

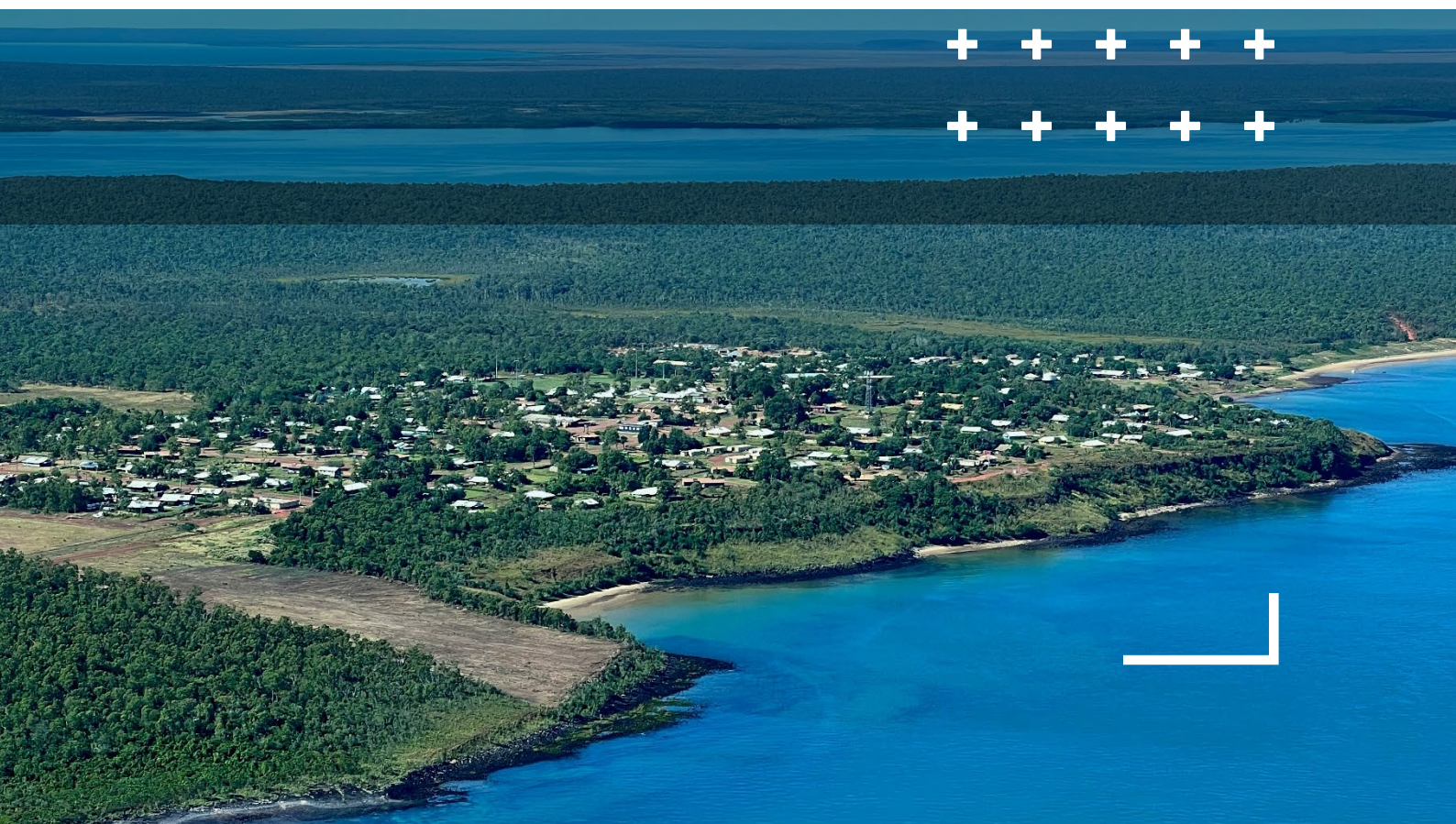
December 2022



MAPPING THE DIGITAL GAP

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

+ + + + +
+ + + **GALIWIN'KU, EAST ARNHEM LAND NT**
+ + + **COMMUNITY OUTCOMES REPORT 2022**



Acknowledgement of Country

We respectfully acknowledge the Yolŋu (Djambarrpuyŋu, Gupapuyŋu, Djinang) 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 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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The 'Mapping the Digital Gap' project received funding support from Telstra and the Australian Research Council Centre of Excellence for Automated Decision-Making and Society (CE200100005).

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Suggested citation: Featherstone, D, Ormond-Parker, L, Holcombe-James, I, Hawkins, L, Bukulatjpi, Y, Bukulatjpi, C, Thomas, J & Kennedy, J (2022) Mapping the Digital Gap: Galiwin'ku, East Arnhem Land NT Community Outcomes report 2022. ARC Centre of Excellence for Automated Decision Making and Society: RMIT University, Melbourne. DOI: 10.25916/vjtt-mb25

Acknowledgements

We would like to thank the following key contributors to this research:

Community Research Partner

Yalu Aboriginal Corporation

yalu.org.au

Community Co-Researchers

James Bayung

Yungirrŋa Bukulatjpi

Cyril Bukulatjpi

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 46 community residents surveyed, we undertook 5 interviews with local residents and 11 interviews with stakeholder agencies including:

- + East Arnhem Regional Council
- + Marthakal Homelands Resource Centre
- + Yalu
- + ALPA (Arnhem Land Progress Association) Community Development Program (CDP)
- + ALPA Higher Educations
- + Connected Beginnings, Shepherdson College
- + Elcho Island Arts
- + East Arnhem Real Estate

Research trip dates:

Galiwin'ku 16- 20 May 2022

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CONTENTS

1.	Executive Summary	4
	Key Findings	5
	What is Digital Inclusion? How is it measured?	8
2.	Introduction	9
3.	Media & Communications in Galiwin'ku	14
	Existing Telecommunications Services.....	14
	Media Services	15
	Access and Support Facilities	15
4.	Communications in the Marthakal Homelands	16
5.	Key Findings	20
	Communications Access.....	20
	Access to IT devices, Wi-Fi or shared facilities	25
	Service Delivery and Use of Online Services	26
	Access to media and new services	30
	Affordability	33
	Digital Ability.....	34
	Local Digital Media Content Production, Archiving and Sharing.....	39
6.	Case Study – Impact of Vast TV Services Not Working	41
7.	Considerations for Local Digital Inclusion Plan	44
	Appendix 1: Summary of Survey results	47
	Appendix 2: Community Communications Audit	52
	Appendix 3: Galiwin'ku layout map and Marthakal homelands	56
	Appendix 4: Photos of Research Activities	57

1. EXECUTIVE SUMMARY

Galiwin'ku is the largest Yolŋu community in the East Arnhem region. It is located on the southern end of Elcho Island approximately 550km northeast from Darwin and 150km west of Nhulunbuy. Elcho Island is at the south end of the Wessel Island group with the Arafura Sea to the west and the Cadell Strait to the east. While there are many traditional homelands on Elcho Island, the settlement of Galiwin'ku community was initially established during World War II in 1942 as a refuge from possible bombing of the Milingimbi Royal Australian Air Force Base. In 1947, a mission was established in the Galiwin'ku community.

The Yolŋu traditional owners are the Djambarrpuyŋu, Gupapuyŋu and Djinang people, however there are a number of other clan groups also living in Galiwin'ku¹. Yolŋu Matha is the primary language in Galiwin'ku, with up to 12 dialects spoken in the community, including Djambarrpuyŋu (81.6%), Galpu (1.5%), Gumatj (0.8%), Warramiri (0.6%) (Australian Bureau of Statistics, 2021). Galiwin'ku's population is 2,199 with 92.2% of the population identifying as Aboriginal and/or Torres Strait Islander people (ABS, 2021). Galiwin'ku is also home to the Marthakal Homeland and Resource Centre and Marthakal health service, which supports 30 homelands throughout the Marthakal region, including 14 homelands located on Elcho Island.

Our first research visit to Galiwin'ku was undertaken from 16th to 20th May 2022. The team worked with community research partner Yalu Aboriginal Corporation (Yalu) and co-researchers Yunggirrŋa Bukulatjpi, James Bayung, and Cyril Bukulatjpi, with support from Alice McCarthy. The team had a highly productive week engaging with local residents and agencies about telecommunications use, digital inclusion, and media use in Galiwin'ku and the Marthakal homelands located on Elcho Island. We thank all residents and agency staff who participated in the research and made us feel very welcome.

Based on 46 surveys and 16 interviews with residents and stakeholders, this report outlines the findings from our initial visit and highlights the current access and use of media, communications and online services and the digital inclusion challenges in Galiwin'ku and the Marthakal homelands on Elcho Island.

This report is intended to assist local and regional agencies, including Yalu, East Arnhem Regional Council (EARC) and Northern Land Council, to better understand the key barriers to digital inclusion in Galiwin'ku. It is designed to provide a basis for a local digital inclusion plan through assisting in identifying infrastructure and program needs to enable a targeted approach for advocacy with government and industry stakeholders. The report will be updated following research visits in 2023 and 2024.

This report is also part of our commitment to Indigenous data sovereignty, to ensure data collected and research findings from this project are available to the participating communities to use for their own analysis, planning and advocacy. Please note that, in line with our commitment to Indigenous data sovereignty, this report provides initial findings from the raw survey data collected during our fieldwork. It is likely that, following data cleaning and weighting, the final results may differ from that presented here. All Mapping the Digital Gap survey results, including Galiwin'ku, will be made available via the Australian Digital Inclusion Index website and data dashboards, and it is this data that should be treated as authoritative.



46

surveys conducted



16

interviews conducted

(11 agency representatives and 5 community residents)

¹ Source: <https://www.eastarnhem.nt.gov.au/galiwinku-detailed>

Key Findings

The following key findings are based on initial analysis of surveys with 46 residents, of which 89% identified as Aboriginal and/or Torres Strait Islander, and 16 interviews with community leaders, elders, and service providers.

4G and ADSL services are highly congested for much of the day.

- The 4G mobile coverage in Galiwin'ku is highly congested, typically from mid-morning to midnight, making it difficult to make phone calls reliably or access Internet during those times.
- Most agencies use ADSL services for their primary internet, with some using Sky Muster as primary or backup service during periods of congestion. ADSL services are described as more reliable than 4G but still have high levels of congestion during peak hours, making high bandwidth applications such as videoconferencing, streaming and server access difficult. 4G is used for mobile communications but was described as less reliable during work hours than fixed phones.
- The congestion impacts significantly on service delivery, with agency staff reportedly having to complete online work (e.g. funding submissions, reporting, accounting) when Internet is available in the early hours of the morning.
- There were also reports of high levels of truancy attributed to young people staying up after midnight to watch online content and do online gaming. Following community complaints about regular and extended outages of up to two weeks in 2020-21, network reliability has improved, but there have been extended outages since our visit.
- 4G, ADSL, and phone communications are delivered via a microwave link connecting to the mainland Arnhem fibre network. Telstra plans to upgrade the Arnhem Fibre network in July 2023. While there is awareness of the need to upgrade the microwave link to Galiwin'ku (and three other island communities), there is no funding allocation for this as yet. There is no public plan to address congestion issues in the interim.

Residents and stakeholders are calling for expanded 4G coverage.

- There are calls for expanded 4G coverage to service the suburb of Buthan and the homelands within 3km of Galiwin'ku including Dhambala, Galawarra (Barge Landing), Dhudupu, and Ngayawilli.
- The planned switch-off of 3G mobile coverage in June 2024 is raising concerns that the mobile coverage available to some houses and homelands surrounding Galiwin'ku will be reduced.

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

- 76% of survey respondents indicated they used their own mobile phone for making phone calls. 22% of respondents said they use someone else's mobile phone.
- 76% of respondents said they owned or shared a mobile phone. 86% of those respondents using or sharing a mobile phone rely on pre-paid services.
- Only 4% of survey respondents had a fixed line home telephone.
- 7% of survey respondents said they had no phone access.
- There are about eight public phones in Galiwin'ku. 11% reported using the public phone regularly, with 50% using it at some time. 17% of all respondents said the public phones are reliable.

There is limited fixed line internet in households and lack of public Wi-Fi or computers.

- The vast majority (87%) of respondents surveyed do not have any form of fixed home Internet. 4% of respondents have NBN Sky Muster services and 4% have ADSL services. 9% make use of a post-paid portable 4G modem.
- The only free public Wi-Fi service available in Galiwin'ku is provided at the library building opposite the EARC office, with limited daily data use. During our visit, there were no public access computers available in the library.
- The Arnhem Land Progress Association (ALPA) Higher Education Centre near Buthan Store had two computers and a printer available for free public use.

Most households do not have free-to-air TV services working

- The only means of free-to-air TV access in Galiwin'ku is via Viewer Access Satellite Television (VAST) direct-to-home (DTH) satellite services².
- For 80% of respondents, the VAST TV service was not working at their house. Local agencies estimate that this figure is likely understating the extent of this problem, estimating that the VAST TV services do not work for up to 90% of Galiwin'ku households.
- For those survey respondents who reported that their VAST TV was not working, 58% said this was due to the set-top box not working. The cost of a replacement set-top box is up to \$600 at the local stores. 27% cited damage to the satellite dish or cabling. A common issue cited by interviewees is that removal of the smart card (e.g. by children) renders the set-top box non-functional. There is no coordinated maintenance program for VAST DTH services.
- With limited access to free-to-air TV services, residents are paying pre-paid data rates to access news, information, and entertainment online. Beyond affordability implications for individuals, this may also contribute to congestion on the 4G network.

There is a moderate level of Internet usage in Galiwin'ku, but nearly one quarter are non-users.

- 61% of survey respondents reported having used the Internet in the past week, with a further 17% having used it in the previous one to three months. 20% had never used the Internet.
- 78% of respondents had used the Internet within the last three months. Of those 78% of regular users:
 - 29% said they used the Internet almost constantly and another 26% several times a day.
 - 63% of respondents who have used Internet in the last three months use a smartphone for Internet access. By comparison, 26% reported using a desktop computer for Internet access.
 - 69% had accessed a government service online in the previous six months, 83% had used online banking or apps, and 51% had used the internet for learning or study.
 - 77% had used the Internet to keep in touch with family or friends in the previous six months, and 86% had used entertainment services (e.g., streaming video/music, playing online games).
 - 51% responded that the statement 'I know how to send and receive emails' is 'very true' of them (26% responded 'mostly true'); 60% chose 'very true' to the statement 'I know how to

² The VAST satellite platform provides access to the 16 Freeview channels as well as a range of other radio and TV services, including ICTV and First Nations radio services.

open a new internet browser tab' (20% 'mostly true'), and 43% chose 'very true' to 'I know how to complete online forms' (20% 'mostly true').

- The reasons given by low internet users —defined as those who do not use the internet at all (20%) and those who last used the internet more than six months ago (4%)—for not using the Internet was 'no convenient access' (82%), not needing to use it (56%); and 'too expensive' (56%).
- This low level of usage may be due to living outside 4G coverage areas (e.g. in Buthan or a homeland), and/or lack of accessible Internet for those with English as an additional language.

Affordability constrains Internet access and use of digital services.

- 43% of regular Internet users indicated the reason they do not use the Internet more often is because "The Internet is too expensive for me".
- 43% reported sacrificing on essential household costs, such as food and bills, to afford Internet access within the past six months, with 41% compromising on connection speed or quality to prioritise affordability.
- There is an average of 4.2 mobile phones per household. Of the 43 responses on household mobile expenditure, the average household cost for mobile phone services is \$214/month, with 40% paying over \$200/month.
- Those households with fixed broadband services are paying an average of \$71.50 per month.

The full survey results are available in Appendix 1. A detailed audit of community demographics, relevant information, and communications and media services available in Galiwin'ku at the time of this research is provided in Appendix 2.



Figure 1: Photo of research team - left to right: co-researcher James Bayung, Yalu Program Manager Alice McCarthy, co-researcher Yungirrŋa Bukulatjpi, Dr Lyndon Ormond-Parker (below), Dr Daniel Featherstone, and co-researcher Cyril Bukulatjpi.



