King School 2022)

During the two weeks of COVID-19 lockdown the store was closed, creating significant concerns about food security. DAC and school staff prepared daily food packs and provided these free of charge to all households during the lockdown period.

There was a lot of misinformation spread via social media during the COVID-19 pandemic. Clinic staff worked hard to address any concerns about the vaccine rollout in 2021:

- ✦ “[Fortunately] both communities [were] receptive of any information that we gave. We had a very small minority that required extra information and we just worked extra hard ... to give them accurate information.” (Annalisa Denholm, Remote Area Nurse, Lombadina Clinic, 2022)

Throughout the COVID-19 pandemic, DAC, Lombadina clinic and regional health services used a range of communications modes to distribute health information - face to face, posters, flyers and radio and TV campaigns. DAC assisted the clinic with distribution of COVID-19 packs and shared health updates via its Facebook page, with the CEO driving around the community with a megaphone to provide updates. The DAC Board got their vaccinations first to set an example for the community.

PAKAM also produced and distributed messages via radio, TV and online, which helped address misinformation and vaccine hesitancy across the region.

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## Use of communications systems by police

The Dampier Peninsula police cover the whole Dampier Peninsula region, from Ardyaloon (One Arm Point) at the northern tip, to a point about 65 km north of Broome. As well as policing and justice services, the team also provide emergency response for the region. The size of the team varies from two to eight at different times during the year. The current multi-function police facility, located beside the Djarindjin Roadhouse, was in the process of being refurbished. It has a 20Mbps fibre optic connection to the facility, with phone services via the copper network. There are Cell-Fi units connecting to each of the staff quarters, however these were described as unreliable.

To contact the police, residents call the police station landline. If unattended, calls are diverted to the Broome office, who convey messages to local police. While there is VHF radio in police vehicles, this is not consistently monitored by the Broome office, so the police rely primarily on mobile communications. However, with limited mobile coverage on large areas of the Dampier Peninsula, this can cause delays in emergency response, with alternate modes of communication needed:

- ✦ “[WA Police] is trialling satellite communications on vehicles [which will] probably get rolled out for all remote areas. ... Our vehicles have a system called One Force Wi-Fi [which requires mobile reception so] there's black spots where it just won't connect. ... [Lack of connectivity] puts the community at risk and us at risk if we can't be contacted.” (Andrew Henshaw, Senior Sergeant, Dampier Peninsula Police, 2022)

The Police Facility uses cloud-based records and reporting systems, which are generally reliable:

- ✦ “The Internet is slow at times. And it takes a while for us to receive emails or for stuff to be uploaded. So we're challenged in that place at times, but on the whole, it's not too bad.” (Andrew Henshaw, as above)

There are no EFTPOS facilities available at the police station, making payment for services challenging for people on Basics card. People are required to bring cash to pay for driving tests or other payments.

Court hearings are mostly conducted in person by a visiting magistrate. However with the facility being re-furbished over the coming months, court appearances were to be done via videoconference.

- ✦ “[Generally court hearings are held in] the courtroom at the Police Station, and the magistrate would fly in. However, [while] the station’s being refurbished [we’re going] to do the court by Teams [so we will see how that works] next week.” (Andrew Henshaw, as above)

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## Use of websites and social media by service providers

DAC have established a good online presence with its website and Facebook page, which the CEO administers.

- ✦ “We’re utilising social media a lot better than what we were previously, and we’re certainly getting a lot of exposure using digital media for Djarindjin and it really gets us out there, it gets the name out there, it gets what we’re doing, our business, all those sorts of things. And we get a lot of good feedback from our online presence.” (Nathan McIvor, DAC CEO, 2022)

The Dampier Peninsula Police Station also use social media to get messages out, but see this as a supplementary means of communication due to limited Internet access:

- ✦ “We do use social media like Twitter [and] the Kimberley District Facebook page. I know a lot of community that surf Facebook ... read those messages. So there is some level of connectivity to the community through social media.” (Andrew Henshaw, Senior Sergeant, Dampier Peninsula Police, 2022)

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## Access to media and new services

### Nearly a fifth of households are without TV services

The VAST direct-to-home satellite TV service was installed on all premises in remote communities by the Australian Government in about 2013, with the ongoing maintenance to be a householder responsibility. Under the Digital Switchover program, there was no funding allocation or planning undertaken for a coordinated maintenance program of VAST equipment for remote First Nations communities with community housing. The cost of satellite technicians, including travel, is often prohibitive for individual households.

In Djarindjin, the VAST satellite service is no longer working in 18% of the households of those surveyed. This is typically due to failure of set-top boxes (64% of those with VAST not working) or damage to satellite equipment or cabling (43% of those with VAST not working). The failure of VAST free-to-air services has led to some households getting subscription TV services (mostly Foxtel), however monthly bills can be a cost burden.



Figure 7: The DAC office roof is festooned with an array of communications transmission and repeater equipment.

While the VAST failure rate in Djarindjin is much lower than many of the research sites visited, Pilbara and Kimberley Aboriginal Media (PAKAM) recommend moving to digital broadcasting in communities of over 50 households. This would reduce maintenance costs to a single facility and ensure all television services, including the 16 Freeview channels and ICTV and a community channel, are freely available to households without the expense of maintaining the VAST equipment.

PAKAM are keen to ensure that VAST is working to access the PAKAM radio service through the VAST set-top box, as well as ICTV services, for which they are the primary contributor. PAKAM are also keen to have ICTV Play available as an unmetered download service in remote communities, due to containing significant language content and locally relevant stories. They are keen to explore the possibility of sharing ICTV and local content from a server via a Wi-Fi mesh network.

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## The local radio service is important but there is limited home radio use

The PAKAM radio service is the primary First Nations radio service for 12 RIBS communities, with the service also sharing content to 10 regional towns and remote communities across the Pilbara Kimberley region. PAKAM coordinates a daily program of radio shows from contributing RIBS communities and regional radio stations, sharing news and stories within the region as well as to national audiences:

- + “[Despite] connectivity [issues], our principle for our network [is] to encourage live broadcast and input from the communities themselves [by] switching to live feed [from RIBS communities and] full-time Indigenous radio [stations] in the Kimberley-Kununurra, Halls Creek, Fitzroy Crossing, Derby [and Broome]. [We also share programs nationally on] the National Indigenous Radio Service [such as the] Sandy Dann [and] Mary G [shows].” (Neil Turner, General Manager, PAKAM, 2022)

There is a local RIBS studio in Djarindjin, which was relocated from the CRC to the community office in about 2019. This was previously operated by Trevor Ishiguchi, and before that by veteran broadcaster Bernadette Angus, providing daily radio shows from Djarindjin over the regional PAKAM network. There was not a Djarindjin RIBS broadcaster at the time of our visit, however Trevor has since returned to the role.

Our survey found there is limited home radio listenership in Djarindjin, with the most common way to listen to radio through the car radio (56% of survey respondents), with 26% listening on a radio at home, 17% through their TV via the VAST satellite dish, and 17% streaming via phone or tablet.

RIBS broadcasting over the regional network requires reliable connectivity to deliver radio shows from the RIBS sites to the local hub. This was previously done via landlines but is now mostly via 4G or satellite connections, although PAKAM Manager Neil Turner has found the Sky Muster satellite to be less reliable than 4G for radio streaming. PAKAM also use phone and Teams communications to support remote RIBS broadcasters.

PAKAM recently set up remote monitoring of broadcast and studio equipment in each RIBS site, enabling remote servicing and re-boots without needing to drive out to the community.

- + “We’ve already [been able to respond to] several incidents in the few weeks that we’ve had that system up and operating. ... [When services are down it] stops people from being able to work and earn [money] for their radio shows on the network.” (Neil Turner, as above)

PAKAM are working on developing more local journalism and local news production and sharing capacity. Currently, most news sharing is done informally within radio programs rather than as formal news bulletins. This is critical as there are limited mainstream news services in the region other than ABC.

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## There is no funding to maintain the ABC service

Djarindjin community also has a regional ABC service available. However, as ABC radio is considered a self-help retransmission service, there has never been dedicated maintenance funding for the service. PAKAM helps maintain ABC services at their own expense where they can.

- ✦ “[PAKAM has] been donating our own second-hand transmitters as we’ve upgraded [them]. So, we’ll try to maintain [ABC services] where it’s easy and convenient, but it’s certainly nothing we’re funded or obliged to do.” (Neil Turner, General Manager, PAKAM, 2022)

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## Social media is a key communications mode and source of news and entertainment

Our survey found that social media is popular for keeping in touch with family or friends (75%), engaging with community (74%), meeting new friends or reconnecting with old friends online (72%), as well as engaging with clubs, organisations and/or groups (59%). The most popular sources of news and information were direct and in person (42% daily), Facebook (40%), ABC TV (32%), commercial TV (32%), NITV (29%), ICTV (28%), online news services (28%) and noticeboards/poster (20%).

While social media is used for accessing news and information, First Nations radio remains important:

- ✦ “Facebook and all those sorts of things [are key sources of news], because our parents and my staff are the first to know what’s happened in the world on their phones. ... We also in the community have PAKAM radio [for local news]. ... Trevor [Ishiguchi] runs that and kids are invited down there to speak and broadcast if they wish.” (Sharon Leray, Principal, Christ the King School 2022)

While PAKAM currently use Facebook to share news and locally relevant stories, they see the potential of using social media channels such as TikTok for sharing local news and stories from communities.

- ✦ “The potential of content being created on phones and shared [immediately via social media is] bigger than our traditional ways of recording community television and getting it back to people. So ... we shall be looking at Tik Tok, and ... [training] young people in content production without requiring the good quality cameras [and TV production equipment].” (Neil Turner, General Manager, PAKAM, 2022)

## Affordability

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### Affordability of mobile data and devices is a significant concern

Affordability of Internet access is a key issue due to low incomes and high pre-paid data costs. 42% of respondents said that they have sometimes had to cut back on essential household costs in order to afford personal or household Internet within the past six months, with 21% saying they always or often have to cut back. 63% said they compromise on speed and/or quality of their connection to prioritise affordability. The second most common reason given by regular Internet users for why they don’t use the Internet more often was “The Internet is too expensive for me” (25%). 30% of low Internet users gave cost as a reason.

Despite the high cost of pre-paid data and relatively easy access to a store in Broome to sign up for post-paid service, 86% of mobile phone owners reported having pre-paid services. Pre-paid services are preferred due to the flexibility of enabling people to purchase vouchers when they have the funds available, rather than commit to a monthly billed service that they may not be able to pay when it is due. For the same reason, only 11% of respondents said their household had a post-paid NBN Sky Muster service and only 9% of those with 4G modems had post-paid.

There is also a wariness by residents about post-paid plans following experience of some people falling foul of previous mis-selling practices at some Telstra stores. Numerous customers of the Broome Telstra shop were sold post-paid plans bundled with devices (mobile phones, iPads etc) that they could not

afford, resulting in significant debt. Following an ACCC Inquiry into the issue several Djarindjin residents received compensation payments from Telstra as a result.

The Djarindjin CEO described the risk for residents in signing up for bundled post-paid mobile contracts including devices (phone, iPad, 4G modem etc), with ongoing payments for two to three years:

- + “They end up paying hundreds and hundreds of dollars and they [often] didn’t have the budget for it in the first place. ... And if your phone [breaks] you still have to pay off your phone. So it just becomes a massive impost for people in community.”  
(Nathan McIvor, DAC CEO, 2022)

Telstra no longer sell bundled plans with devices, which these now sold separately. However, some providers still advertise bundled plans, and devices purchased on monthly payment plans can still lead to financial issues.

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## Affordability of household power impacts on food security and communications

Affordability issues in communities extend beyond access to communications. All residential houses in WA communities have smart meters which require pre-paid power cards to provide household power. If residents do not have funds for power cards, this leaves the house without power to run fridges, air conditioners, or run powered communications services such as satellite modems, televisions or Wi-Fi equipment. Food stored in fridges can go off if power remains off for an extended period.

While most people use mobile phones for calls and Internet access, they may not be able to charge mobile phones. This can leave households without any means of communications and reliant on other households or public phones or local services where available.