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



Figure 2: Map of Galiwin'ku Community

While 4G and ADSL services are highly congested, upgrades may not come until 2025

The poor quality and unreliability of telecommunications services in Galiwin'ku has been identified as a critical issue by community leaders and stakeholder agencies over several years. Galiwin'ku receives a range of telecommunications services, from Telstra 3G and 4G mobile, fixed line telephony and ADSL, to NBN Sky Muster. Telstra services are delivered via a microwave link from the mainland, with backhaul via the 800km Arnhem Fibre Network, installed in 2009. However, significantly increased demand for data has led to a high level of congestion on the Telstra network, with residents and agency staff reporting difficulty in making phone calls and using the internet via the 4G network from mid-morning to late evening.



“The internet here in Galiwin'ku past 10am is hopeless. [It's] unfair and further marginalises people already living in an isolated community. You cannot look up information in an emergency. ... You cannot access internet banking or help people book flights out of the island. You cannot open emails or send them. ... Often there are unexplained internet outages.”

- Survey comment, anonymous

As the congestion issue also affects other East Arnhem communities on the Arnhem Fibre Network, Telstra and the Northern Territory Government have been working to address this issue through increasing the backhaul capacity with a network upgrade from 5Gbps to 100 Gbps capacity. This upgrade is due for completion by July 2023. Telstra is seeking funding to upgrade to the microwave link to Galiwin'ku after that upgrade is complete. There is currently no plan to address the congestion issue in the short term.

Outages have had significant impact in Galiwin'ku

Galiwin'ku has experienced several network outages in recent years, including an outage in 2020 that lasted 12 days. While network outages are impactful no matter where they occur, they have a particularly acute effect in remote communities, where the lack of alternate infrastructure can prevent use of mobile and fixed line communications, online services, EFTPOS, ATM and cloud-based systems. Following a series of extended Telstra outages in 2020 and 2021, community stakeholders have strongly advocated for the negative impact on residents and service provision with Telstra and the NT Government. Although residents and stakeholders interviewed for this research report improved reliability since, with fewer outages and for shorter periods, congestion issues continue.



“The lack of service significantly disadvantages the people of Galiwin'ku. Due to minimal to no service at times locals are not able to access the same opportunities as people in a regional or city space. For example, people cannot participate in furthering their education via remote learning classes as the service connection is just far too unreliable. This creates a significant gap for our community and deprives us of our right to strive for more for ourselves and our future.”

- *Survey comment, anonymous*

Most residents rely on mobile services for phone and Internet access, with limited home satellite use

Most Yolŋu people in Galiwin'ku are mobile-only users, with 76% of survey respondents using their own mobile phone for phone calls. The smartphone is also the primary means of internet access for 63% of respondents who are regular internet users. Only 4% of respondents had a fixed line phone in their home and 11% reported using the public phone regularly. Of about eight public phones remaining within the community, several were not working at the time of our visit. The high levels of reliance on mobile devices means many residents are dependent on the 4G network for their communications and access to online services.

Most residents surveyed (87%) do not have any form of fixed home Internet. Beyond 4G mobile, the Internet options in Galiwin'ku are ADSL, NBN Sky Muster satellite and Starlink (available post-visit since November 2022), all of which are only available as post-paid billed services. Despite the issues with 4G coverage described above, only 4% of survey respondents had Sky Muster services. Most agency staff reported having either Sky Muster or ADSL services or both at work, with Sky Muster more common for home connectivity.

Galiwin'ku is affected by monsoonal weather conditions for up to 5 months each year (typically December to April). Heavy cloud or rain can result in 'rain fade' that can reduce access to NBN Sky Muster as well as TV and radio services. Research participants using Sky Muster services reported mixed experiences, with some users describing reliability issues, as well as high costs of plans and the need for higher data limits. While considerably slower than Sky Muster, the ADSL service was described as relatively reliable, even when the mobile services is congested.

Lack of VAST TV impacts on 4G congestion, household costs, news and information access

As in much of remote Australia, television services are only available in Galiwin'ku via VAST DTH satellite. Our survey found that the VAST TV at their house was not working for 80% of respondents. 58% said this was due to the set-top box not working, and 27% due to damage to the satellite dish or cabling³. Local agency staff, however, estimate that this is likely understating the matter, suggesting it is likely closer to 90%.

The lack of free to air services, means that access to news and entertainment is increasingly a user-pays model that requires access to online services and devices. With most residents reliant on these modes of access online access to entertainment is increasing congestion on the already stressed 4G mobile network. Also the increasing use of social media for news and entertainment means that users' are more likely to encounter misinformation. Demand on Internet data for accessing entertainment increased significantly during the COVID-19 restriction period, especially by young people, with little sign of usage levels abating following once restrictions eased.



“We need the TV satellite dishes fixed up or broadcast for Galiwin'ku. They were all damaged in the cyclone. We want access to news and information but have nothing. We can't afford to fix the TV so nobody has TV. We also need help to learn to use the phone and internet. We should also get newspapers. Kids are breaking in because they are bored. TV was a good thing to give them something to do.”

- *Survey comment, anonymous*

Galiwin'ku has two First Nations radio services available – Yolŋu radio, providing in-language content to the six communities and 15 homelands across the East Arnhem region, as well as TEABBA (Top End Aboriginal Bush Broadcasting Association) radio, the regional radio network for 29 Top End communities. It also receives ABC Darwin and Vision FM, a Christian radio service. There is a Remote Indigenous Broadcasting Service (RIBS) radio station within the EARC office block. Since our visit, co-researcher James Bayung has returned to the RIBS broadcaster role. 43% of survey respondents listen to the radio in their car car, and 17% listen at home.

Most of the Marthakal homelands have very limited communications access

Beyond Galiwin'ku, the Marthakal homelands have very limited communications services. Outside of Galiwin'ku there is no mobile coverage on Elcho Island. Most of the 14 Marthakal homelands are reliant on a single Telstra public phone or an Activ8me community phone which also enables Wi-Fi access. Some homelands have no communications infrastructure at all. Interviewees described the impact of limited communications access and quality on people's ability to continue residing in small communities and homelands in the region (see section 4 for further discussion).

³ This was a 'select all' question in the survey, so both issues may be present for some households. While many of the satellite dishes were damaged in the two 2015 cyclones -Nathan and Lam- these were replaced or repaired by NT Government, so this would relate to damage since that time.



“We need a good reception out there at the homelands because we are there and we need to have this good service of Telstra ... [to support] people living at the homelands and not centralising us ... we need phones [and] internet, doing online shopping, listening to the news, to be able to do our applications over the phone when we are not near the town.”

- Jane Garrutju, Chairperson, Marthakal Homelands, 2022

Digital transformation to online service delivery and COVID-19 have made Internet access a necessity

Along with communications and entertainment options, government, banking, retail, and other key services are increasingly moving to online delivery. Reliable Internet access and functional digital literacy are no longer optional but are necessary. While Galiwin'ku has most services available for walk-in and face-to-face access (e.g., Centrelink office, post office, clinic, bank agency), surrounding homelands are reliant on either travelling into town or accessing online. As services from health to education continue to transition to online delivery models, these critical services become reliant on a user-pays model. This presents both an affordability barrier for low income and vulnerable people, as well as an access issue with the poor-quality communications. Without good connectivity and easy access to internet and computers, it is also difficult for people to develop the capability to use these services independently.

The COVID-19 travel restrictions had significant impacts on Galiwin'ku residents and agencies, with travel in and out of the community restricted from mid-2020 to early 2022. With school closures in late 2021, online learning was challenged by limited home internet access connections and devices. Likewise, many adults were unable to work from home. Local agencies reported an increased reliance on videoconferencing for telehealth, meetings, professional development, and inter-agency communications. These practices have largely continued despite travel restrictions lifting. The increased data consumption during and following lockdown restrictions may have further exacerbated congestion on the 4G network.

Affordability is a growing issue as data demand and online service use increases

The increased demand for data is also leading to affordability issues, with this exacerbated by the primary reliance on pre-paid mobile data, which typically costs more than three times the rate of post-paid services. Indeed, our survey found that 86% of people with a mobile phone have a pre-paid service. Galiwin'ku households have an average of 4.2 mobile phone services and pay an average of \$214/month for mobile phone use. In comparison, the 13% of respondents with fixed broadband connections (Sky Muster or ADSL) pay an average of \$71.50 a month for these services.

There is similar usage of online services by Galiwin'ku residents to other sites visited with comparable Internet access. Of the 76% of survey respondents who used the Internet within the last six months, 83% had used online banking, 69% had accessed online government services, and 43% had accessed health information.

Free public Wi-Fi is available in Galiwin'ku via the NT Library site. This connection, however, was described by residents and stakeholders as quite slow, especially when multiple users are connected. Use of the connection is further restricted by daily data limits per device. Given the high levels of congestion reported on the 4G network, there is significant potential for a free Wi-Fi service to provide a viable alternative for accessing critical online services.

There is demand for computer access and support to improve digital ability, cyber-safety awareness and digital media skills

The ALPA Higher Education Centre near Buthan store is the only location that had computers available for community access, with the Library having recently disposed of its two outdated computers. Basic support in using computers and online services is provided by the ALPA Higher Education Centre coordinator. Interviewees urged the need for a well-equipped Internet access facility in Galiwin'ku, with community access computers, printers, and support.

While 78% of survey respondents had used the Internet within the last three months, we found lower levels of digital ability common among people who were elderly, had limited spoken or written English literacy, or did not have any mobile or Internet access. Research participants identified need for digital mentors and culturally appropriate training models to support elders and others with limited digital literacy to learn relevant skills.

There was also demand for awareness-raising around cyber-safety issues and scams, particularly for young people. Research participants reported significant concerns about the impact of negative social media use, including online abuse, and associated conflict and mental health issues⁴. Concerns were raised by interviewees about access to inappropriate content, and a growing 'addiction' to online use by young people leading to school truancy and disengagement from cultural and social activities.

There has been a number of programs to support digital media production, cultural heritage and archiving in Galiwin'ku over the last 20 years. Apart from a couple of projects within the school and Ranger program, there is a lack of programs or facilities currently. With young people sharing their music, photography and videos on digital platforms like Facebook, YouTube and Spotify, and a new generation of TikTokers emerging, there is demand for more skills development and support in these areas.

A Digital Inclusion Plan can help develop local strategies to address these needs and challenges

To address the media and communications needs identified in this report, and support improvements in digital inclusion and service delivery, it is recommended that a Digital Inclusion Plan be developed for Galiwin'ku. Based on the audit of existing media and communications infrastructure and services outlined in section 3 (and Appendix 2), and analysis of surveys and interviews with community residents and stakeholders in section 5, a list of potential strategies for consideration for a Digital Inclusion Plan are included in section 7. As part of our ongoing research work with the Galiwin'ku community in 2023-24, the Mapping the Digital Gap team can assist with developing this plan.



Figure 3: Local noticeboard in Galiwin'ku community

⁴ Rennie, E., T. Yunkaporta & I. Holcombe-James (2018). Cyber Safety in Remote Aboriginal Communities: Final Report. Melbourne: Digital Ethnography Research Centre, RMIT University. DOI: 10.4225/50/5afcbbe7c4833

3. MEDIA & COMMUNICATIONS IN GALIWIN'KU

Existing Telecommunications Services

Backhaul to community: The Telstra 4G mobile, ADSL and fixed line phone services are delivered via a microwave link to a repeater tower at Mapuru on the mainland, with backhaul via the Arnhem Fibre Network. Established in 2009 and costing \$34 million, the Arnhem Fibre Network stretches 800km from Jabiru to Nhulunbuy. By July 2023, a \$5.5million project is intended to upgrade the backbone network from the current 5Gbps to 100Gbps capacity, with co-investment from Northern Territory Government, Telstra, Developing East Arnhem Limited (DEAL), and the Australian Government’s Regional Connectivity Program⁵. The microwave link to Galiwin’ku is currently being costed for upgrade, with funding yet to be sourced.

Mobile coverage: The only 4G/3G mobile coverage available in Galiwin’ku is provided by Telstra from a single tower located near the EARC library on Riyalanura Road. Some interviewees reported that 3G coverage was accessible at locations on the southern coast of Elcho Island and while out at sea, with this signal reaching out from mainland communities.

Landlines: The copper network is available to most houses in Galiwin’ku, enabling fixed line phone and ADSL services, however few Yolŋu residences have landlines or ADSL connections. The primary phone service reported by survey participants is through 4G mobile.

NBN services: Under NBN zoning, Galiwin’ku only has access to NBN Sky Muster services. Because Sky Muster services are post-paid only, this mode of connectivity is predominantly accessed by staff houses and agency buildings, with very little take-up by Yolŋu households.

Community networks: All agencies have independent services with no networks to support community access. EARC and ALPA both have communications networks connecting their facilities across Galiwinku.

Public Phones: There are about eight public phones in Galiwin’ku. At least three of these were not operating during our visit. The public phones are now free to use and provide a primary service for people without mobile phones or credit. While this report focusses on Galiwin’ku, interviewees reported most larger homelands on Elcho Island have an Activ8me public phone with Wi-Fi access, although there were reports of some phones not working at the time.

Wi-Fi: There is currently only public Wi-Fi available at the EARC managed library in Galiwin’ku.

HF / UHF Radio: While VHF radio was used extensively by Galiwin’ku community and the Marthakal Homelands as a primary means of communications up until the 1990s, there appears to be limited use of HF or UHF radio by service providers or



2206

(Population - ABS Census 2021)



94%

Aboriginal and/or Torres Strait Islanders



150km

West of Nhulunbuy



550km

To nearest city - Darwin



368

Occupied private dwellings



6.3

Average people per ATSI household (ABS 2021)

⁵ Source: <https://www.miragenews.com/increased-connectivity-to-improve-services-and-657977/> 23/11/21

homeland residents now. Digital HF radio enables more secure and better-quality communications and is used for air traffic, shipping, emergency services, military, and border security.

Public Address (PA) system: EARC's PA system is used to broadcast information to the community. It is networked with speakers on the central EARC office, Marthakal Homelands and Resource Centre, and the Buthan Store.

Telemetry: PowerWater is the NT government-owned corporation responsible for transmission and distribution of electricity, and providing water and sewerage services across the Northern Territory. PowerWater use System Control for monitoring, operation and control of regulated power systems⁶ using telemetry and on-site personnel.

Media Services

Radio services: The popular ARDS/ Yolŋu Radio service (88.9FM) is broadcast primarily in Yolŋu Matha languages from Nhulunbuy. The other First Nations radio service available in the area is the regional TEABBA network, which broadcasts from Darwin, with a transmitter located in the RIBS facility in the EARC office on 106.7FM. The Galiwin'ku RIBS radio studio was not staffed at the time of our visit, but co-researcher James Bayung has since returned to the broadcaster role. There is one ABC radio service, ABC Darwin, which broadcasts on 105.9FM as well as a Christian radio service Vision FM on 107.5FM.

TV services: Free to air TV is only available via VAST satellite direct-to-home, however an estimated 90% of residential houses do not have the VAST service working.

Regional and Local news: Regional news is shared via TEABBA radio and Yolŋu Radio (delivered by ARDS), as well as ABC Darwin. Local news is shared via the EARC Facebook page and other agency Facebook pages (however, Marthakal Homelands and Resource Centre do not use Facebook), as well as the Galiwin'ku RIBS radio when it is active. Community noticeboards are also used to display local news and events, training and job opportunities, and health information, with urgent messages shared via the PA system.

Newspaper: The Land Rights News is published by Northern Land Council three times a year and distributed to communities. There were no other newspapers available in the community during our visit.

Access and Support Facilities

Community Access facilities: There is very limited public access facilities for computer use in Galiwin'ku. The ALPA Higher Education Centre in Buthan had two computers and a printer available for community access and learning. The library provides free Wi-Fi access but had recently disposed of two outdated access computers.

IT Support: Informal support in accessing and using online government services is available at the EARC office and the ALPA Higher Education Centre. Other local agencies, including the school and CDP office, provide some support to staff or clients, as well as private residents.

Mobile phones and recharge sales: A range of smartphones and flip phones (facilitating calls only), as well as pre-paid recharge vouchers for Telstra, are available from the ALPA supermarkets in Galiwin'ku and Buthan and other local stores.

⁶ Source: <https://www.powerwater.com.au/market-operator/system-control>

4. COMMUNICATIONS IN THE MARTHAKAL HOMELANDS

About Marthakal Homelands

There are 32 homelands on Elcho Island and across the northern area of East Arnhem, supported by Marthakal Homelands and Resource Centre Aboriginal Corporation (MHRCAC)⁷ as a hub and service provider. Each homeland belongs to individual clan groups with representatives making up the Board of Directors of MHRCAC.