## Digital Ability

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### Demand for ICT support and training

With services increasingly moving online, digital literacy is becoming a necessary life skill. Our survey found moderate to high levels of digital ability overall, with 89% of respondents having used the Internet within the last three months. Of these, most respondents reported being able to send and receive emails (66% said ‘very true’ or ‘mostly true’), find and install apps/software (67%), connect to a Wi-Fi network (69%) and complete online forms (67%). Of the 89% of regular users, most use online banking (81%), access government services (78%) and health information (67%) online, and do online shopping (73%).

Digital literacy enables personal agency and capability to access online information and services independently, undertake online learning and access services directly rather than being reliant on others. Digital skills are also increasingly needed for many jobs within the community.

Within Djarindjin, digital skills development has been constrained by the lack of home Internet access, mobile-only use and limited digital skills training or support. Some research participants said more training and support is needed, especially for the elderly, people with disabilities, and those with low English and digital literacy.

Training options in the Kimberley region include Kimberley TAFE, which provides certificate courses in business and workplace digital skills, and inDigiMOB, which has run some workshops in Kimberley region in the last year.

## There is support to use online services but more digital mentoring is needed

Digital skills development tends to be demand-driven, as people need to undertake a particular task such as accessing MyGov, doing online banking or completing a form. Peer learning is an effective means of learning digital skills both within the home environment and by service agency staff.

As outlined in the Service Delivery section above, there is some digital support provided by local agency staff. Centrelink agency officer Audrey Shadforth supports people using online services, including MyGov and online banking, as well as activation of new mobile phones and SIM cards. DAC staff also assist with online access and use of services in the community liaison space and front office. The clinic also provides some digital support but would like to see a dedicated role within the community.

- + “We do offer [help but] we cannot go and sit down and show someone how to download an app and how to use it ... we just don't have the time to do that. ... I don't know if any services provide one on one time to teach people how to use digital.” (Annalisa Denholm, Remote Area Nurse, Lombadina Clinic, 2022)

People particularly struggle with getting ID documents needed to sign up to use online services. State government agencies, including Departments of Transport and Justice, visit the community twice a year to assist residents to access ID documents, including birth certificates and driver's licenses, however there were calls for more support and a user-friendly online application process.

- + “It's hard [to] understand the forms. ... People can't get work because they don't have a license [or the] 18 plus card. ... [Government agencies] come every six months. We want them to come ... once a month.” (Natasha Fejo, Receptionist/digital support, Lombadina Clinic, 2022)



Figure 8: Elder Bernadette Angus trying to activate her new mobile phone. There is demand for ICT training and mentor support, especially by elders.

Another obstacle to use of digital services is remembering passwords, with some people setting up multiple email or online accounts or struggling to access services due to forgetting passwords.

- + “I tell them [to put the password] on your phone, so you can remember. ... [If people] change or lose [their phone] ... I do the same thing all over again then. ... [For] young ones ... I hold [the password and say] I'll give it to your parents to hold it for you.” (Audrey Shadforth, Centrelink office worker/ resident, 2022)

This support is leading to improved skills by clients in using online services:

- + “[It's getting] better, I had less people come in ... and then everybody knew how to do it on the phone. And some who don't have phone, they still use the computer.” (Audrey Shadforth, Centrelink office worker/ resident, 2022)

However, these positions are not funded to provide digital support and agency staff described the impact on their time needed to undertake other tasks. Consideration could be given to seeking funding for local digital mentor/s to provide more general support with using computers and mobile devices, software and

applications, cyber-safety awareness and helping to choose appropriate services or plans to reduce phone and data costs.

## Community access computer facilities are needed for digital skills and Internet use

There is limited access to computers in Djarindjin. Most households don't have computers at home due to cost and limited availability, making community access computers necessary for digital skills learning such as keyboard skills, MS Office applications, and to use some online services. There was demand from community members for a space for online learning, research, enterprise development and working on digital projects.

There is a community access computer available in the Djarindjin Centrelink agency, however this is provided for use of government services.

- + “[People] come and ask us in the office [to] use the computer. ... [I help them] check their emails and stuff because some haven't got phones to do that. [But] nobody can use the office [computers for personal use].” (Audrey Shadforth, Centrelink office worker/ resident, 2022)

Previously the Community Resource Centre (CRC), or telecentre, provided computer access, however the computers were removed in 2019 due to their age and concerns about young people using them to access inappropriate content. There is now one computer available in the CRC for community use.

- + “90% of [users of] the computers were kids [and search histories showed access of] porn sites. ... The computers weren't being used for what they were originally put there for, so I got rid of them. ... The world's changed ... now people have smart phones, they have iPads, and they have more accessibility to online content than what we did 10 years ago.” (Nathan McIvor, DAC CEO, 2022)

The CRC was re-purposed as a local enterprise facility, including a facility to print locally branded thongs, hats, t-shirts, and stickers, and a café. However, the closure of the CRC for computer access was described as a loss by some people:

- + We had the kids going there after school doing athletics [and] the adults [learning to do] Internet banking and Microsoft Word [to] write a letter ... but it's stopped. I don't know why.” (Natasha Fejo, Receptionist/digital support, Lombadina Clinic, 2022)



Figure 9: The CRC has been repurposed as a local enterprise printing facility with one community access computer.

The lack of computer access and dedicated digital support has led to increased pressure on staff in local agencies to provide support in using online services.

- + “[Many] don't have phones or Internet to download MyGov and then they struggle with the reading and understanding [of] questionnaires and stuff. [So people] come down here [for help].” (Natasha Fejo, Receptionist/digital support, Lombadina Clinic, 2022)

There are plans to set up a new training centre in Djarindjin to deliver Bardi language courses and the Choosing Your Way literacy, learning, numeracy and digital skills training, however the site is yet to be

finalised. In the interim, weekly Bardi Language courses have been delivered in the DAC conference room since August 2022.

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## Use of Digital Tools for Workplace Learning

Digital skills are increasingly needed for many jobs, even in remote communities such as Djarindjin and Lombadina, where local tourism and enterprises provide an opportunity for employment. The School has been delivering digital and spreadsheet training, which has helped prepare students for local jobs:

- + “Having digital [skills] is really important [to] know how to make bookings, [to] read the weather and all those sorts of things that are aligned to their jobs. [Our former students] now work on various financial spreadsheets [and] pay all the bills in the school. [A former student now works with] the garage and community office [where she is] paying all the bills.” (Sharon Leray, Principal, Christ the King School 2022)

DAC have established an innovative adult literacy, learning, numeracy and digital skills program called Choosing Your Way, with Federal Government funding<sup>4</sup>. This involves using digital applications, including Virtual Reality (VR) technology, to train people how to do specific tasks needed for local jobs. DAC are working with Murdoch University and Trainwest to develop individual learning programs. A company in Perth called Sentient have developed a training program using the VR technology, with self-paced learning modules for workplace tasks such as helicopter re-fuelling, vehicle servicing, stocking shelves and pricing goods in the store.

- + “[If they are] interested in working at the airport and ... become a refueler, we can [use] the VR technology [to outline the role and teach the skills needed]. ... then when we move you over to the airport, you’ll have a very good idea of how it’s actually done.” (Nathan McIvor, DAC CEO, 2022)

DAC has eight VR goggles for self-paced learning. A Choosing Your Way mobile app was also in development by Blue Sky Labs in Perth. DAC are also planning to establish a training centre for delivery of adult learning and digital skills and support people to develop specific workplace skills as well as the technology needed for roles.

There were concerns raised that some people, particularly elders, prefer a face-to-face delivery mode for literacy and numeracy training, and that residents may not be aware of the support available.

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## Online platforms are being used for Board papers and records

In 2019, DAC moved away from printing Board documents to using an online platform called Diligent to distribute Board papers such as Minutes, agendas and other documents. This has helped reduce Board papers from up to 400 pages per Board member each month. The Directors have been trained in using the app on an iPad to access and read the Board papers.

- + “So all our Board minutes, agendas, attachments, everything is all online or on the iPad, and [Directors] have the capacity [to] mark their own Board papers if they need to. ... it’s probably been the single-most beneficial thing for the organisation because it cut down on so much administration [and photocopying and paper] that we were using.” (Nathan McIvor, DAC CEO, 2022)

As digital literacy is not as high for some elders, the use of this technology may be challenging for some people. We will aim to seek feedback from Directors about use of the platform in subsequent visits.

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<sup>4</sup> See Delivery model at: [www.djarindjin.org.au/wp-content/uploads/2021/07/0621-Milestone-3a-Pilot-Delivery-Model-for-Choosing-Your-Way-FINAL.pdf](http://www.djarindjin.org.au/wp-content/uploads/2021/07/0621-Milestone-3a-Pilot-Delivery-Model-for-Choosing-Your-Way-FINAL.pdf)

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## Social media is a primary means of communication

There was very little use of email other than for workplace communications. Beyond voice and text communications. Facebook and other social media platforms are used as a primary mode of communications with friends and family, accessing news and information and sharing updates.



“They say if you’re wanting to know anything or want to know what’s going on in the communities, just look on Facebook. ... The younger ones use Tik Tok, the older ones use Facebook. ... [If] you can’t get in contact with that person [you] just look on Facebook, search his name up, you’ll know where she is, or he [and you can message them].”

- Audrey Shadforth, Centrelink office worker/ resident, 2022

Organisations such as DAC are using social media to promote their activities and enterprises. Digital communication is an emerging area for skills development and employment with local organisations.

Regional media organisation PAKAM have a high Facebook following from across the region. They use their Facebook page to share language, culture and land management stories from across the region, promote their radio, music recording and ICTV programming, and share details of upcoming community events or programs.

- + “We’ve got over 2,000 followers [and get lots of] feedback on posts. ... [Our] three platforms, [radio], community TV and social media all support each other.” (Neil Turner, General Manager, PAKAM, 2022)

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## Cyber safety and scams a significant concern, with training and awareness required

Interviewees described a range of cyber-safety issues prevalent in the region from online bullying and harassment, access to inappropriate content, scams and social media comments leading to family disputes. Some people described the impact of inappropriate use of social media:

- + “[People say a] lot of things [on Facebook]. ... It’s a bad thing for us. ... There’s trouble yeah.” (Audrey Shadforth, Centrelink office worker/ resident, 2022)

Our survey found a moderate level of cyber-safety awareness among respondents. Most people know how to set and manage secure passwords (66% said ‘very true’ or ‘mostly true’), identify which apps/software are safe to download (65%), adjust privacy settings (61%), manage and decide what personal information to share online (61%), and check if information was trustworthy (61%).

There is a high level of sharing of mobile phones and devices within families. As mobile devices are typically used to store personal information such as bank account details, this can lead to the potential risk of another person accessing someone’s bank account and transferring funds.

Scam calls, texts and online messages are becoming more commonplace, with limited awareness in the community of how to discern and avoid them.

- + “Scams are common experiences for people in this area these days, you wouldn’t have thought of a few years back. ... We hear anecdotal stories of romance scams or finance scams, funeral fund scams and so on that really impact our communities.” (Neil Turner, General Manager, PAKAM, 2022)

While the school is providing cyber-safety awareness within the school, there were calls for this to be available more broadly to the community.



“What we find is that the children up here have access to a mobile phone at a very, very early age and they're not monitored. And so they're watching a lot of things that they shouldn't be watching. ... [We've seen] a lot of bullying going on and trolling and all that sort of thing. ... More education about digital citizenship and cyber safety [is needed across the community].”

- Sharon Leray, Principal, Christ the King School 2022

## Local Digital Media Content Production, Archiving and Sharing

### Demand for digital language and cultural production for language and cultural maintenance

With elders concerned about growing cultural and language loss, there is some demand for language and cultural recording projects.

The school are coordinating some media production with visiting youth programs:

- + “We make lots of movies here at the school about Bardi culture, and we published some of them on our web page. ... And we often have people coming up filming and doing songs [and video clips] with us. ... [Our students] do a lot of media work [and learn about] how to create news ... print [and] advertising, those sorts of things.”  
(Sharon Leray, Principal, Christ the King School 2022)

There are a number of cultural organisations in the Kimberley region undertaking cultural heritage, recording and archiving activities including Kimberley Aboriginal Law and Cultural Centre (KALACC), KLRC (Kimberley Language Resource Centre), Goolarri Media Enterprises and PAKAM, who have a strong history of producing language and cultural heritage videos and radio content across the Kimberley region.