- + “[The] homeland movement [began in the mid 1970s] where people go back to country ... [to] not only establish their Homeland but create a better lifestyle, a healthy lifestyle, and to grow the children on country but also to have some sort of development happening. ... [MHRCAC manages] working on country [and] central services for housing, water, all the other essential needs that Homelands are run by.” (Marcus Lacey, Executive Officer, MHRCAC, 2022)

History of communications in the homelands

While Yolŋu have used traditional modes of communication for tens of thousands of years, new communications technologies have changed the way people maintain social and cultural practices:

- + “Sometimes in the olden days, we lit a fire to signal other people and family, but nowadays in modern days we now use the phones and sometimes people walk to find good reception to use a mobile phone.” (Jane Garrutju, Chairperson, MHRCAC, 2022)
- + “In the past the Yolŋu were communicating very well ... our people would journey to connect together ... attending the ceremony. In that way we were sending smoke and we were sending fire to let them know that this event will be happening, or come to our ceremony, and the moon shows us, telling us where to go. ... But nowadays it’s different. Now more technology coming and learning and taking. They were given for good purposes but by now, this time, we all over the place.” (Elaine Lawurrpa Maypilama, elder 2022)

By the mission era of the 1960s, communications from Elcho Island to the mainland was primarily via VHF radio:

- + “Communication in those days with the outside world, apart from Radio Australia⁸, was VHF [radio, to contact] friends or family down south. Telegrams were very hard to send ... local people and the workers really had no outside communication, except for the Codan [VHF] radio system. And that used to be amazing for connection of information ... wherever they were, especially in the homelands, they could listen and know what’s happening everywhere else. ... I would go out to a homeland and someone’s sitting there with the Codan radio on and they’re going ‘Oh, so and so’s just caught a big fish’ or ‘So and so’s had an argument with someone else’ ... it was just an amazing communication system.” (Kaye Thurlow, long-time resident/ former Manager, East Arnhem Regional Council, 2022)

⁷ MHRCAC is a parent entity of the Marthakal Group, which includes Marthakal Health, Marthakal Rangers, Marthakal Yolŋu Airline Pty Ltd, and Marthakal Business Enterprise Pty Ltd, with the administration and services based in Galiwin’ku Community.

⁸ Radio Australia was an ABC service broadcast to Pacific Islands and parts of South-East Asia via short-wave radio.

VHF Radio was the only mode of western communication in the Marthakal homelands until the 1990s. While mostly the domain of adults, children would sometimes use the radio to talk to each other:

- + “When we’d finish school we’d go back to the radio station and would sit down and wait till ... [people] finish their work for the day and they’d go off to hunting ... then we’d talk to our friends and family from other Homelands through the radio. We’d talk about the days at school or what had happened or what they caught on the weekend hunting. Sometimes we’d play music to each other using our ghetto blasters. ... But then someone ... [would hear us and say] ‘what you mob doing, leave it, that’s not toy’, ‘oh sorry, sir’. Then we’d ... go off air, it was fun.” (Marcus Lacey, Executive Officer, MHRAC, 2022)

The VHF radio enabled people to have multiple conversations concurrently in language:

- + “[The HF radio channel was] just a river of language. ... I don’t know how they did it, but the old people they would communicate with those people [from other language groups] while others are talking and they would keep that conversation going ... not get distracted by the other conversations that’s happening. ... that was the social media of the day and that’s how we connected just using voice and just picturing it in your mind what is happening ... it was great.” (Marcus Lacey, as above)

Introduction of public phones and Wi-Fi connectivity

Public phones were introduced in remote communities in Australia in the mid-1980s, but they weren’t installed in the Marthakal homelands in the early 1990s:

- + “Telstra then came and started to build ... public phones, and they were those old orange ones where you can put from a 10-cent piece to up a dollar.” (Marcus Lacey, as above)

Following Telstra upgrades during the 2000s, the Australian Government developed the Remote Community Telecommunications program in the early 2010s. Australian Private Networks (branded Activ8me) was contracted to install satellite-delivered community telephones in over 300 communities of less than 50 people and maintain Telstra public phones in another 240 sites. Many of the Activ8me phones were upgraded to have Wi-Fi capability in the mid- to late-2010s, enabling Internet access on the homelands and Wi-Fi Calling. MHRAC Executive Officer Marcus Lacey estimated that five Marthakal homelands on Elcho Island had Activ8me Wi-Fi enabled phones.

- + “One time we ... went up to Bible Camp, about 15 kilometres out of [Galiwin’ku] and there’s a public phone there. ... So we connected to the Wi-Fi there and we were able to call ... we were really happy to connect with our families. ... even to get on the Internet.” (Megan Yunupingu, Artsworker, Elcho Arts 2022)

Public phones are a primary means of communication, however interviewees reported some are not working.

- + “With the Telstra system it’s always going on and off, it comes and goes ... there’s always something happening with the phones ... that’s the only way that they can [connect] to outside world.” (Marcus Lacey, Executive Officer, Marthakal Homelands and Resource Centre, 2022)
- + “The public phones, some are working and some are not working. The [Wi-Fi] service is a bit slow and it takes time, it’s not a good service ... [Some homelands] have Wi-Fi but sometimes it’s not working. ... When I use Wi-Fi [Calling] sometimes it’s echoing like in the water. ... Homeland is the home where people feel safe [but we need

communication to be safe]. ... Sometimes by the beach ... they can get that [3G] reception to communicate with people.” (Jane Garrutju, Chairperson, MHRAC, 2022)

- + “I used to live out at a homeland called Galawarra ... only about 4 kilometres [from Galiwin’ku but] the public phone there never used to work.” (Megan Yunupingu, Artsworkeer, Elcho Arts 2022)

When phones are not working, people must drive to another homeland or a coastal site where 3G mobile connectivity may be available from a mainland community, such as Milingimbi, which is over 70km away:

- + “We might drive to the nearest community. There’s some areas where we can pick up a [mobile] signal coming off from other areas. [But]those areas can’t always be reliable ... on a windy [or cloudy] day you can’t pick up the signal.” (Marcus Lacey, Executive Officer, MHRAC, 2022)

During the COVID-19 pandemic in 2021, calling on Telstra public phones in remote First Nations communities was made free, with this initiative expanded nationally to all public phones in 2022. This development has been welcomed on Elcho Island, but interviewees had questions about how monitoring and maintenance of homelands phones is undertaken to ensure reliability:

- + “There’s really no maintenance goes out and check them and fix them up. ... We’ve got landlines in a lot of homeland communities but I don’t even find them working ... [they have] to do something about that.” (Kaye Thurlow, long-time resident/ former Manager, East Arnhem Regional Council, 2022)

The Chairperson of Marthakal Homelands and Resource Centre, Jane Garrutju, said that homelands residents should be given more information about communications technologies and how they work:

- + “When [Telstra or Activ8Me] come to visit ... they don’t really explain about the situation. They just come and just do their job without informing us ... what they are doing. ... When like rain or lightning comes it will stop the line from communicating ... It’s very hard when there’s no signal for people that live a long way from the town area.” (Jane Garrutju, Chairperson, Marthakal Homelands, 2022)

Use of Sky Muster services

The Gawa Christian School at Gawa Homeland has a Sky Muster satellite connection, enabling students to communicate via videoconference with children from mainland schools⁹. The Gawa clinic also uses Sky Muster to undertake tele-health services¹⁰. One other family-run homeland also has a Sky Muster service. Beyond that, the only internet services are via the Wi-Fi public phones or at schools and clinics on the larger homelands.

Some homeland residents have set up household Sky Muster services, which provides a backup service for homeland residents if the Telstra network is not working:

- + “[Some people] have their own connections like Activ8me and [SkyMesh] ... So, when we know who those people are, when there’s a problem we call them, but it’s slow too.” (Jane Garrutju, as above)

⁹ Source: Marcus Lacey, Executive Officer, Marthakal Homelands and Resource Centre, 2022

¹⁰ Simbani Research have undertaken a pilot study to assess the effectiveness of remote tele-health services via Sky Muster See: <https://simbani.com.au/crcna-telehealth-project/>

Calls for communications upgrades

Five of the Marthakal homelands are within a few kilometres of Galiwin'ku. As they currently have patchy or no mobile coverage, there were calls to expand the Telstra 4G coverage to include these homelands.

- + "I live at the [Galawarra] outstation ... 5 kilometres from here. ... We can use our mobile at the outstation sometimes ... and it gets worse during the wet season ... sometimes there's just no reception at all." (Margaret Dhurrpuy, Artist, Elcho Arts, 2022)

Marthakal Homelands and Resource Centre are calling for upgraded communications on the homelands, including small cell mobile coverage in larger homelands such as Gawa and 4G on neighbouring islands:

- + "One [small cell] should be on [Drysedale] Island right at the end ... and also on Stephens Island for emergency purposes. A lot of families go hunting that way and when they break down there's no emergency there." (Marcus Lacey, Executive Officer, Marthakal Homelands and Resource Centre, 2022)

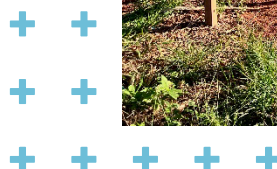
There is currently no mobile reception at sea, other than 3G at Inglis Island and in Buckingham over in Arnhem Bay. While mobile communications is not intended for emergency use at sea, MHRAC encouraged expansion of coverage out to sea to enable connectivity when fishing or hunting:

- + "So we have to carry an EPIRB and proper equipment with the flares and all that. A lot of ships and boats passing by and you've got commercial fishermen and commercial barges that run those waters. But it's very important that our technology so those areas get those things built there." (Marcus Lacey, as above)

Reliable communications are needed, particularly in case of emergency:

- + "Because [the homelands are] a long, long way and we have to be able to have our finger to that connection straightaway. We have to be one touch away from emergency wise, someone might get bitten by a snake or a jellyfish or something and it could be fatal and we need that. When the Telstra [coverage] isn't working we've got to have that there. ... It's important to be able to have that communication to the outside world or to your family ... just to let them know that you're all right and all the rest of it. It's very important to have that connection there handy and available." (Marcus Lacey, as above)

Figure 4: Public phone in Galiwin'ku community



5. KEY FINDINGS

This section provides key findings from the 16 interviews undertaken with community leaders and stakeholders, as well as observational data and survey results.

See Appendix 1 for the full set of unprocessed survey results, based on initial analysis of 46 surveys undertaken. As outlined in the Executive Summary, the finalised survey results may differ from those presented here 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.

Communications Access

Quality of communications services in Galiwin'ku is a critical issue

While the Arnhem Fibre Network, rolled out in 2009, led to improved communications services in the East Arnhem region, including 3G and 4G mobile in most communities, many of these communities now face high levels of congestion. With significantly increased demand, communications quality and reliability has become as an issue throughout the region, however some participants said Galiwin'ku has the least reliable services:

- + "Galiwin'ku is ... [the largest community but] the connectivity is the worst of them all. ... Milingimbi [has] challenges at the moment but historically hasn't [had] bad connectivity. ... [Gapuwiyak, Ramingining and Yirrkala are reasonable] ... Galiwin'ku is by far the worst." (Hannah Fincham-Thomson, East Arnhem Real Estate, 2022)
- + "Communication is important ... we used to have so many issues with our emails, our landline used to be cut off and we don't have a landline any more ... [so we] are relying on the mobile phones. But when it comes to using the Internet, the reception is really bad." (Megan Yunupingu, Artsworkeer, Elcho Arts 2022)

While improved, the 4G network remains highly congested and unreliable

The 4G network is highly congested during much of the day. Interviewees said it was difficult to use from mid-morning to midnight, leading agency staff to undertake critical work or personal tasks during non-peak periods:

- + "It's really slow during the day right up to midnight ... 3am till six, that's probably the best possible time to try to go on, yeah, to work on your phone." (Va Matakara, Manager, Marthakal Motel 2022)
- + "[Early morning the 4G speed is] not so bad. ... [For] our Coles order, I would try and do it at about 6:00am ... [other times of] the day, it was just impossible. ... [It was] literally a blank page for Coles Online, because it was taking so long to load." (Rosalind Beadle, Support Worker, Families and Schools Together program, 2022)

Some young people also stay up late at night to access online entertainment or gaming, with interviewees citing this as a cause for low school attendance.



"You have to get up like 3:00 in the morning [to use 4G]. ... Every kid here get a technology, and they want to watch movies or anything. Why do we have non-attendance of kids here at this school? Because they're up at that time ... catching up on the reception!"

- Gaylene Yenhu, Community Engagement Leader, Connected Beginnings, 2022

The 4G coverage is patchy in and around Galiwin'ku, with low penetration inside houses:

- + “The network in[side] some houses is really bad. ... [When you go outside] you have better service, like you can hear on the other side of the phone properly.” (Va Matarakura, Manager, Marthakal Motel 2022)
- + “We found places here in Galiwin'ku that you can almost throw the phone in the air and send a message, as long as it goes while it's in the air.” (Kaye Thurlow, long-time resident/ former Manager, East Arnhem Regional Council, 2022)

The suburb of Buthan, about two kilometres from the town centre, has very limited mobile coverage.

- + “To get a good connection, to go online ... [Buthan residents] have to walk all the way [to the town centre to] get a good reception.” (Gaylene Yenhu, Community Engagement Leader, Connected Beginnings, 2022)
- + “When you get further out from the town, such as Buthan ... [the signal] decreases ... compared to the town itself. ... When you go out to the homelands, it's virtually non-existent. ... This community needs more, wider bandwidth.” (Christopher Alchin, Healthworker / IT enthusiast, 2022)



Figure 5: Mobile base station with microwave links to mainland

Impact of network outages

Galiwin'ku has had a number of extensive network outages in recent years. Galiwin'ku is reliant on a microwave link running off the East Arnhem fibre network, so any break along the network from Jabiru will cut the telephony, ADSL and mobile services on Galiwin'ku. During the wet season, the underground copper network can get flooded, impacting phone and ADSL services.

These network outages can have a significant impact on remote communities, preventing use of communications, online services, EFTPOS, ATM and cloud-based systems. Galiwinku had a series of extend outages in 2020-21 across all Telstra services:

- + “We had 12 days of no mobile phone, no landline, no Internet. That was not last summer but the one before I think. So we had no connection.” (Polly Holt, Manager, Elcho Arts 2022)
- + “No connection, no communication with families.” (Megan Yunupingu, Artsworker, Elcho Arts 2022)

These outages have significant impacts for residents, with interviewees describing instances where people have been unable to purchase food, goods or power or their house, creating high levels of unrest and safety concerns within the community:

- + “Because every house operates with ... a power meter [requiring recharge power cards, so families went] a week with no power on at their house [so could not refrigerate or cook food] ... Even the EFTPOS would go down ... no shopping ... Most people out here are on Centrelink benefits, not many people work, so it's also a bit challenging ... [to do reporting to] get fortnightly [payments] on time. ... It just made people really powerless.” (Gaylene Yenhu, Community Engagement Leader, Connected Beginnings, 2022)

- + “It took quite some time for us finally to get Power and Water to [keep the power going for houses] if the internet’s out and people can’t go to the store and pay for their power ... now Power and Water can override the cut off point, but [households] build up a bill So, once it comes back on, they’ve got to pay all that back payment before they keep the power on.” (Kaye Thurlow, long-time resident/ former Manager, East Arnhem Regional Council, 2022)

Based on concerns raised in inter-agency meetings in 2020-21, Connected Beginnings collated stakeholder letters about the impact of the Telstra network outages on service provision and the community.

- + “[There were concerns about] risks in terms of safety, health, and access to just essential goods and services like power, food ... basic things that we all should be able to access ... we tried a small campaign [to get] more consistent coverage.” (Margaret Hewett, Connected Beginnings 2022)

Interviewees reported that this was successful, with less outages reported since 2021:

- + “It’s improved since that time. ... More reliable, we don’t have as many outages [and] they’ve only been for a matter of hours rather than days, so that’s a positive.” (Margaret Hewett, Connected Beginnings 2022)
- + “[Our advocacy] did help ... [but there’s still issues] with data [speeds] ... It’s very slow now and it can’t even download what we want in the system [such as MyGov] ... you can’t get it with this slow reception.” (Gaylene Yenu, Community Engagement Leader, Connected Beginnings, 2022)

Pre-paid mobile is the primary phone and Internet access, with few fixed line or public phones

76% of survey respondents said they used their own mobile phone for making phone calls. 22% of respondents said they use someone else’s mobile phone. Of the 76% with their own mobile phones, 86% used pre-paid services.