- + “We've recorded a Mowanjum Arts Festival for many years [and] anniversary celebrations for Mangkatja Arts and Warmun Arts and so on. [We made two major] Songlines on Screen productions, one south of Balgo, Djawa Djawa, and the other one, eastern into Punmu there, Niminjarra, [which] got a national audience. ... Through the ICTV bedtime stories commissions, we've been able to record five stories in the first round, five in the second in the languages of the Pilbara and the Kimberley. ... [On] radio, we've got words of the day going for Ngulju and Yawuru and Yalmajarri and the like, but ... because our audience area covers so many different language groups, it's not really practical to [do regular] language radio programming.” (Neil Turner, General Manager, PAKAM, 2022)

PAKAM are committed to creating more language and cultural content across the region for radio and television, including in Djarindjin and Lombadina. This includes historical stories, including archival content, to educate students about Australian's colonial history. PAKAM Manager Neil Turner believes that an important role of First nations media is truth-telling in an era of change, with a proposed Voice to Parliament and Makarrata (truth-telling) about our history, as well as a Treaty process underway in SA and Victoria. PAKAM is also looking into creating podcasts and radio documentaries to provide more in-depth stories for radio that can be shared online, archived and have a longer life than live radio shows.

## 5. CONSIDERATIONS FOR LOCAL DIGITAL INCLUSION PLAN

Djarindjin and Lombadina communities are already very proactive in advocating and developing local strategies to address communications and digital inclusion needs, as outlined in sections 3 and 4. However, developing a local Digital Inclusion Plan enables a coordinated whole-of-community approach to address unmet challenges outlined in this report. It also provides a tool for advocacy to government and industry, and fundraising efforts.

Strategies proposed during community and agency consultations are outlined below to assist community stakeholders in planning efforts to improve communications services and digital inclusion in Djarindjin and Lombadina. These are not intended to be prescriptive, nor are they listed in order of priority.

Identified Issue	Possible Actions	Potential Stakeholders
<b>Access</b>		
Ongoing need for Wi-Fi access beyond 4G installation	<p>Continue provision of free Wi-Fi and computer services at DAC and LAC offices to provide affordable basic access to online services.</p> <p>Review dates for government subsidy of NBN Communities in Isolation service at LAC office (likely to June 2024) and plan for continuation for service beyond then.</p>	DAC, LAC, NBN
Demand for online computers (beyond Centrelink office computer) to support diverse community needs.	<p>Review computer access and digital learning needs. Our research identified a diverse range of needs for access to online computers and IT equipment (printer, videoconferencing equipment, scanner etc). These include digital skills development (especially for elders), cyber-safety awareness, workplace skills, personal internet use and online services, youth activities and games, research and remote learning, meetings, small enterprise, creative/ cultural media production and archive access.</p> <p>Review options of suitable spaces for computer access and support where needed to meet the range of identified needs. (Note: DAC has plans for establishing a training centre, including with computers and VR equipment for workplace training. The CRC may have capacity to address some of these needs.)</p>	DAC, LAC
Need for fast, low latency broadband for some community facilities, services and enterprises.	Consider trial of Starlink or other low earth orbit satellite services for facilities that are not currently supported by a suitable broadband connection (i.e. fibre optic to DAC office, NBN Sky Muster or 4G broadband)	DAC, LAC

Identified Issue	Possible Actions	Potential Stakeholders
<b>Affordability</b>		
Primary use of pre-paid for data, leading to high household cost; limited awareness of new mobile or satellite plan options.	Provide easy-to-read materials in store (posters, brochures) and radio messages outlining options for more affordable mobile and data services via Telstra and NBN fixed line retail service providers.	Telstra, NBN retail service providers
<b>Digital Ability</b>		
Mentor support for use of government and online services when needed (currently provided unfunded by DAC and local agencies).	Employment of a digital mentor, possibly based at Centrelink office or CRC, to support people to use government, banking and online services and apps, phone SIM activation/recharge, ID requirements etc.	DAC, DHS / Centrelink, CRC
Demand for basic digital skills training (computer/keyboard skills, online services, use of mobile phones and apps).	Incorporate digital skills training into workforce readiness training and on-the-job training by local agencies as needed	CDRC, DHS / Centrelink, Charles Darwin University, Batchelor Institute, employer agencies
Concerns around cyber-safety issues, especially scams/fraud, cyber-bullying, misinformation on social media.	Run culturally informed and targeted cyber-safety awareness campaign (including on radio and social media, in schools, and for elders).	DAC, LAC, PAKAM, inDigiMOB, Office of eSafety
<b>Media Services and Production</b>		
VAST direct-to-home satellite TV services not working in about 18% of homes; high cost for households to repair VAST equipment and replace set-top boxes.	Advocate for funding to upgrade or install VAST satellite services and/or replace VAST set-top boxes in homes where not working; Install shelf unit and surge protectors for set-top boxes.  <u>OR</u> Consider cost-benefit of switching to local broadcast of TV services (16 Freeview channels plus ICTV), to improve reliability and reduce ongoing maintenance costs.	DAC, LAC, Australian Government (DITRDCA), PAKAM
Interest in digital media production, music recording.	Explore opportunities for continued development of digital media and music production beyond school-based learning and projects.	DAC, PAKAM, Christ the King School
Interest in having access to locally relevant media and archival content.	Establish a computer or sharing platform to access and contribute locally relevant media content, archival records (including PAKAM Mukurtu collection) and local photos, stories and oral histories.	DAC, LAC, PAKAM, KALACC, KLRC

## Appendix 1: Summary of Survey results

The following results are based on the initial analysis of surveys with 95 residents of Djarindjin and Lombadina communities, of which 96% identified as Aboriginal and/or Torres Strait Islander.

As outlined in the Executive Summary the final survey results, after data cleaning and weighing against ABS statistics, may differ slightly from these results. The authoritative results will be available via the Australian Digital Inclusion Index website and data dashboards in mid 2023.