Only 4% (two people) use a fixed line phone in their home. 11% reported using the public phone regularly, with 50% using the public phone at some time. 7% said they did not have any phone access.

Mobile phones are also the most common device for Internet access. Of the 78% of people who had used the Internet in the last six months, 63% said they use their smartphone for Internet access.

However, many people use non-smartphones to reduce demand from children or others for online use:

- + “Many people are still running the flip style mobile phones. ... So you can’t text them, link and they can’t watch, anything like that.” (Hannah Fincham-Thomson, East Arnhem Real Estate, 2022)

There were an estimated eight Telstra public phones in Galiwin’ku and the surrounding suburbs, of which several were reportedly not working. Only 17% of all respondents said that the public phone was reliable.

There is limited home internet or NBN Sky Muster use

Despite the 4G issues described throughout this report, most survey respondents (87%) reported not having any form of fixed home Internet. Of the 13% (six respondents) with fixed broadband, 4% (two) had NBN Sky Muster, and 4% had ADSL services.

The residences with fixed Internet in Galiwin’ku are primarily agency staff or people with regular income. However, this requires an online order, with pre-paid mobile the only option available to purchase locally.

- + “Quite a few people use SkyMesh within the school [staff]. But for [Yolngu residents] I think the prepaid Telstra is also what’s accessible at the shop, it comes down to what is available.” (Margaret Hewett, Connected Beginnings 2022)

The ADSL service was described as slow but relatively reliable, even when the mobile services is congested:

- + “In my own house, it’s certainly quite usable and quite reliable, the ADSL [but] when the telephone network goes down it goes down too. ... [it] doesn’t slow down much in the evenings whereas the mobile phone network becomes unusable.” (Stephen Henderson, Resident/ Community IT Support, 2022)

Sky Muster services are particularly important in instances when the phone services are not working:

- + “SkyMesh is really good. So when Telstra goes down we still have internet ... still connect with families and for me to do work as well if my internet’s down.” (Va Matarakura, Manager, Marthakal Motel 2022)

However, participants reported delays in getting Sky Muster services installed:

- + “We just installed SkyMesh. ... [That took about] three months ... because they needed more customers [to warrant a trip] so there was a few of us that applied.” (Va Matarakura, Manager, Marthakal Motel 2022)

The reasons people gave for not using Sky Muster included that it only has a post-paid (billed) option, was unreliable in wet season, the data limits were insufficient, and the monthly costs were unaffordable. Several interviewees reported exceeding the monthly data limit:

- + “I have SkyMesh [at home] ... we pay \$99 a month ... because my son was here and he was a gamer ... if you used it all up [data limit] you can still access it but it was slow.” (Polly Holt, Manager, Elcho Arts 2022)

Sky Muster Plus is now unmetered until 4pm daily. Monthly data limits only apply to video and VPN use¹¹.

It is challenging to get fixed line phones and ADSL services connected

Fixed line phones and ADSL were described as more reliable than the 4G mobile and satellite services:

- + “As soon as there is any bad weather, which is for four or five months of the year [the Sky Muster service drops out]. Obviously [it] has limited data allowance [too] ... the older ADSL connections aren’t as fast but just so much more reliable.” (Stephen Henderson, Resident/ Community IT Support, 2022)
- + “We pay \$80 a month [for 100GB ADSL data, which] includes a landline ... And I’ve got little kids at home, so it’s nice to know that in an emergency [if the mobile is not working] we’ve got access to the landline.” (Rosalind Beadle, Support Worker, Families and Schools Together program, 2022)

However, interviewees described difficulties in getting home fixed line phones or ADSL services connected:

- + “I know a couple of Yolngu families who do want Internet in their household ... even houses which have previously had copper running to them, Telstra seemed to be saying to them now that there is no more ADSL slots in the exchange.” (Stephen Henderson, Resident/ Community IT Support, 2022)

¹¹ Source: <https://www.nbnco.com.au/corporate-information/media-centre/media-statements/nbn-sky-muster-plus-satellite-service-now-offers-more-data>

Rosalind Beadle described the challenges in getting ADSL connected to their staff house:

- + “My husband and I [depend on] good internet at home [for our work] ... [It took] almost three months. And that was [after] weekly telephone calls to Telstra ... One of the big barriers has been Telstra just identifying our address ... everyone lives on a lot number ... [but] Telstra just relies on the standard address system ... [even the Telstra technician] struggled, using his iPad, to identify the address. That just blew my mind! ... A lot of staff who come and base themselves here in Galiwin'ku have given up on Telstra and go with satellite.” (Rosalind Beadle, Support Worker, Families and Schools Together program, 2022)

For Yolŋu residents, these obstacles can be even more challenging:

- + “You need ... good communication skills [to use a helpline so] for a lot of people here, for whom English is their second, third, fourth language, to have to navigate that is endlessly frustrating.” (Rosalind Beadle, Support Worker, Families and Schools Together program, 2022)
- + “For many of our community members [it] is a tricky thing [to communicate in English with] well-meaning Telstra consultants who don't understand the context.” (Margaret Hewett, Connected Beginnings 2022)

Telstra now has a First Nations Connect helpline¹², however there was little awareness of this service in Galiwin'ku.

Cost and timeliness of technical support is a critical issue

Maintenance of IT and satellite equipment is a recurring and costly factor for agencies and residents. Climatic factors of wet season flooding, humidity and coastal winds and cyclones impact on communications equipment. However, with no technicians living on Galiwin'ku, most technical support comes from Nhulunbuy of Darwin, resulting in high costs and delays in getting IT equipment or support.

- + “Marthakal [IT contractors] come out I think every six months and go through all of Marthakal for IT issues. ... They're here for a week, yeah, and they just go through each of the entities to fix any problems.” (Polly Holt, Manager, Elcho Arts 2022)

Marthakal Motel reported having outages up to three months while waiting for a Telstra technician:

- + “[Telstra] don't come out like until they have [enough] other jobs to do in the community ... Unless it's really bad they come out.” (Va Matararura, Manager, Marthakal Motel 2022)

Need for back-up communications systems

Several agencies, including EARC, have satellite back-up in case the Telstra network is down.

- + “The [mobile] reception went out for three days ... but I connected at work [via the satellite back-up]. ... Even the police station don't have the same sort of set-up.” (Melissa Jones, Community Development Coordinator, EARC, 2022)

Satellite services, however, remain vulnerable to adverse weather such as cyclones or heavy cloud.

¹² First Nations Connect (Ph: 1800 444 403) was started in March 2021 to assist First Nations people to navigate these language issues. Source: <https://exchange.telstra.com.au/supporting-indigenous-customers-with-new-centre/>

Access to IT devices, Wi-Fi or shared facilities

Community access facilities are needed for developing digital skills and supporting digital projects

The most common reason that regular Internet users gave for not using the Internet more often were “I do not have convenient access to the Internet” (51%). Of the 24% of people who rarely or never used the Internet, 82% cited ‘no convenient access’ as their main reason on a multi-choice question.

There was demand from residents for a space for using online services, conducting research, and working on digital projects, including language and culture projects. With few home computers, community access computers are needed for digital skills development, such as learning keyboard skills, work-relevant applications, and gaining confidence with using online services. The only community access computers identified during our research were available in the ALPA Higher Education Centre.

The small library, run by EARC, re-opened in February 2022 following closure during the pandemic. There were no community access computers in the library at the time of our visit. Outdated devices had recently been disposed of. Research participants suggested that the library could take on a stronger role in terms of digital inclusion initiatives:

- + “The library could do so much ... [to] increase awareness about how to utilise technology through the education system or just have a safe area to do your studies [or] for printing [and other services].” (Christopher Alchin, Healthworker / IT enthusiast, 2022)

Interviewees urged the need for a better equipped Internet access facility in Galiwin’ku:

- + “[With] like 3,000 population here they need that space [to do] their online banking, online shopping. ... [The library is] an old building, we need to have a proper building with ... like five or six [computers] so people can just come in and help each other to do the job.” (Jane Garrutju, Chairperson, Marthakal Homelands, 2022)

EARC offered to investigate options for replacement computers and employing a second library officer with digital skills to provide mentor support. EARC also advised that there is a large conference room in the office building which could be used for IT training activities.

The newly established ALPA training centre beside the Buthan store is now available for community access to computers and workplace training:

- + “Now we’ve got our new training centre here ... I’m hoping that more people will come in and utilise. They don’t need to do a course, you know, just the basic stuff I can help them with.” (Uilelea Uilelea, ALPA Higher Education Program Coordinator, 2022)

There is a lack of public Wi-Fi in Galiwin’ku

The only public Wi-Fi access in Galiwin’ku is at the NT library, although this was described as quite slow especially with multiple users and it has daily data limits per device:

- + “[The library has] free Wi-Fi access, but you can’t be able to access the banks, all those other stuff. Especially those areas that need more data and more reception. ... There’s hardly no better Wi-Fi system here in Galiwin’ku, that I’m aware of.” (Gaylene Yenhu, Community Engagement Leader, Connected Beginnings, 2022)

With high levels of congestion on 4G, a free Wi-Fi service would enable access to critical online services:

- + “The problem is when the network is so congested and you’re typing and passwords and pages [not] uploading properly ... things are timing out. ... [sometimes] you click a

submit button ... it just won't respond ... [it's] difficult to know what the actual issue is ... so a Wi-Fi network [with] reasonable speed would actually be helpful." (Stephen Henderson, Resident/ Community IT Support, 2022)

However, elders raised concerns about Wi-Fi services being accessible by young people at night:

- + "Some kids hang around the organisation or the department [at night] just to use Wi-Fi. ... [This makes the kids stay up] really late and their [school] attendance is going down. ... Kids need to understand [that] the parents buy phones for them to communicate with them ... not for some other reasons." (Jane Garrutju, Chairperson, Marthakal Homelands, 2022)

Some First Nations communities in central Australia have set curfew times on public Wi-Fi to address this challenge.

Service Delivery and Use of Online Services

Delivering services and communicating with clients can be a challenge in Galiwin'ku

Service providers use a range of communications technology for engaging with clients and stakeholders, including email, phone, text messages and Facebook, depending on the client's access to communications.

- + "I send out an email to all the stakeholders [and] put posters around. ...[Our] social media person [posts] it onto the council Facebook page and the Elcho Island Facebook page ... that usually reaches a few people." (Melissa Jones, Community Development Coordinator, EARC, 2022)

But when services such as tele-health are not working it impacts on the client relationship:

- + "When the service goes out, either drops in and out, it impedes on ... logging onto certain accounts, checking up on health files. It slows the process [and] the client or patient gets anxious ... [it creates a] heightened tension in the air." (Christopher Alchin, Healthworker / IT enthusiast, 2022)

The lack of phone connectivity and email usage amongst residents impacts the ability for service providers' to communicate with them. East Arnhem Real Estate (EARE) staff found it easier to drive to clients' houses due to lack of email communications:

- + "So we must visit homes. ... Out of the eight clients that we visited, one person had a mobile number and an email, [one] other person had an email ... All the other clients had no email or no mobile phone. ... When I sent emails, I didn't get a response ... [And I was sending] a PDF document that they would have to click on and download ... [which takes about] 15 times longer than [it would in] Nhulunbuy." (Hannah Fincham-Thomson, EARE, 2022)

Cloud-based and automated systems are increasingly used by service providers and software companies. While this can improve record-keeping and data management, these systems can have issues when the Internet is not reliable. Hannah Fincham-Thomson from EARE described connectivity issues in using online applications during a week in Galiwin'ku doing an audit for the Living Strong housing program:

- + "We are trying to go paperless and so we have [our forms on] iPads and devices ... to prevent having to print and scan ... but because the connectivity is so poor we're struggling to roll that out in Galiwin'ku ... trying to download anything or upload

anything it just takes such a long time ... being productive with your time in Galiwin'ku is very challenging." (Hannah Fincham-Thomson, EARE, 2022)

However, some agency staff found that mobile communications has improved their ability to communicate with staff and co-workers, and improved productivity:

- + "The Yolŋu staff who I work alongside here all have phones, and [are] contactable. It does give a different level of productivity to work, and I think being able to communicate over that medium ... when it's being used in the right way, can be incredibly valuable." (Rosalind Beadle, Support Worker, Families and Schools Together program, 2022)

Connected Beginnings are developing an app to inform parents about their child's progress and health needs:

- + "That will [enable parents to] follow the pathway of their child from birth right up to school with little hurdles like immunisations, health checks ... reminders that this is happening or that your child is eligible ... [This will help] families get the right information." (Margaret Hewett, Connected Beginnings 2022)

Residents' use of online services

There is a comparable usage of online services by Galiwin'ku residents to other remote communities. Of the 78% of survey respondents who used the Internet within the prior six months, 83% had used online banking, 69% had accessed online government services (e.g., Centrelink, MyGov, licensing etc), and 43% had accessed health information.

Since the abolition of CDEP (Community Development Employment Projects) program in the late 2000s, Yolŋu have had to deal directly with Centrelink, including navigating their phone and online systems:

- + "[With] community control around income [under CDEP removed] ... people were directly communicating with Centrelink. ... [They] have to navigate that system, either speaking to someone on a phone, or having to do it online ... to navigate a website like that was very stressful, and required a lot of support, from particularly non-Indigenous people around them." (Rosalind Beadle, Support Worker, Families and Schools Together program, 2022)

The shift to debit cards by some banks has enabled online shopping access and more affordable choices.

- + "[Previously staff would have to help people] buy things online. They would just bring cash and you'd help them by buying it on the credit card [because] all they had was a key card ... [now Yolŋu people have] the ability to purchase things at a reasonable price." (Margaret Hewett, Connected Beginnings 2022)

However, with so many online accounts and shared devices, retention of account numbers can be an issue:

- + "[People have] small scraps of paper and bits and pieces with different account [and PIN] numbers ... So I typed them up a nice sheet and laminated it. ... That [can be] a challenge as well to try and keep all those numbers [and ID documents] together." (Stephen Henderson, Resident/ Community IT Support, 2022)

While Galiwinku has a Traditional Credit Union bank service in the central office precinct, people with other banks have to use Internet banking or pay fees. Participants in our research interviews called for a more coordinated banking service:

- + “[With] limited options for banking outlets ... [a support person is needed] who’s not attached to a bank but can represent a range of banks. ... [Maybe the TCU bank could have] an MOU around access and ... cash out or balances to be without the charge.” (Margaret Hewett, Connected Beginnings 2022)

There are mixed reactions to welfare management under the Basics cards, which quarantines 50% of Centrelink payments for use at designated retail providers and with some products excluded:

- + “Some women really value the ability to be able to have control over [their money due to] issues with family taking control ... Others would prefer not ... It really comes down to an individual thing with the income management. ... case by case.” (Margaret Hewett, Connected Beginnings 2022)

With digital transformation to online services, there is increasing need for greater support to access and use online services. EARC are calling for dedicated funding for digital mentors to support residents to use online services to reduce pressure on Centrelink and post office staff to provide digital support:

- + “Especially with all the COVID vaccines, and having to be linked with MyGov, who’s going to show everyone how to do that? ... Is it Centrelink that does that? ... they don’t have the capacity ... [One of] our post office ladies ... usually helps a lot of people out doing their tax returns and things like that. It’s not part of her job, but I’m fine if she wants to help. ... Even banking stuff ... and printing and scanning and stuff like that. We just help them if we can because what else are you going to do? IT [support] is very limited.” (Melissa Jones, Community Development Coordinator, EARC, 2022)

Barriers to accessing phone support and even local support are not limited to digital exclusion dynamics, and can be exacerbated by low levels of English literacy:

- + “Some people are shy and illiterate and [they need help from] someone to just do their claims or do whatever.” (Jane Garrutju, Chairperson, Marthakal Homelands, 2022)
- + “We [regularly] deal with ... Westpac and Centrelink ... the Yolŋu person relays information to me in English and a bit of Yolŋu Matha and I try and understand ... and relay that on [but] that is difficult. ... There was one example where somebody was waiting for a card from Westpac ... We rang Westpac [and they] cancelled that card and reissued a new one [but I] subsequently found out that the card had come but just wasn’t activated.” (Stephen Henderson, Resident/ Community IT Support, 2022)

Impact of COVID-19 and misinformation about vaccines

COVID-19 travel restrictions led to increased use of online services for telehealth, online meetings, and training during 2020-22, but unreliable communications has made this challenging. Most agencies reported broadband speed and reliability issues in using videoconferencing via ADSL or Sky Muster services.