### Demographics

- + **Gender:** 56% of respondents were female and 43% male.
- + **Education:** 21% have completed up to year 12, 9% have completed a Certificate course, 2% have attained a Diploma, 3% have a postgraduate degree, and 40% attained year 10 or lower.
- + **Employment:** 58% of respondents were employed or engaged in CDP activities (60% of these full-time), and 25% were unemployed. 31% had been looking for work in the last month.
- + **Welfare:** 55% received some form of government pension or benefit, primarily Family Tax Benefit Part A or Part B, JobSeeker/ Youth Allowance, the Pensioner Concession Card, and Healthcare Card.
- + **Housing:** 37% live in a single person household, 36% live in a double or single parent family, and 16% live in multi-generational or shared households, with an average of 4.2 people per house. 59% of respondents said they pay rent to the public housing authority, 20% board or live at home, and 16% rent privately.
- + **Health:** 19% had a long-term disability or health condition.
- + **Language:** 61% indicated they spoke a language other than English at home. 67% of respondents speak Bardi and 15% speak Kriol, with 3 other languages spoken (Gooniyandi, Ngarluma and Nyul Nyul). 17% (16 people) did not speak any ATSI languages. Most respondents indicated they understand written English (97%) and spoken English (98%) very or quite well.
- + **Income:** Of the 93 responses on income, the average weekly household income was about \$700. 54% of respondents' household income was between \$1 to \$400 per week, 14% between \$400 to \$1000 per week, 18% between \$1000-1750 per week, and 10% between \$1750-4000 per week.

### Phone use

- + **Phone Use:** 82% of respondents regularly used their mobile phone for phone calls, with 14% using someone else's mobile phone. 11% used the public phone, 12% use the phone at a community office or workplace, and 9% use the fixed line telephone in their home.

**56%**

female respondents

**58%**

Employed or engaged in CDP activities

**60%**

Of employed respondents work full-time

**91%**

Own or share a mobile phone

**\$164**

Average monthly household mobile expenditure

**45%**

Listen to PAKAM Radio daily or weekly

**42%**

Get news and information direct and in person daily

**43%**

Get emergency information from ABC Radio

- + **Public Phone:** 36% said the public phone was reliable, 24% said that it was sometimes reliable, and 12% said it was not reliable. 28% of respondents do not use the public phone.
- + **Phone ownership:** 91% (86 of 95 people) of respondents said they owned a mobile phone (with one of these shared with others). Of the 86 people with phones, 91% had smartphones as their main mobile phone, and 86% used pre-paid services. There is an average 3.2 mobile phone services per household.
- + **Data use:** Of the 85 responses on data use, the average monthly data allowances were: 39% used between 1-5GB/month, 14% used 6-10GB/month, 21% used 11-40GB/ month, 8% used 41-100GB/ month, with four above 100GB, two unlimited, and 5% (five people) reporting using no data. However, 52% reported exceeding their data limit up to five times over the past year, and 26% reported exceeding their limit between 6-12 times, suggesting that data use is higher.
- + **Household Expenditure:** Of the 87 responses on household mobile expenditure, the average household cost was \$164/month. 29% of respondents indicated their household paid up to \$100/month, 45% paid \$101 - \$200/month, 17% paid \$201-300/month, and 9% paid over \$301/month.

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## Media use

- + **Radio Listening:** The most popular radio station was PAKAM Radio, with 45% listening to it daily or weekly and 25% listening to it occasionally. 38% listened to ABC radio daily or weekly, 35% listened to commercial radio, and 34% listened to general community radio. 15% said they never listen to radio.
- + **Radio Access** (multi-choice question): The most common way to listen to radio was through the car radio (56%), with 26% listening on a radio at home, 17% listening through their TV via VAST satellite dish, and 17% streaming via phone or tablet.
- + **TV Access** (multi-choice question): 65% of respondents reported watching TV via VAST satellite, 33% reported using streamed services on their phones, 22% watch broadcast TV via TV antenna, and 15% use subscription satellite TV services. 5% (five people) reported never watching TV.
- + **VAST TV Access:** 82% of respondents reported having VAST satellite TV working, with 18% saying the VAST wasn't working (15%) or their household did not have VAST (3%). Of those that reported the VAST not working (multi-choice question), 64% said it was because the set-top box was not working, and 43% due to a damaged dish or cabling.
- + **TV and Online Content:** Streaming services were most popular (e.g. Netflix, Stan, etc. - 50% watch daily, 11% weekly), followed by commercial television stations (7,9,10 - 48% watch daily, 9% weekly), YouTube (46% daily, 15% weekly), ABC TV (43% daily, 12% weekly), NITV (38% daily, 13% weekly), ICTV (38% daily, 11% weekly), and SBS TV (36% daily, 8% weekly).
- + **News and Information Services:** The most popular source of news and information were direct and in person (42% daily), Facebook (40%), ABC TV (32%) commercial TV (32%), NITV (29%), ICTV (28%), online news services (28%) and noticeboards/poster (20%).
- + **Emergency Information:** The most common sources of emergency information were ABC Radio (43%), Facebook (41%), ABC TV (36%), and direct and in-person (33%).

## Internet use

- + **Latest Internet Use:** 80% (76 of 95 people) had used the Internet in the last week, with an additional 9% having used it within the previous three months (7% in last month, 2% in last three months). One (1%) used the internet more than six months ago and nine respondents (9%) had never used the Internet.
- + **Regular Internet Users:** Of the 89% (85 people) who had used the Internet within the last three months:
  - o 52% said they used the Internet almost constantly, another 29% several times a day, 6% once a day, and 5% using it at least once a week.
  - o The most common online device used is the smartphone (92%), followed by the smart TV (34%), desktop computer (32%), laptop (26%), and tablet (24%).
  - o Many people use Internet provided by others, with 48% reporting using the Internet in their place of work or education, 41% at the house of friends or family, 21% in a public space with free Wi-Fi (provided at DAC office/store), and 16% at a community or Shire office.
  - o The main reason people gave for not using the Internet more often were 'I do not need to use the internet more often' (45%), followed by 'the internet is too expensive for me' (25%), 'I am not confident using the internet' (15%) and 'I do not have convenient access to the internet' (14%).
  - o There was a broad range of concern about time spent online, with 16% of respondents extremely concerned about how their time spent online affected their wellbeing and relationships, 14% moderately concerned, 35% slightly concerned, and 28% not at all concerned.
- + **Low Internet Users:** The 10 people who never or rarely used the Internet cited simply not needing to (50%), concerns around privacy and scams (40%), not prioritizing it (40%), low confidence (30%), and cost (30%) as their main reasons for not using the Internet. Only one respondent had considered using the Internet since social and physical distancing restrictions were introduced due to COVID.
- + **Impact of COVID-19 on Use:** COVID-19 restrictions had an impact on internet use, with the main reasons for increased Internet use being lockdowns (61% of respondents reported slight to significant increase), working from home (59%), social/physical distancing restrictions (58%), and proof of vaccination requirements (58%).
- + **Fixed Broadband Services:** 89% of respondents do not have any form of fixed home Internet, with 11% using NBN Sky Muster.
- + **Mobile Broadband Service:** 23% of respondents used portable 4G modem/devices for data sharing. 91% of these were pre-paid services, with 9% post-paid, and 69% used up to 10GB per month.



# 80%

Of survey respondents used the Internet in the past week



# 9%

Never use the Internet



# 45%

Of regular users gave the reason "I do not need to use the Internet more often" for not using the Internet more



# 25%

Of regular users gave the reason "the internet is too expensive for me"



# 89%

Of households do not have any form of fixed home Internet



# 66%

Can send and receive emails



# 81%

Use online banking

- + **Affordability of Internet:** 42% of respondents said that they sometimes have had to cut back on essential household costs (and 21% always or often) in order to afford personal or household Internet within the past six months, with 63% compromising on speed and/or quality on their connection to prioritise affordability.

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## Digital Ability

- + **Overall Digital Ability:** Digital literacy is at moderate level in the community.
- + **Regular Internet Users:** Of the 89% (85 out of 95 people) who had used the Internet within the last three months:
  - o Most people reported being able to send and receive emails (66% said 'very true' or 'mostly true'), find and install apps/software (67%), open a new Internet browser tab (65%), connect to a Wi-Fi network (69%), download and then open a file (67%), use a mobile phone or device as a Wi-Fi hotspot (68%), and complete online forms (67%).
  - o For online security and cyber-safety awareness, most people know how to set and manage secure passwords (66%), identify which apps/software are safe to download (65%), adjust privacy settings (61%), add or remove friends or followers on social media (61%) manage and decide what personal information to share online (61%), and check if information was trustworthy (61%) though there was slightly lower confidence in managing how personal information was collected (55%)
  - o For content creation – 56% are confident in posting videos, 39% in producing online content, and 34% know how to create a website. There is low awareness of online copyright law (42%).
  - o Most people know how to connect smart devices (e.g. smart TV) to the Internet (59%) and half know how to adjust privacy and security settings (48%).
  - o The main online activities include online banking (81%), accessing government services (78%), online buying or selling (e.g., through Amazon, eBay, Gumtree – 74%), online shopping (73%), parcel tracking (72%), comparing prices (71%), and accessing health information (67%).
  - o Social media is popular for keeping in touch with family or friends (75%), engaging with community (74%), meeting new friends or reconnecting with old friends online (72%), as well as engaging with clubs, organisations and/or groups (59%).
  - o 74% of respondents had used online entertainment services in the past six months (e.g. streaming video/music, playing online games) and 49% had attended a music, arts, or cultural event online.
  - o In the past 6 months, 69% had navigated a route via maps on a smartphone.

## Comments

- + Need faster and cheaper internet.
- + Internet is very poor, struggle to get service.
- + We need better mobile. We have to go outside to make a call. We need access to unlimited data. Sky muster is too limited.
- + It's hard to get mobile signal. We need to sit outside. We need some more training and support.
- + We need better internet access for streaming and accessing services.
- + I would like some help to use the internet.
- + Need good mobile coverage in Djarindjin.
- + Need good mobile coverage. Phone doesn't work inside house.
- + Would be good to get local radio broadcaster back again.
- + Internet here is unreliable and frustratingly slow.
- + Need more computers in the CRC for community access.
- + Would be good to get local radio going again.



We don't have reception inside the house. People can't contact us when we're inside the house. We need unlimited data services available.



Need better mobile reception here, always plays up. Sky muster drops out in wet season, we need the fibre to get our internet. We need it for emergencies.



Hopefully the new 4G tower will improve mobile reception. We have to go outside. In wet season we lose all services, satellite and mobile.



Figure 10: The 3G/4G macro-cell mobile tower is located near Cape Leveque Rd, 3.6km south of Djarindjin, however coverage is patchy within Djarindjin and Lombadina.

## Appendix 2: Audit of demographics and communications services in Djarindjin/ Lombadina

About the Community	
Community Name:	Djarindjin and Lombadina communities
Alternate name	N/A
Traditional owners/ Language group	Goolarrgoon people of the Bardi country, and Bard people in Lombadina
Location (Coords)	16.51 degrees South 122.89 degrees East
Region	Dampier Peninsula, Kimberleys
LGA/Shire/ Regional Council	Broome
Land Council	Kimberley Land Council
Regional Service Centre, distance	Broome - 196km south
Remoteness (ABS / ARIA+)	Very remote
Demographic Data - ABS 2021	
ABS link - All persons QuickStats	<a href="https://www.abs.gov.au/census/find-census-data/quickstats/2021/UCL522020">https://www.abs.gov.au/census/find-census-data/quickstats/2021/UCL522020</a>
ABS link - Aboriginal and/or Torres Strait Islander people QuickStats	<a href="https://abs.gov.au/census/find-census-data/quickstats/2021/ILOC50100208">https://abs.gov.au/census/find-census-data/quickstats/2021/ILOC50100208</a>
Total population	253
Aboriginal and/or Torres Strait Islander (ATSI) population	81.4% (plus 7.5% not stated)
Gender breakdown	49.6% male, 50.4% female.
Total population	29 (25 for ATSI population); Children aged 0 - 14 years made up 27.8% of the population and people aged 65 years and over made up 4.0% of the population.
Families	61; Average children per family -2.1 for families with children, 1.3 for for all households
Language group- number of first language speakers	Bardi - 78 (37.9%); Karajarri - 4 (1.9%); Kriol - 3 (1.5%); Other - 3 (1.5%)
% ATSI people who speak an ATSI language	43.2%
% who speak only English at home	53.4%
Employment levels	60 people were working, including 40 ATSI people, with 52% (31) employed full time, 40% (24) employed part-time. 39 people were unemployed.
Education levels	In Djarindjin - Lombadina, 20.1% of people were attending a school or educational institution. Educational attainment was: Bachelor Degree level and above - 2.9%; Certificate level III- 10%; Year 12 - 13.6%; Year 11 - 25%; Year 10 - 27.1%; Year 9 or below - 14.2%
Number of buildings	111 private dwellings, 65 ATSI residential households; Average people per household - 3.1 (3.3 for ATSI households);