While we were unable to interview health agencies during our visit, we understand that limited broadband speeds have made tele-health difficult. We observed numerous health-related flights in and out of Galiwin’ku each day.

During the COVID-19 pandemic, misinformation spread rapidly via social media. This led to high levels of vaccine hesitancy, with concerns about potential side effects and efficacy for Aboriginal people.

- + “Everyone [was] already scared before COVID hit Galiwin’ku. There was a lot of misinformed people and ... scared people, including myself. I started to tap into that

information. It creates a different wave of fear, ... that sweeps across Arnhem Land ... right across Indigenous [Australia] ... [due to] social media.” (Marcus Lacey, Executive Officer, Marthakal Homelands and Resource Centre, 2022)

The lack of television access in Galiwin'ku¹³ was seen as a factor in enabling the spread of misinformation:

- + “[During COVID] all they’re getting is way out crazy stories on Facebook ... but [no] balance by watching television ... Yolŋu were saying ‘No, it’ll never come here, we’re fine ... It’s a whitefella story’ ... If they [saw] those images on the television, I think it would have made a big difference to their willingness to get vaccinations.” (Kaye Thurlow, long-time resident/ former Manager, East Arnhem Regional Council, 2022)

When COVID-19 did spread across the region in late 2021, including in Galiwin'ku, there was a concerted effort by health agencies to address misinformation through all channels - word of mouth, by flyer and community notices, and through health messages in language on Yolŋu Radio and TEABBA radio. Thanks to these efforts and a coordinated vaccination program, there was high vaccine uptake by early 2022.

Regular phone replacement and changing mobile phone numbers creates challenges

There is high turnover of mobile phones, with people typically getting a replacement SIM with a new phone rather than retaining their former number. New SIM activation requires an email address and alternate contact:

- + “I must have 20 Telstra phones registered in my name because when people need their Telstra account activated ... you need the ID and the email address and the Telstra account and it’s too hard, so I just activate it on my account.” (Stephen Henderson, Resident/ Community IT Support, 2022)

Constantly changing numbers can create issues for record keeping and communication by service providers as well as accessing online services that request mobile phone numbers for log-in or identification.

- + “I’ve helped people log in to Westpac or whatever ... you get the two-factor authentication and they’ve got a mobile phone in front of them but the message doesn’t come, and they’re like, my sister [or someone else] has got that phone ... So that’s definitely a factor in terms of not having a number that’s linked to them.” (Stephen Henderson, Resident/ Community IT Support, 2022)

Need for reliable communications to run a local business

Elcho Arts are developing a new website with an online shop for promotion and sales of artworks and are wanting to use social media to promote their work. They recently installed the Stories Arts Money (SAM) database for their art cataloguing and sales records, which will integrate with their online sales.

- + “We just started [using the SAM database] ... to enter all the details of the artists and art works and hopefully everything will be online which we haven’t had in the past.” (Megan Yunupingu, Artworker, Elcho Arts 2022)

This has improved their record-keeping and sales capability compared with previous offline systems:

- + “[We] had to manually upload everything [into Excel] because we didn’t have a database. ... we manually had to take photos, upload it all. ... [Now] we can run a consignment and SAM can upload it through to the Darwin Art Fair.” (Polly Holt, Manager, Elcho Arts 2022)

¹³ Due to lack of VAST direct-to-home TV services working in most households. See Case Study in chapter 6.

Elcho Arts are seeking a more reliable Internet service than their current 4G service, which has regular outages:

- + “Once we get our online shop and our database and everything up and running [it would be good to not have it] dropping out ... to have a quicker [service] would be good ... and to be able to use social media more.” (Polly Holt, Manager, Elcho Arts 2022)

Marthakal Motel is a business enterprise of MHRCAC. Manager Va Matarakura struggles with the current booking system, which relies on phone or email bookings. A new online booking system is currently under development:

- + “It’s really important to have this network going smoothly ... When there’s no internet [people can’t] make a booking ... [It’s] difficult for us to ... run a business.” (Va Matarakura, Manager, Marthakal Motel 2022)

Marthakal Motel has experienced extensive outages and long delays in getting technical support, with calls for a more resilient network to reduce the regular outages during wet season.

- + “The longest we went out without internet was three months [two years ago]. ... And then during the wet season [a] big storm it really damaged the network ... so we put in a job to our IT services and [they] put it through to Telstra and it can take 2-3 weeks to a month for them to respond ... [I had to] go to the main office [to] do my work.” (Va Matarakura, Manager, Marthakal Motel 2022)

Communications improvements are also needed on homelands where people operate small businesses and tours:

- + “[Some homelands] are running shops, ... small business, they’re running tours. That also can help build the business on country.” (Marcus Lacey, Executive Officer, Marthakal Homelands and Resource Centre, 2022)

Access to media and new services

Local media and information channels

Effective modes of communication are critical to ensure residents are aware of local news or activities. In Galiwin’ku, news and information is shared through a range of channels, including:

- + Radio services – Yolŋu radio (ARDS), TEABBA radio, ABC Radio Darwin
- + Websites and Facebook pages - East Arnhem Regional Council, Elcho Island Facebook, Yalu etc.
- + Community noticeboards and distribution of flyers
- + Public Address (PA) announcements.

The use of local information sources enables delivery of reliable and trusted information, including in language, to counter misinformation spread via social media.

With limited access to television and home radio in Galiwin’ku, Facebook and other social media have become primary sources of news and information. Our survey found that, among all respondents, Facebook is the second most common source of news and information (37% daily), after direct and in person communications (74% daily), and ahead of First Nations radio services (Yolŋu Radio and TEABBA) (22% daily). However, some interviewees who referred to high levels of misinformation spread via social media, raised the limited access to reliable and trusted news sources as a concern:

- + “I’d say probably maybe half of the information they get is from Facebook ... That’s dangerous.” (Marcus Lacey, Executive Officer, Marthakal Homelands and Resource Centre, 2022)

Several organisations use Facebook to communicate their activities, as it is a primary means of communication for many Yolŋu residents. However, there is an awareness that not everyone has Facebook or a smartphone:

- + “I get annoyed if people purely give out information on Facebook ... what about people that aren’t on Facebook? How are they going to get the information? ... [Not] everyone’s got a smart phone. ... how are you accounting for elderly people [or those without] the technology’.” (Melissa Jones, Community Development Coordinator, EARC, 2022)

The EARC Council use a public address (PA) system, an old but reliable communications mode, to get messages out, with networked speakers on the central office, the Marthakal Homelands office, and Bhutan store.

- + “[This morning It was used] five times ... one after another, people making announcements ... [It gets used for] ceremonies with bodies arriving ... when there’s been break-ins anything, like AFL [or school activities].” (Melissa Jones, Community Development Coordinator, EARC, 2022)

Yalu also use their website and social media channels to promote their activities to the community and external stakeholders. Communications are now managed by Yolŋu Media Officer Cyril Bukulatjpi.

- + “I take photos [and] manage all of [the] social platforms like Facebook, website, Instagram. Twitter is almost coming now, and I ... [help] manage the Yalu website. ... It would be great to have a Yalu TikTok ... Yalu does engage a lot of people ... around the world.” (Cyril Bukulatjpi, Media Officer, Yalu, 2022)

Cyril described the importance of communications being told from a First Nations perspective.

- + “I send messages to Yolŋu communities [via Facebook], because ... we want to [tell people] what [services] we are giving to them. Yalu has a rule that we ... give information so people can understand.” (Cyril Bukulatjpi, Media Officer, Yalu, 2022)

Having information available in language is critical for community awareness and empowerment

During our visit, an Australian Electoral Commission voting booth was set up for early voting for the upcoming Federal election. Locals told us that all voting information was in English with a lack of translation initially to inform Yolŋu voters. An interpreter was employed at Galiwin’ku, however this was not the case in other communities:

- + “[There was very] poor information provided to the community about the Federal Election ... people [said] they’d been to five or six other election booths in the last 2 weeks and not one of them had the AEC [Australia Electoral Commission] employed an interpreter to explain to people how to vote. ... [More effort is needed] at a government level [to] get information to people in language.” (Kaye Thurlow, long-time resident/ former Manager, East Arnhem Regional Council, 2022)

First Nations radio services are primary services but there is limited access

Galiwin'ku receives two First Nations radio services. Yolŋu radio is delivered from Nhulunbuy to six major communities and 15 homelands in the north-east Arnhem region by ARDS¹⁴, primarily in Yolŋu Matha languages. The TEABBA¹⁵ radio network delivers services to 29 Top End communities from their Darwin studios. These primary radio services provide locally relevant news, information, and music to the community.

- + “[Services] like Yolŋu radio, when that’s running well, people do enjoy it and there’s lots of news shared on that platform.” (Margaret Hewett, Connected Beginnings 2022)

33% of those surveyed said they listen to the First Nations radio service (Yolŋu Radio and TEABBA) daily or weekly, compared with 22% listening to ABC radio daily or weekly. However, 35% said they never listen to radio. There is low home radio access, with 43% of respondents said they listen by car radio, 35% via streaming, and 17% listen with a radio at home. Interview participants highlighted the potential role that improved radio access could provide in terms of communications.

- + “It’s one of the key ways that people get information, however, I don’t think there’s a huge amount of people listening to it regularly. Often, when I go around community, the workplaces might have TEABBA or Yolŋu Radio on ... [but] people don’t [have] the radio at home. ... [It] needs to be made more accessible to people.” (Kaye Thurlow, long-time resident/ former Manager, East Arnhem Regional Council, 2022)
- + “Does anyone actually have a radio in their house? I know it gets played in the store, maybe in your car, but ... if we’re broadcasting announcements and things like that, are people actually hearing it? ... it’s really hard to listen to radio online here ... [radio is] old school, but I think it could be used well if everyone had one.” (Melissa Jones, Community Development Coordinator, EARC, 2022)

With 91% of those surveyed speaking a language other than English at home, programming in language is crucial.

- + “People switch off when it’s English only ... [they say] “My head’s full up with English, I need to have a break’ ... Yolŋu Radio or TEABBA is really vital for people to have greater access to the information in their own languages.” (Kaye Thurlow, long-time resident/ former Manager, East Arnhem Regional Council, 2022)

East Arnhem Regional Council is responsible for operation of the RIBS radio station, located in the EARC office, as well as employment of the RIBS broadcaster. During our visit, they were having difficulty recruiting a broadcaster, however our co-researcher James Bayung has since been re-employed in the role.

- + “[EARC] gets funding to run a media centre in five communities of our nine, and they’ve only got two operating at the moment. ... They’ve got some good workers, but they’re only employed part-time [three hours per day, which limits Centrelink eligibility] ... It’s [sad] that we can’t get a stronger local media centre operating.” (Kaye Thurlow, long-time resident/ former Manager, East Arnhem Regional Council, 2022)

¹⁴ Aboriginal Resource and Development Service. See: <https://www.ards.com.au/about-2>

¹⁵ Top End Aboriginal Bush Broadcasting Association. <https://www.teabba.com.au/>

Reliability of radio services had also been an issue in Galiwin'ku:

- + “We quite often have issues with the radios going off. I heard Yolngu Radio for the first time on the weekend all year. TEABBA [is] not working at the moment ... Wet season can be pretty detrimental to the transmitters.” (Melissa Jones, Community Development Coordinator, EARC, 2022)

To address this, EARC were in the process of relocating all broadcast and communications equipment¹⁶ from the old transmission room, due for demolition, into a new air-conditioned sea container beside the broadcast tower. TEABBA also completed rollout of a Wide Area Network radio system in November 2022, to deliver targeted content and improve reliability through remote monitoring and remote support to address outages.

Demand for online entertainment and gaming has increased

Just as in other parts of the country, there is growing demand in Galiwin'ku for streaming services for movies and TV series, news and sports, and music, as well as online gaming. The lack of free-to-air TV services¹⁷ has further increased demand for online platforms to access media and entertainment, especially for young people.

- + “Young people ... use a lot of social platforms [like Instagram, Facebook, AirG] they use iPads or iPods to listen to music ... [and] through Spotify. ... [They are] watching YouTube [and TikTok] ... I have a PlayStation PS5 ... [and I do gaming with] players around the world. ... kids upload a lot of games [on their phones] ... Puzzles, fishing [and flying] games ... That's what I see kids are playing today.” (Cyril Bukulatjpi, Media Officer, Yalu, 2022)

The expanded use of streaming services and gaming has contributed to the congestion on the 4G network. It is also a significant cost burden given most users are reliant on pre-paid mobile services.

While online gaming is becoming popular among young people, accessing the speed and low latency needed is most possible after midnight when there is less congestion on the 4G network. Christopher Alchin said he considered setting up an internet café to provide online access for learning and gaming:

- + “I was going to start an internet café on the island, and that was going to entail gaming as well as movie nights and so forth ... there's a lot of gaming that happens [here but] the Internet service itself is hard to maintain and have high bandwidth to connect and have constant connection.” (Christopher Alchin, health worker/ IT enthusiast, 2022)

Affordability

Affordability of pre-paid mobile data is a significant concern

Affordability of Internet access is a key issue due to low incomes and high rates for pre-paid data. In our survey, the second most common reason given by respondents who used Internet within the last three months for why they don't use the Internet more often, after lack of convenient access (51%), was “The Internet is too expensive for me” (43%). Also 43% of respondents said they had cut back on essential household costs to afford personal or household Internet within the past six months.

Galiwin'ku households have an average of 4.2 mobile phone services and are paying an average of \$214/month for mobile phone use, with 20% of survey respondents reporting a household expenditure of

¹⁶ This includes Yolngu Radio, ABC services and communications equipment for EARC and Arnhem Land Progress Association.

¹⁷ See case study about lack of VAST TV services in section 6.

\$201-\$300/ month and another 20% over \$300/ month. Of the 13% of respondents with fixed broadband connections (Sky Muster or ADSL), the average cost was \$71.50 a month. Only a few households have opted for NBN Sky Muster services, with low take up rates likely due to these being available only on a fixed-term monthly post-paid plan.

Despite pre-paid data rates being considerably higher than post-paid plans, our survey found that 86% of people with a mobile phone have a pre-paid service. While this is likely due in part to pre-paid phones being the only option available in the local stores, it is also preferable because it enables people to pay what they can afford, rather than commit to a monthly billed service that they may not have the funds available to pay when due. Some people referred to bad experiences with post-paid bundle plans that were unaffordable.

- + “Anglicare, when they come out here, they definitely [raise] issues with Telstra and ... advocate for it. [including helping people address unaffordable phone plans].”
(Melissa Jones, Community Development Coordinator, EARC, 2022)

The mis-selling of unaffordable plans led to action by the Australian Competition and Consumer Commission against Telstra in 2021¹⁸. Since then Telstra have significantly changed their selling practices, including no longer including devices in post-paid bundles, simplifying plan options and not charging excess usage fees.

More could be done, however, to make pre-paid data rates more affordable. There is also limited information available in the community on telecommunications plans or managing costs, with more awareness needed.

Cost of devices is also a concern with high turnover

The cost of smart phones and devices was also raised as an issue, especially with limited options available locally. There is also demand from children to have their own devices to use:

- + “Even the little ones ... I’ve seen them in the shop, they don’t cry for toys, they cry for their mother to buy them phones.” (Va Matarakura, Manager, Marthakal Motel 2022)

As outlined above, the uptake of online streaming services and gaming, particularly by young people, has increased data usage and weekly costs.

Digital Ability

Digital literacy levels

The levels of digital literacy levels varied widely among those we surveyed in Galiwin’ku. Respondents who were elderly, had limited spoken or written English literacy, or did not have any mobile or Internet access generally had lower levels of digital literacy.

Ted Gondarra, an elder working with the Connected Beginnings program, described his challenge with using the Internet and concerns about its impact for Yolŋu people:

- + “I [find] the Internet ... a challenge. It has come in with a different ... mindset to the people ... It’s good, bad and challenge ... [it’s good for] connecting or online service, but ... it sometimes lead them into a financial stress. ... It’s not Yolŋu language, it’s not identifying [us online] ... We are so invisible.” (Ted Gondarra, Community Engagement Leader with Connected Beginnings, 2022)

¹⁸ <https://www.accc.gov.au/media-release/telstra-to-pay-50m-penalty-for-unconscionable-sales-to-indigenous-consumers>

Need for digital skills training in Galiwin'ku

With services increasingly moving online, digital literacy is becoming a necessary life skill, however there is limited training and support available in Galiwin'ku. According to research participants, support is typically needed when undertaking tasks such as accessing MyGov, doing online banking or completing a form. While there is some basic support available at the Centrelink, post office and other agencies, there are limited options for digital skills training, especially for the elderly, people with disabilities, and those with low English and digital literacy.

Yalu Media Officer Cyril Bukulatjpi described the importance of digital literacy:

- + “[We need digital skills to use] Internet, social media ... administration work, [access online] resources, Excel, word document. [We] need to have a training here ... it doesn't matter if they are old or young, there's a chance to learn more.” (Cyril Bukulatjpi, Media Officer, Yalu, 2022)

Local resident Stephen Henderson, who works part-time for ALPA's community development program, has a background in IT, and is regularly asked by residents and local agencies for help with using online services:

- + “I just help them with banking and Centrelink and tax returns ... activating phone services and that sort of stuff. ... There isn't really anywhere else for ... people to go for something as simple as to activate your Telstra service. You need to ... type in your license number or have your ID ... [which] were a challenge for people I think.” (Stephen Henderson, Resident/ Community IT Support, 2022)

While some people get family support to use online services, targeted support is needed for elders.

- + “We don't know how to use that. We can slowly learn but we use it in a way that ... we do it slowly, slowly.” (Yungirra Bukulatjpi, Yalu researcher, 2022)

There is community demand for an agency to provide digital literacy training and support. Some community members suggested Yalu as an appropriate agency due to their existing work and experienced staff of cultural leaders and translators.

- + “Definitely Yalu, for sure. They have a good model to properly utilise the space to create that awareness [in a culturally appropriate way].” (Christopher Alchin, health worker/ IT enthusiast, 2022)

With limited digital support available in the community, ALPA Higher Education Coordinator Uilelea Uilelea gets asked to help with students' personal digital needs, such as using Centrelink, MyGov and banking, setting up an email account or using Teams or Zoom so they can talk to people in language.

Digital mentors could help support residents to use online services and learn

While there was demand for more digital training and support, the preference was for one-one-one support with a Yolŋu digital mentor as needed rather than doing workshops.

Peer learning already happens within families, particularly with young people and those with digital skills helping older ones to use phones and online services. There were suggestions that young people could play a role as digital mentors, as they are rapid adopters of communications technologies:

- + “Young people these days they're ahead of us. They are very clever in how they use technology.” (Marcus Lacey, Executive Officer, Marthakal Homelands and Resource Centre, 2022)

- + “I think they [young leaders] would be the best people to mediate and mentor ... the next generation. ... they [also] need a mentor to show them [web design, creative applications, which could lead to] opportunities for future business.” (Christopher Alchin, Healthworker / IT enthusiast, 2022)

Digital literacy is needed for many community jobs, but can be an obstacle to employment

Digital skills are often needed for jobs in communities now, including for use of Office software, email correspondence, online meetings and training, and other job-specific applications. However, our survey found that only 26% of regular Internet users use a desktop computer and 17% using a laptop or tablet, with most regular users mobile only (63%). This can limit development of keyboard skills and understanding of typical workplace systems.

Since the COVID-19 pandemic, staff in government-funded roles in Galiwin'ku have been required to provide proof of vaccination. This was described as a barrier to employment due to the requirements to download and use the app and complexity in navigating the MyGov website to link the vaccination certificate.

Poor design of applications needed to apply for or undertake work was also described as a barrier for employment. Some online applications are overly complex and data-heavy and not able to load with only limited connectivity, while others use a lot of text or are not configured for mobile devices.

ALPA Higher Education Program provides local support for people who are studying through Bachelor Institute or Charles Darwin University or other registered training organisations. Program Coordinator Uilelea Uilelea supports students who often have very limited language, literacy, and numeracy and digital literacy. He helps them learn to use computers, laptops or even phones to access learning materials, use online learning platforms, videoconferencing for lectures and group meetings and other digital skills needs. He also supports staff in local agencies with computer skills needed to undertake study.

Uilelea uses visual learning materials and resources in language where available.

- + “[We need] more resources [in Yolŋu language] so they can understand but also take it home to their families and share with community.” (Uilelea Uilelea, ALPA Higher Education Program Coordinator, 2022)

ALPA Higher Education Program runs a Certificate I in Workplace Skills course for entry level digital skills including computer, scanner and printer use, how to type, create and save documents, and use email. Initially an online course with a Charles Darwin University lecturer, it is now being delivered locally.

Online learning is starting to be embraced

ALPA Higher Education Program Coordinator Uilelea Uilelea described challenges for students leaving the community to do training, such as being away from family and friends and language barriers:

- + “When they go to these block courses, it’s really hard to sit in the huge theatre ... [or] understand the whole digital connections and digital training. ... [Also] it’s still in the English language [so some] have difficulties.” (Uilelea Uilelea, ALPA Higher Education Program Coordinator, 2022)

For this reason, he said, a mix of locally delivered and online training are the most appropriate means of training delivery. While online learning can save significant travel time and expense, there are challenges in online learning due to poor connectivity, low digital literacy, and lack of familiarity with remote learning systems. However, during COVID, this was the only means of accessing most training courses.

- + “I think the biggest challenge at the moment is the low language, literacy, and numeracy ... [Some students find it difficult] to sit in front of the computer and listen [to long] tutorials because they’re not used to it [so I sit with them to help them get started] ... it’s very, very difficult because they never used to access emails [so I set up] emails for students ... they don’t know how to access Google. So, there’s a lot of challenges.” (Uilelea Uilelea, as above)

He also described how connectivity challenges impact on online learning. When the internet goes down intermittently or for several hours at a time, it becomes a disincentive.

Cyber safety and scams are a significant concern, with e-safety awareness required

Local agencies identified a range of cyber-safety issues prevalent in Galiwin’ku from scams, online abuse, access to inappropriate content, and copy-cat behaviour from social media trends. Some people described the impact of inappropriate use of social media, and the need to extend Yolŋu social protocols to online use:

- + “[People have been swearing in language on social media] and caused trouble ... and people have been ... arguing each other.” (Ted Gondarra, Community Engagement Leader with Connected Beginnings, 2022)
- + “It’s the worst thing that Yolŋu people are using that [swearing] in Facebook ... [If people] talk in bad language ... cut the Facebook ... so they won’t use it again.” (Elaine Lawurrpa Maypilama, elder 2022)
- + “[There’s a lot of] conflict that probably breaks out and comes from platforms like Facebook or Diva Chat. ... [Social media use is still relatively new so there aren’t] the social rules, the way to keep everybody safe and happy ... there’s still a lot of navigating going on.” (Margaret Hewett, Connected Beginnings 2022)

There are concerns about the impact of bullying and abuse via social media on young people’s mental health:

- + “We’re under a lot of depression and a lot of pressure ... [Those untrue and negative stories on Facebook] takes you away from who you ought to be, a strong cultural person.” (Marcus Lacey, Executive Officer, Marthakal Homelands and Resource Centre, 2022)
- + “Sometimes people think [suicidal thoughts because of comments on social media] ... They can say, okay, I might kill myself, because no-one loves me, no-one wants me.” (Elaine Lawurrpa Maypilama, elder 2022)

Awareness of online privacy is growing, but privacy settings on platforms like Facebook can be confusing. There were calls for more cyber-awareness for school age children. The local Shepherdson College has been promoting cyber-safety awareness for children at school:

- + “That’s talked quite a lot about at school ... cyber safety and cyberbullying and those sorts of things [but more is needed to keep up with changes].” (Margaret Hewett, Connected Beginnings 2022)
- + “Kids are getting smart phones at five years old ... [People need to learn that] the whole world can essentially see [what you post] ... it’s a scary thought.” (Melissa Jones, Community Development Coordinator, EARC, 2022)

Interviewees said there was a need for more cyber-safety awareness about social media use, malware, parental controls, privacy and scams, which are becoming more commonplace:

- + “There is a problem with scams, like Facebook advertisement [saying] you can get \$800,000, and people just go in with their debit card ... Many people [in Galiwin’ku] ... were caught, they’re losing money on day-to-day basis.” Ted Gondarra, Community Engagement Leader with Connected Beginnings, 2022)

There are calls for more cultural authority of elders in the digital realm

Some elders expressed concern about the impact of social media and digital technology on Yolŋu cultural protocols, introducing behaviours that are against cultural protocols. Elder Jane Garrutju stressed that phone and Internet access on homelands is to be used appropriately:

- + “It’s no good using the phone or the [online] services ... for bad reasons ... It’s for the emergency ... we need to use it wisely and properly.” (Jane Garrutju, Chairperson, Marthakal Homelands, 2022)

There were concerns that young people’s access to online content is eroding respect for elders’ guidance:

- + “When I [was young, I listened to] old people, they always there to teach us [and encourage us for school and work] ... When this technology came [children are] not really listening to your old people. ... [We need to teach children how to] access [the phone] in proper way.” (Yungirrŋa Bukulatjpi, Yalu researcher, 2022)

Yungirrŋa proposed a digital driver’s license for young people before being allowed use of mobile devices and social media:

- + “[The kids need to learn] the rules, so guidelines of this is how to use it ... in a safe way. [We need a] plan for the community ... [because] they introduced [mobile coverage with] no plan.” (Yungirrŋa Bukulatjpi, Yalu researcher, 2022)

Use of devices is described as an addiction, impacting on work and other activities

Mobile device can become addictive for some users, limiting their face-to-face engagement in communication or work activities. The term ‘addiction’ came up in several interviews:

- + “Sometimes when our young people ... they’ve lost their credit ... they smash their phone ... it’s really addiction to them. They can’t live without phone.” (Cyril Bukulatjpi, Media Officer, Yalu, 2022)
- + “[Kids] about 5 or 4 years old, playing those games ... they’re really very much addicted. ... You can hear local children here crying for a ... mobile phone, and parents ... get it for them.” (Ted Gondarra, Community Engagement Leader with Connected Beginnings, 2022)

While there are calls for improved mobile and Wi-Fi services on homelands services there are also concerns about the potential impact on homeland life and culture:

- + “Kids won’t stay off the phone. They’ll be hanging onto that phone and not go out hunting. ... Instead of going out and being part of their normal lifestyle, they’ll be a slave to Facebook or ... TikTok or whatever.” (Marcus Lacey, Executive Officer, Marthakal Homelands and Resource Centre, 2022)

This is leading to calls for elders to have the authority and capability to switch the Internet off when required, particularly on homelands, as is the situation in some central Australian communities:

- + “Elders and ... parents can step in and actually monitor how long they can use ... [They want the power over] the technology [so it] can be adjusted and monitored

closely by the community.” (Marcus Lacey, Executive Officer, Marthakal Homelands and Resource Centre, 2022)

- + “In homelands, I think that there needs to be an option for traditional owners to be able to turn connectivity off and disconnect from social media [they] should have the right [to] turn it off.” (Hannah Fincham-Thomson, East Arnhem Real Estate, 2022)

Local Digital Media Content Production, Archiving and Sharing

Local music production and sharing

Galiwin'ku has a strong history of music, including internationally renowned singer/musician Gurrumul, as well as Saltwater Band, Manuel Dhurrkay and many others. While the music scene is not currently as vibrant as it once was, local musicians are creating music using digital applications such as Garageband, and sharing their work on YouTube, FaceBook, Soundcloud and iTunes.

- + “A lot of people, even young people [are using Garageband to] make a mixture [of vocals] combined with other electric instruments. ... They produce their songs.” (Cyril Bukulatjpi, Media Officer, Yalu, 2022)

There is interest in having more support for music production and a studio facility for music recording.

Demand for continuation of digital media and cultural knowledge programs

Galiwin'ku has a strong history of Indigenous knowledge and digital media projects. While these have waned, there were calls for renewed support for language and cultural recording projects.

In the early 1990s a project called Yolŋu Nations Knowledge Centre, supported by Sydney University, Charles Darwin University, and Flinders University, set out to collate an archive of cultural information (photos, songs, language recordings) across numerous Yolŋu clans. In 2001, a Galiwin'ku Community Newspaper project was set up as part of a youth employment project, including digital media production skills.

Numerous researchers have documented the various Indigenous knowledge recording and archiving projects over the last 20 years¹⁹. An Indigenous Knowledge Centre was opened on 12 June 2003 by the Galiwin'ku Community Council, with support from NT Library and Information Service. An archive project was established which delivered community-managed access to “a web-enabled knowledge database developed by Yolŋu people.”²⁰ Galiwin'ku also established a multi-media program operating in early 2010s, called Digital Futures Live, but it was forced to close when funding was discontinued in the mid-2010s. A recent thesis by Cathy Bow (2020) outlines the use of digital technologies for language resources in Indigenous NT communities. A number of organisations still support language projects in Galiwin'ku, including Yalu, ARDS, Charles Darwin University, Menzies School of Health, the literacy production centre at the school, and the bible translation program.

A renowned cultural output from Galiwin'ku is the Tjuki dancers, a talented troupe of young men melding traditional dance moves with western music styles. This grew from a video of a performance by local students for a departing schoolteacher posted to YouTube in 2007. The video went viral, leading to requests for the dance troupe to perform at events in Australia and overseas for more than a decade.

¹⁹ These include including Beale (2003), Richmond (2005), Anderson (2005), Christie (2008, 2009, 2010), Corn (2012, 2013, 2019 with Stephen Patrick), De Largy Healy (2013), Deger (2013), Gumbula (2005, 2009, 2019) Maina (2012), Masterson et al (2019), Van Gelderen & Guthadjaka (2019) Michael Christie has an extensive body of research with Yolŋu, in particular the *Indigenous Knowledge and Resource Management in Northern Australia: Making collective memory with computers* project (2003-2006). As part of this Scott (2004) produced an audit of Indigenous Knowledge Databases in Northern Australia, including the Galiwin'ku IKC.

²⁰ Beale, 2003: 289

There is interest in reinvigorating digital media production in Galiwin'ku, including supporting young people to create content in language. Yalu Communications Officer Cyril Bukulatjpi described the potential use of digital technologies for transferring cultural knowledge:

- + "I would really love to see media production [come back] in Galiwin'ku to capture every event, every language, every knowledge ... When kids are recording [the] songlines ... that becomes their identity to understand those songlines ... [It's] a good way to learn." (Cyril Bukulatjpi, Media Officer, Yalu, 2022)

Need for Archive Storage

While there are a number of online repositories with content from Galiwin'ku, including Batchelor Institute's Centre for Australian Languages and Linguistics (CALL) collection and CDU's Living Archive of Aboriginal Languages platform, there were calls for a multi-media archive facility in Galiwin'ku to store and enable access to the collections of photos, videos, audio recordings, community records and cultural heritage materials.

- + "There should be some sort of archive centre [for] the history of Galiwin'ku and the [many] Yolŋu nations from this area." (Marcus Lacey, Executive Officer, Marthakal Homelands and Resource Centre, 2022)

An archive can help to transfer cultural knowledge and strengthen identity of future generations:

- + "Something to empower ... this generation to make them think how strong our people were [in the] '40s and late '70s. That was a time when Yolŋu had the self power and determination ... to encourage the new generation ... make them feel good about themselves." (Marcus Lacey, Executive Officer, Marthakal Homelands and Resource Centre, 2022)

Storage of personal collections is also an emerging challenge with increasing use of phones for taking photographs and video. People are wanting help to save their content on a server or online so it isn't lost when they replace their phone. However, this can be costly and challenging:

- + "It's been so difficult to [back up] all my photos and now my phone is full ... how do I save my photos ... backup everything? That's the issue I've had." (Margaret Dhurrpuy, Artist, Elcho Arts, 2022)



Figure 6: Daniel and Yungirrŋa Bukulatjpi doing survey with resident Jesselina Dhamarrandji.

6. CASE STUDY – IMPACT OF VAST TV SERVICES NOT WORKING

High incidence of household VAST TV services not working

East Arnhem Real Estate (EARE) undertook an assets survey of 221 houses in Galiwin'ku in May 2022. While set-top boxes were not tested in the audit, Hannah Fincham-Thomson estimated that VAST TV services were not working in 90% of the houses.