Housing suitability	Average 1.0 person per bedroom
Median ATSI household income	\$1100 (\$1028 for ATSI households)
Median personal income - over 15 year	388 (\$360 for ATSI people)
Average weekly rent	125 (\$120 for ATSI households)
Average motor vehicles per dwelling	1.1
<b>Community Services and Plans</b>	
Community Layout Plan	Photo taken - ask for PDF
Agencies in community	Christ the King Catholic School, Lombadina Clinic, Nirrumbuk Environmental Health Services, Bardi Jawi Rangers, Dampier Peninsula Police Station, Djarindjin Safe House, Djarindjin Aboriginal Corporation (runs Djarindjin Roadhouse, Djarindjin Store, Airport, campground, Community Resource Centre etc), cultural tours
Visiting agencies	WA Government agencies, Kimberley Aboriginal Medical Service, Kimberley Land Council, Water Corporation, Horizon Power,
Community Development Plan	In development; currently part of Dampier Peninsula Planning Strategy 2015
Power supply/type in community	Diesel generator, with solar panels on roadhouse; backup generator for roadhouse and police station.
Use of power cards in households- monthly expenditure	Yes
Basics card site?	Yes. About 50% of Centrelink income goes into basics card.
<b>Types of Communications Available</b>	
Public phones- number/ location	4? (3 working)
Home phones- number	No data
Mobile - 3G, 4G, 5G, small cell (satellite backhaul), provider, location of base station	4G macro cell tower on Cape Leveque Rd, 3.6km south of Djarindjin; new 4G 700Mhz small cell being installed in community June 2022
Coverage description	Poor signal strength, patchy coverage, and reports of congestion and regular dropouts at time of visit.
ADSL- number of connections	No data
Business grade services - number of connections	Christ the King School and the Multi-Function police facility have fibre optic connections; Djarindjin A.C. office were having fibre optic connection installed at time of visit
Fibre to community	Yes
Satellite services - number, locations, provider	All local agencies (DACoffice, Roadhouse, Lombadina clinic, Lombadina office) and most staff houses have Sky Muster services. Our survey found about 11% of residential houses have Sky Muster services.
UHF or HF Radio	HF radio is used by emergency services and police. No information on use of UHF radio.

<b>Status of services- faults, issues, speeds during peak use time etc</b>	No data, however there were reports of recent network outages, with regular mobile service outages.
<b>Communications Programs - Mobile Black Spots, Regional Connectivity Program, ICP, etc</b>	Regional Connectivity Program funding for 4G mobile small cell tower; Small cell was funded by WA Government and Kimberley
<b>Any planned upgrades?</b>	New 4G small cell being installed in June 2022; Fibre optic connection to DAC office in progress.
<b>Emergency information system</b>	Emergency services managed by SES, with a dedicated communications box located within the Leveque macro call compound
<b>Telemetry network</b>	Monitoring of water tanks, power generator and other services by Power Water WA; remote monitoring system installed in RIBS by PAKAM in June 2022
<b>Media Services Available</b>	
<b>Radio services broadcast- AM or FM</b>	ABC Radio, PAKAM Radio
<b>TV services -local broadcast, number of DTH services, number working</b>	VAST DTH only
<b>RIBS radio station- location, staff, roles</b>	Located in community office, not currently staffed
<b>RIMO- regional provider</b>	PAKAM
<b>Other media services- newspaper etc</b>	None
<b>Community Access Facilities</b>	
<b>Internet access facility- where located, number of computers, server, printers, other facilities, videoconferencing</b>	Computer in Centrelink office for use of government services and banking; CRC no longer providing community access computers. Videoconferencing in community meeting room.
<b>Public Wi-Fi availability, free or voucher system, agency, RSP, monthly download limit</b>	DAC office have public Wi-Fi available 6am to 6pm weekdays; Lombadina has public NBN Wi-Fi available at community office.
<b>Access computers available in other facilities - art centres, store, community office, youth centre etc</b>	None identified
<b>Any programs running to support community access- provider</b>	Not currently; Djarindjin AC planning to set up a training centre for literacy and digital skills training
<b>Digital Training/ Support</b>	
<b>Any staff/ resources to support digital skills or access to online or digital services</b>	Centrelink and clinic staff provide support with use of online services, ID etc
<b>Any workplace digital skills training - rangers, art centre, media, store etc</b>	DAC have developed an adult literacy, learning, numeracy and digital skills (LLND) program called Choosing Your Way, with learning program developed by Murdoch University and @Agenda Communication.

## Appendix 3: Photos of Research Activities



Figures 11 and 12: Lombadina community office; Julian Thomas with Bernadette Angus, co-researcher Audrey Shadforth, and resident Taminya Councillor



Figures 13 and 14: Daniel doing survey with Taminya Councillor; Sarah Ougham doing survey with Audrey Shadforth in the Centrelink office.



Figures 15 and 16: Sky Muster dishes on roof of DAC office with RIBS broadcast tower and satellite dish; Djarindjin Roadhouse and newly opened campground.



Figures 17 and 18: Julian using the public phone near the DAC community office; Yellow markers indicate the location of the fibre optic cable running alongside the Cape Leveque Road.