- + “Most tenants [have] absolutely no TV access. ... They just download shows onto a USB stick [to watch on TV or] watch off their phone. ... [I haven't seen any Yolŋu] watching ABC or [free to air] television [in] the past six years.” (Hannah Fincham-Thomson, EARE, 2022)

Former EARC Manager Kaye Thurlow verified this, also estimating that about 90% of Galiwin'ku households were without television services, including the staff houses. Our survey found that for 80% of respondents, VAST TV was not working at their house. 58% of those said this was due to the set-top box not working, and 27% due to damage to the satellite dish or cabling. Key issues are that the set-top box is prone to damage from power surges with local generator power supply and the smart card, which is dedicated to the unit, can be easily removed.

- + “I haven't had any TV for years now [due to] this severe weather. I had families move into our house and the kids got to the card and I don't know what they did with it. So the box was just sitting there.” (Margaret Dhurrpuy, Artist, Elcho Arts, 2022)

Background: Switchover from local broadcasting to VAST Direct-to-home

The VAST DTH satellite TV service was installed on all premises in remote communities by the Australian Government in 2013-2014, replacing the Broadcasting for Remote Aboriginal Communities Scheme (BRACS), which had been in place since 1987. The BRACS facility enabled broadcast of a local radio service and up to four television channels in communities, supported by the remote Indigenous media organisation TEABBA. BRACS enabled broadcast of locally produced video content, including meetings, sports, or cultural events.

- + “[Since] the late '80s [our TV] reception came through the BRACS system ... the BRACS people could control whether you had access to [ABC or] switch to community transmission. ... They played local videos ... [or live events] like the footie Grand Final and certainly other interviews and stories.” (Kaye Thurlow, long-time resident/ former Manager, EARC, 2022)

With the VAST DTH model removing local content capability, some people felt the replacement of BRACS was a significant loss.

- + “[The switch off of BRACS] has devastated us in getting local information to community.” (Kaye Thurlow, as above)

At the time of switchover EARC argued strongly to upgrade from BRACS to digital retransmission rather than direct-to-home satellite services but the Government did not support the community's request, saying that a digital broadcasting facility would have to be fully funded and maintained by EARC.



“[We told them] ‘It’ll be cheaper for you to do retransmission rather than put a satellite dish on every roof and give everyone a set top box’ ... ‘The satellite dishes will become flying saucers in the next cyclone’. [But they refused] ... And it’s been devastating.”

- Kaye Thurlow, as above

Under the Digital Switchover program, there was no funding allocation for a coordinated maintenance program of VAST equipment for remote First Nations communities., with maintenance transferred to being a tenant responsibility. As a result, VAST satellite services are no longer working in an estimated 90% of the households.

EARC said that NT Housing should ensure VAST services are working under its housing maintenance program. East Arnhem Real Estate²¹, who are contracted to manage housing assets in Galiwin’ku, advised that under NT Government’s Residential Tenancies Act, as landlords, they must provide a working satellite service. However, there is no regular monitoring of whether VAST satellite equipment is operational, or the reason if not working. Also, the landlord’s responsibility does not extend to the set-top box, the most common failure point.



“Direct to home! That is a nightmare here. Some of us just gave up. ... [Our set-top box worked at first but it got] damaged that quick, and then you’ve got to get another, for \$600. ... I’ve got two set box that myself and my daughter bought, \$1,300, and it still sits at home [because we can’t activate them]. We’ve given up now.”

- Gaylene Yenhu, *Community Engagement Leader, Connected Beginnings, 2022*

Impact of cyclones on VAST DTH equipment

The prevalence of cyclones in the Top End is a key issue for reliance on satellite services. After Cyclones Lam and Nathan in 2015, more than 40% of the satellite dishes were damaged and needed to be replaced.

- + “[We] had to argue for the Government to replace the damaged satellite dishes.”
(Kaye Thurlow, long-time resident/ former Manager, East Arnhem Regional Council, 2022)

NT Government did replace many of the satellite dishes, however cyclones are a recurring issue in the Top End.

Challenges with activating set-top box smart cards

Even if households can afford to replace the set-top box, activating the smart card can be challenging. This requires having a mobile phone number and email address and a high level of English and digital literacy to follow the online activation instructions. Little technical support is available from the stores in Galiwin’ku that sell the set-top boxes.

- + “[We asked ALPA store] to help us set that up. They said ‘We just sell them. We can’t help you’. ... [I tried to activate the smart card] and then gave up. So I’ve still got those two boxes sitting at home [with] no [TV] access for 5 years ... Most [households] have just given up now.” (Gaylene Yenhu, Community Engagement Leader, Connected Beginnings, 2022)

²¹ EARE is contracted by NT Government to provide tenancy services for 221 public housing assets in Galiwin’ku.

Impacts of VAST TV not working

There are several key impacts because of the lack of free to air services. Firstly, access to news and entertainment is largely transferred to a user-pays model via online delivery. Secondly, as video content uses significant bandwidth and data, this substantially increases congestion on the already stressed 4G mobile network (outlined in section 4). Thirdly, with reduced access to reliable sources of news and information, misinformation is more likely to dominate users' information channels (outlined in section 4). Interviewees also noted that having the television and set-top box connected to a wall plug limits watching of TV outside, where it is cool, a previously common practice in remote communities during analogue broadcasting.

While our survey found that 19% of respondents access TV services via VAST, 35% said they watch TV via a mobile phone, tablet or computer. 28% said they never watch TV. 5% of survey respondents now use subscription TV services (Foxtel or Austar), with some subscribing to Sky Muster to enable content streaming.

- + "I gave up on that VAST thing, and [got] SkyMesh, just so that I can watch a movie with the family at home now ... [but] it costs a lot of money! [\$74 for 150GB data] ... There's a lot of us in the house [so it's] run out after 2 weeks." (Gaylene Yenhu, Community Engagement Leader, Connected Beginnings, 2022)

Calls for digital broadcasting

To reduce the cost of maintaining VAST DTH services on over 300 houses, there were calls for a return to terrestrial broadcasting. This would ensure that all households had reliable access to free-to air television services and reduce the maintenance to a single EARC-managed facility.

- + "It'd be cheaper doing it as a whole [set up of digital broadcasting] than trying to fix all the houses individually." (Melissa Jones, Community Development Coordinator, EARC, 2022)

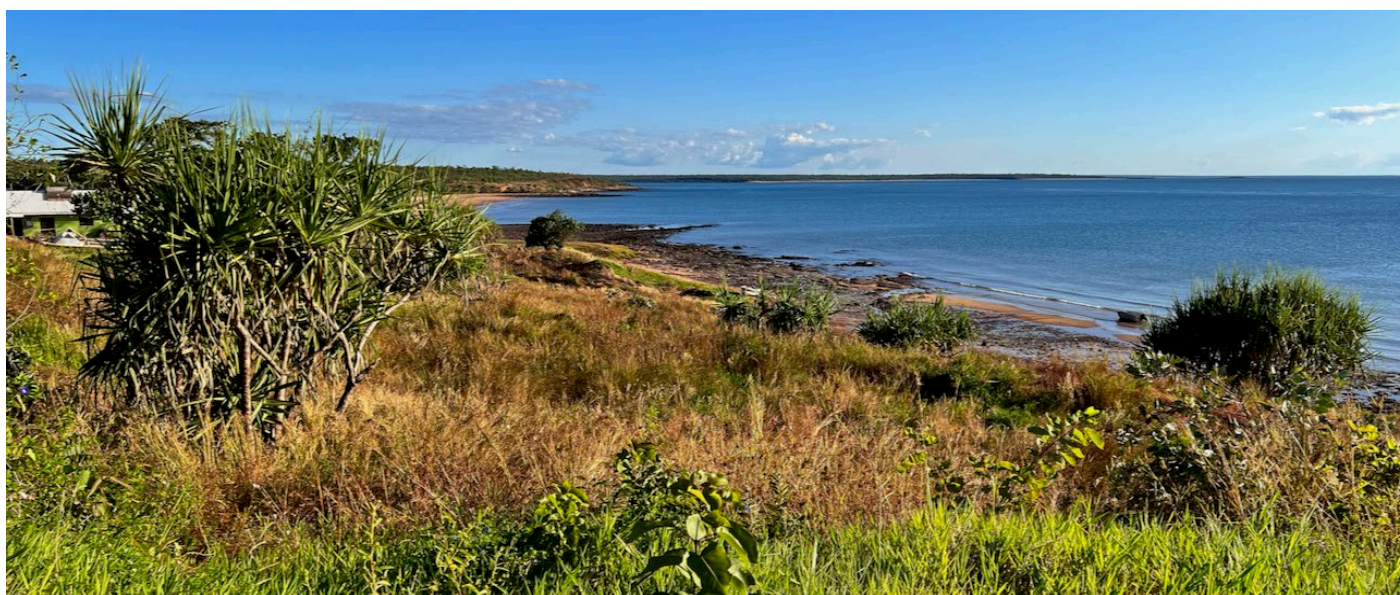


Figure 7: View south-west from Galiwin'ku foreshore.

7. CONSIDERATIONS FOR LOCAL DIGITAL INCLUSION PLAN

Developing a local Digital Inclusion Plan would enable a coordinated whole-of-community approach to address some of the challenges outlined in this report. It would also provide a useful tool for advocacy to government, 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 Galiwin'ku. These are not intended to be prescriptive, nor are they listed in order of priority.

Identified Issue	Possible Actions	Potential Stakeholders
Access		
Highly congested 4G coverage in Galiwin'ku; Upgrade to East Arnhem fibre network planned for 2023, the with microwave link to Galiwin'ku yet to be funded.	Ask Telstra to provide interim solution to reduce 4G congestion while awaiting upgrades (e.g. cell on wheels with satellite backhaul satellite delivered Wi-Fi mesh network); Request that NTG seek funding to install and maintain until upgrades completed.	Telstra, Northern Territory Government (NTG), East Arnhem Regional Council (EARC), Northern Land Council (NLC), Developing East Arnhem Limited (DEAL)
Limited mobile coverage in Buthan and nearby homelands.	Additional 4G tower near Buthan.	Telstra, NTG, EARC, NLC, DEAL
Technical and IT support for multiple agencies costly due to remoteness, and delayed in wet season.	Review technical maintenance and IT support needs of all agencies on Galiwin'ku; Review options for multi-agency maintenance contracts to reduce costs; Consider employing local technician based on Galiwin'ku and/or Yolŋu trainees.	EARC, DEAL., Telstra, Australian Private Networks (APN/Activ8me), National Broadband Network (NBN Co), IT support companies
Reports of some Marthakal homelands having limited or no connectivity and/or existing infrastructure not working reliably.	Review of communications infrastructure in Marthakal homelands; identify additional infrastructure needs and upgrades; Review maintenance processes including remote monitoring and support to reduce costs and outage times; Develop protocols for community awareness of communications systems and on-site maintenance support; Identify options for community control over Internet access times where desirable.	Marthakal Homelands and Resource Centre (Marthakal HRC), NLC, EARC
Lack of Wi-Fi coverage to enable affordable use of online services and to provide access when 4G access congested.	Consider setting up free public Wi-Fi hotspots in Galiwin'ku (near EARC office, stores) and Buthan Store using NBN Sky Muster or Starlink as potential backhaul	EARC, ALPA, NTG, NT Library, Centrelink / Services Australia, NBN Co

Identified Issue	Possible Actions	Potential Stakeholders
Lack of community access computers for skills development and use for personal, creative and study needs.	<p>Purchase computers for use in Galiwin'ku library.</p> <p>Expand access of ALPA Training Centre facility and computers.</p>	<p>EARC</p> <p>Arnhem Land Progress Association (ALPA)</p>
Affordability		
Primary use of pre-paid for data (high data cost), including for household use; limited awareness of changes to mobile pre-paid and post-paid plan options or satellite service options.	Provide easy-to-read materials in IGA store and post office (posters, brochures) and radio messages outlining options for more affordable mobile and data services via Telstra and NBN Sky Muster retail service providers	EARC ALPA, Telstra, NBN retail service providers, Australian Communications Consumer Action Network (ACCAN), Yalu
Need for free access to online government services	This will be addressed by the Wi-Fi hotspots if services are free to access. Centrelink and/or Post Office may provide free Wi-Fi during work hours	Centrelink / Services Australia, EARC, NTG, NT Library, NBN Co
Digital Ability		
Mentor support for use of government and online services when needed.	Employment of a digital mentor, possibly based at library and/or Centrelink office, to support people with limited digital ability to use government and online services and apps, set up phones, add recharge data etc.	EARC, NTG, Centrelink / Services Australia, Australia Post, other government agencies
Need for digital skills training and support, especially for elders	Provide one-on-one digital literacy training and support for community members in library; Consider running small group workshops in specific digital skills, including at Yalu office, EARC meeting room	Galiwin'ku Library/ EARC, NT Library, Yalu, EARC
Demand for workforce readiness IT skills	Expand awareness of ALPA Training Centre courses including Certificate I in Workplace Skills course; Provide specific training workshops for CDP participants or one-on-one support in workforce readiness skills as needed.	ALPA Higher Education, EARC, Yalu
Demand for cyber-safety awareness, training and resources about scams, online safety for young people, malware, content filtering, and privacy	<p>Run cyber-safety awareness workshops (including in schools, workplace and for elders);</p> <p>Awareness campaign to highlight cyber-safety risks using resources designed/adapted for Galiwin'ku audience (on radio, Facebook pages, posters etc.)</p>	<p>EARC, Yalu, Office of e-Safety / Be Deadly Online.</p> <p>Yalu, Aboriginal Resource and Development Service (ARDS), Top End Aboriginal Bush Broadcasting Association (TEABBA), inDigiMOB</p>

Identified Issue	Possible Actions	Potential Stakeholders
	<p>Consider establishing a Council of Elders to enable cultural authority of elders in the digital space;</p> <p>Design a youth-based 'digital driver's license' program to guide safe use of mobile devices, Internet and social media, with local guidelines (proposed by Yalu researcher Yungirrŋa Bukulatjpi).</p>	<p>Connected Beginnings</p> <p>Yalu, Connected Beginnings</p>
Media Services and Production		
VAST Direct-to-home TV services not working on estimated 90% of residential households	<p>Review number of houses without VAST;</p> <p>Look at costing to upgrade to digital broadcasting of all 16 Freeview services plus ICTV (compared with ongoing maintenance of over 300 houses).</p>	<p>NT Housing</p> <p>NT Government, EARC, Dept of Infrastructure, Transport, Regional Development and Communications (DITRDC)</p>
Challenge with recruiting RIBS broadcaster role for 3 hours/day to do local radio shows	EARC to look into expanding RIBS broadcaster roles from 3hrs/day to full-time; TEABBA may suggest other tasks/activities (e.g., journalism, social media, music /video production, technical) and provide training and support.	EARC, TEABBA, NIAA (funding agency)
Demand for digital media skills and social media skills for creative and cultural production and promotion.	Run skills workshops in digital photography, social media for promotions, and multi-media production at Elcho Arts	Elcho Arts, ARDS, Batchelor Institute, Charles Darwin University, inDigiMOB
Lack of multi-media facility to support production of local cultural and creative content and archiving of existing content (since closure of Digital Futures Live).	<p>Review demand for local multi-media production facility and types of content (e.g., video, online, music, photography, art/design) as well as existing media for archiving.</p> <p>If significant demand, look at developing a Business Plan to seek funding to establish a facility and ongoing operations, including staffing, production development and support, training activities, exhibition/ distribution, etc.</p> <p>Seek partnerships to providing training and support.</p>	<p>Elcho Arts, EARC, Yalu, ARDS</p> <p>Elcho Arts, EARC, Yalu, Artback NT, Northern Territory Aboriginal Investment Corporation</p> <p>ARDS</p>

Appendix 1: Summary of Survey results

The following results are based on the initial analysis of surveys with 46 residents, 89% of which identified as Aboriginal and/or Torres Strait Islander. As outlined in the Executive Summary the final results, after data cleaning and weighing against ABS statistics, may differ from these results. These authoritative results will be available via the Australian Digital Inclusion Index website and data dashboards in mid-2023.

Demographics

- + **Gender:** 67% of survey respondents were female and 33% male.
- + **Education:** 15% had completed up to year 12, 13% completed a Certificate course, 2% have attained a Diploma, 11% have a Bachelor's Degree and/or Postgraduate Degree, and 35% attained year 10 or lower.
- + **Employment:** 64% were employed or engaged in CDP activities (37% of these full-time) and 11% were unemployed. 26% had been looking for work in the last month.
- + **Welfare:** 72% received some form of government pension or benefit, primarily JobSeeker/ Youth Allowance, Family Tax Benefit and Parenting Payment (Single or Partnered).
- + **Housing:** 80% lived in multi-generational or shared households, with an average 8.5 people per house. 76% of respondents said they pay rent to the housing authority, with 15% boarding or living at home.
- + **Health:** 11% had a long-term disability or health condition.
- + **Language:** 91% indicated they spoke a language other than English at home. 85% of respondents spoke Yolŋu Matha and 11% spoke Djambarrpuyŋu. 98% of respondents indicated they understand spoken English (63% very well and 35% quite well), and 96% indicated they understand written English (59% very well, 37% quite well).
- + **Income:** The average weekly household income was about \$1400. 14% of respondents' household income was \$800 per week or lower, 34% between \$800-\$1500 per week, 43% between \$1500-2000, and 13% above \$2000.

Phone use

- + **Phone Use:** 76% of survey respondents used their mobile phone for phone calls, with 22% using someone else's mobile phone. 4% use a fixed line phone in their home, 20% used a phone in a community office or workplace, and 7% said they do not have any phone access.

67%

female respondents

64%

Employed

37%

Of employed respondents work full-time

76%

Own or share a mobile phone

\$214

Average monthly household mobile expenditure

33%

Listen to Yolŋu Radio and TEABBA daily or weekly

74%

Get news and information direct and in person daily

76%

Get emergency information direct and in person

- **Public Phone:** 11% reported using the public phone regularly, with 50% using it at some time. 17% of respondents said that the public phone was reliable, 15% said it was sometimes reliable, and 17% said it was not reliable.
- **Phone ownership:** 67% of respondents said they owned a mobile phone and another 9% said they shared one with others. Of those with phones, 89% had smartphones as their main mobile phone, and 86% used pre-paid services.
- **Data use:** The average monthly data allowances were: 54% have up to 10GB/month, 37% 11-40GB/month, and one person 41-60GB. 6% reported having no data. However, 57% reported exceeding their data limit at least once over the past year, and 14% reported exceeding their limit at least 6 times over the past year, suggesting that data use is higher.
- **Household Expenditure:** There is an average of 4.2 mobile phone services per household. Of the 43 responses on household mobile expenditure, the total expenditure was \$9620/month, an average household cost of \$214/month. 22% of households paid up to \$100/month, 38% paid \$101 - \$200/month, 20% paid between \$201-\$300/month, and 20% paid over \$300/month. The highest expense per month was \$600.

Media use

- **Radio Listening:** The most popular radio stations were First Nations and community radio services, with 33% listening to the First Nations radio service (Yolŋu Radio and TEABBA) daily or weekly and 24% listening to non-First Nations community radio daily or weekly. 22% listen to ABC radio daily or weekly. 35% said they never listen to radio.
- **Radio Access:** There are various ways that people listen to radio (multi-choice question) – 43% of respondents said they listen by car radio, 35% listen via streaming on a phone or tablet, and 17% listen with a radio at home.
- **TV Access:** (Multi-choice question) 35% of respondents reported watching TV via phone, and 22% watched through VAST satellite. 4 people each (9%) watched via DVDs on TV, via computer or tablet, and only watched TV at places other than home. 35% reported never watching TV.
- **VAST TV Access:** 20% of respondents reported having VAST satellite TV working, with 48% saying the VAST wasn't working and 33% without VAST. Of those that reported the VAST not working, 59% said it was because the set-top box was not working, and 26% due to a damaged dish or cabling.
- **TV and Online Content:** YouTube was most popular (35% watch daily) followed by streaming services (Netflix, Stan etc- 17% daily) and ABC TV (15% daily). NITV (22%), SBS TV (20%) and commercial TV (channels 7, 9, 10 – 20%) were popular as more occasional watches.
- **News and Information Services:** The most popular source of news and information were direct and in person (74% daily), followed by Facebook (37% daily), the local First Nations radio services (Yolŋu Radio, TEABBA) (22% daily), and online news services (22% daily). Noticeboards, faxes and posters were a significant weekly source of news and information (46%).
- **Emergency Information:** The most commonly used sources of emergency information were direct and in-person (76%), announcements via community PA system (48%), Facebook (39%), online emergency services (e.g. Bureau of Meteorology, government website or app - 37%), and the local First Nations radio services (Yolŋu Radio and TEABBA) (35%).

Internet use

- + **Latest Internet Use:** 61% had used the Internet in the last week, with 9% having used it within the previous month, 8% having last used it more than three months ago, and 22% had never used the Internet.
- + **Regular Internet Users:** Of those who had used the Internet within the six months (78%):
 - o 29% said they used the Internet almost constantly and another 26% several times a day.
 - o The most common online devices used are the smartphone (63%), desktop computer (26%), and laptop, tablet and smart TV (17% respectively).
 - o Many people use Internet provided by others, with 40% reporting using the Internet at their place of work or education, 23% at the community or Shire office (e.g., Centrelink, school, clinic), and 20% at the houses of friends or family.
 - o The main reasons people gave for not using the Internet more often were (multiple choice): “I do not have convenient access to the internet” (51%); “The internet is too expensive for me” (43%); “I do not need to use the internet more often” (40%); “I do not have access to content in my own language” (40%); “I am concerned about privacy or scams” (31%); and “I am concerned about inappropriate content and causing conflict” (31%).
 - o Most people (40%) were not concerned about the time they spent online, with 37% slightly concerned about how it affected their wellbeing and relationships, and 20% moderately to extremely concerned.
- + **Low Internet Users:** The 24% of people who never used the Internet, or had used it more than six months ago, cited the following as their main reason: no convenient access (82%); not needing to use it (56%); and that it was too expensive (56%).
- + **Impact of COVID-19 on Use:** The following forms of COVID-19 restrictions were cited as reasons for increased Internet use: Lockdowns (37%), social and physical distancing restrictions including isolation (37%), border closures (33%), vaccination requirements (33%), and public health messaging or COVID-19 updates (33%).
- + **Fixed Broadband Services:** The majority of respondents (87%) do not have any form of fixed home Internet. Of the 13% of respondents with fixed broadband, 4% had NBN Sky Muster, and 4% had ADSL.



61%

Of survey respondents used the Internet in the past week



22%

Never use the Internet



51%

Of regular users gave the reason “I do not have convenient access to the Internet” for not using the Internet more



43%

Of regular users gave the reason “The internet is too expensive for me”



87%

Of households do not have any form of fixed home Internet



77%

Can send and receive emails



83%

Use online banking

- **Cost of Fixed Broadband:** 17% of respondents with fixed broadband connections said their household used less than 10GB data per month, 50% used between 50 -300GB per month and 33% had unlimited data. 50% exceeded their limit at least once over the last year. The average cost was \$71.50 a month.
- **Mobile Broadband Service:** 9% used a portable modem for data sharing, with all on a post-paid billed plan. 1 of these was between 21-40GB, 1 between 81-100GB, and 2 above 100GB. All exceeded their limit at least once over the last year.
- **Affordability of Internet:** 43% of respondents said that they have had to cut back on essential household at least sometimes to afford personal or household Internet within the past six months, with 41% compromising on speed and/or quality on their connection to prioritise affordability.

Digital Ability

- **Overall Digital Ability:** Digital literacy levels were widely varied in Galiwin'ku but relatively low overall compared with other sites visited. Respondents who were elderly, had limited spoken or written English literacy, or did not have any mobile or Internet access generally had lower levels of digital literacy.
- **Regular Internet Users:** Of those who had used the Internet within the six months (76%)e:
 - Most people reported being able to send and receive emails (77% said 'very true' or 'mostly true'), find and install apps/software (74%), open a new Internet browser tab (80%), connect to a Wi-Fi network (80%), download and then open a file (77%), use a mobile phone or device as a Wi-Fi hotspot (83%), and complete online forms (67%).
 - Online security and cyber-safety awareness are also reasonably high, with most people knowing how to set and manage secure passwords (83%), identify which apps/software are safe to download (69%), adjust privacy settings (71%), add or remove friends or followers on social media (77%) and manage and decide what personal information to share online (66%). About half were able to check if information is trustworthy (57%) and manage how information about them was collected (51%).
 - There is low confidence in online content creation. Though 66% respondents reported knowing how to post a video, 43% know how to produce online content and 28% said they are able to create a website. 40% are aware of online copyright law.
 - Just over half of respondents know how to connect smart devices (e.g., smart TV) to the Internet (57%) and adjust privacy and security settings (54%).
 - The main online activities include online banking (83%), accessing government services (69%), online shopping (57%), learning or study (51%), comparing prices (49%), online buying and selling (e.g., Amazon, eBay, Gumtree – 46%), delivery tracking (46%), and accessing health information (43%).
 - Social media is popular, with 77% of respondents saying they used the Internet for keeping in touch with family or friends, 71% for meeting new friends or reconnecting with old friends online, and 63% used it for engaging with community.
 - 86% of respondents had used online entertainment services in the past six months (e.g., streaming video/music, playing online games). and 25% had attended a music, arts, or cultural event online.
 - In the past 6 months, 46% had used a smartphone app to navigate a route.

Comments

- + We need better internet in Buthan. We have all the way to the town centre for phone and internet and services
- + We should cut Facebook out. It's making trouble for our community and hurting our young people.
- + We need places to learn about computers and online services. Need better 4G at Buthan
- + Need phone at my homeland fixed
- + Need better mobile at Buthan
- + Television reception - need to get the retransmission system
- + More free Wi-Fi and more free internet recharging voucher don't always work - recharge cheaper
- + Need more training to use internet. Need Wi-Fi to use services. Need television fixed so we don't have to pay mobile prepaid to get tv
- + Sometimes the recharge voucher doesn't work. Need help to learn how to use internet and phone.
- + Recharge vouchers don't work sometimes. I call 1800 number but it doesn't work. The 4g internet doesn't work in afternoons, too busy.
- + Internet service in Galiwin'ku is terrible and needs to get fixed quickly
- + I want to have a lot of data or a good satellite. I think it is really good for the people that live in the house to have a lot of Internet like G5 to cover holistically.
- + Need access to training for mobile and using internet
- + We need the TV fixed up in all the houses, we need better mobile service, it's too slow. The public phones in the homelands need servicing
- + Faster speed = better coverage - more data on PAYG faster internet for download and downloading movies faster - during day - uses BandLab.
- + Want services same as other people in Darwin better coverage
- + I want better mobile service, it's too slow. Also need digital skills training and Wi-Fi to access services
- + Better signal, EFTPOS goes down ATM goes down - little download speed
- + Instagram and Facebook @ sometimes bad with arguments with Facebook
- + Need training and support to do internet banking, online services like MyGov
- + Need more training, computers and support to use digital phones
- + It's too hard to access internet in Galiwin'ku and costs too much
- + Want more digital training for elders and Middle Ages, more access computers and free Wi-Fi to use services
- + I don't have a mobile because I prefer to talk to people in person
- + Need a big Telstra antenna and a new antenna Gitan homeland and Telstra to fund a tower at Gitan outstation



There's no free Wi-Fi and [data] costs too much money. And not having a good internet connection always with the Telstra service. And wasting money monthly and weekly with mobile internet, not saving money for food.

- *Survey comment*

Appendix 2: Community Communications Audit

About the Community	
Community Name:	Galiwin'ku
Alternate name	Elcho island
Traditional owners/ Language group	Yolŋu Matha (Djambarrpuyŋu, Gupapuyŋu, Djinang)
Location (Coords)	Longitude: 135.5664 Latitude: -12.0235
Region	East Arnhem
LGA/Shire/ Regional Council	East Arnhem Regional Council
Land Council	Northern Land Council
Regional Service Centre, distance	Nhulunbuy - 150km east (40 min flight); Darwin - 550km south-west
Remoteness (ABS)	Very remote
Demographic Data - ABS 2021	
ABS link - All persons	https://www.abs.gov.au/census/find-census-data/quickstats/2021/SAL70106
ABS link - Aboriginal and/or Torres Strait Islander people QuickStats	https://www.abs.gov.au/census/find-census-data/quickstats/2021/ILOC70600401
Total population	2199
Aboriginal and Torres Strait Islander population	2027 (92.2%)
Gender breakdown	49.6% male/ 50.4% female
Median Age / breakdown	25 (All persons)/ 23 (ATSI population); Children aged 0 - 14 years made up 26.8% of the population and people aged 65 years and over made up 3.1% of the population.
Families	474 (All persons)/ 444 (ATSI population)
Language group- number of first language speakers	Djambarrpuyŋu (81.6%), Galpu (1.5%), Australian Indigenous Languages (1.2%), Gumatj (0.8%), Warramiri (0.6%)
% ATSI people who speak an ATSI language	96.90%
% who speak only English at home	4.8% (All persons) / 0.2% (ATSI population)
Employment levels (of people in workforce)	In the labour force - 616 (38.1%); Not in the labour force - 911 (56.4%); Not stated - 90 (5.6%); Of those in the labour force, 40.9% were employed full time, 19.0% were employed part-time and 8.0% were away from work and 32.5% were unemployed.
Education levels - % of people attained	Bachelor degree or above - 4.5%; Diploma/Adv Dip- 2.2%; Cert 3/4 - 5.7%; Year 12- 19.1%; Year 11 - 15.2%; Year 10 - 17.2%; Cert 1/2; 0.4%; Year 9 or below - 17.3%; No education attainment- 0.8%; Not stated - 17.9%

Number of buildings, number of households, average people/household	309 occupied private dwellings, 34 unoccupied; Average number of people per household - 5.6 (All households) / 6.3 (ATSI households); Average number of people per bedroom - 2 (ATSI households)
Housing suitability- total persons living in overcrowded dwelling requiring more bedrooms	Not stated; avg 2 persons per bedroom
Median Weekly ATSI household income	\$1913 (All persons) / \$1812 (ATSI population)
Median Weekly personal income - over 15 year	\$352 (All persons) / \$338 (ATSI population)
Average weekly rent	\$200
Number motor vehicles per dwelling	63.2% - none; 25.7% - 1 motor vehicle; 6.9% - 2 motor vehicles; 1.3% - 3 or more motor vehicles
Community Services and Plans	
Community Layout Plan	See Bushtel: https://bushtel.nt.gov.au/profile/492
Agencies in community	2 ALPA (Arnhemland Progress Association) stores; CDP service; EARC Council office / post office; Centrelink; Baby Hub - Territory Families (NTG); Hope for Health; Public Library (NTG); Miwatj Health; Shepherdson College - up to year A12; Marthakal Homelands Resource Centre; Galiwinku Primary School; Galiwinku Depot - EARC; Elcho Island Arts; Ngakalbuy well-being centre; Aged Care Centre; Marthakal Housing Services; Marthakal Motel and Contractors Quarters (EARC); Marthakal Rangers; Takarrina takeaway; Nhawe Manymak Café; Elcho Island Airport Terminal
Visiting agencies	NLC, NTG, Anglicare (providing financial literacy and support re Telstra plans), AMSANT, AMSANT, East Arnhem Real Estate (provide housing management),
Community development plans	See Bushtel: https://bushtel.nt.gov.au/profile/492 Yalu have a Strategic Plan mapping to CTG targets including digital inclusion (target 17)
Power supply/type in community	Diesel generator, solar farm near airport; power outages reported as having been a major issue for communications.
Use of power cards in households- monthly expenditure	Yes - amount unknown
Basics card site?	Yes (all of NT)

Types of Communications Available	
Public phones- number/ location	8 (several not working)
Home phones- number	Unknown - very few community houses have home phones
Mobile - 3G, 4G, 5G, small cell (satellite backhaul), provider, location of base station	1 large mobile base station in centre of town behind library, no sign of another base station
Coverage description	Coverage best in centre of Galiwin'ku, 1-2 bars signal at Buthan and Beach Camp areas, limited signal beyond town limit
ADSL- number of connections	Unknown - ADSL still operating, but hard to get new service unless ADSL previously operational at house
Business grade services - number of connections	Unknown
Fibre to community	No; microwave link from fibre to Nhulunbuy on mainland
Satellite services - number, locations, provider	Sky Muster taken up by many staff houses and agencies, but only a few community households due to cost and limited download
UHF or HF Radio	HF for aircraft and shipping
Status of services- faults, issues, speeds during peak use time etc	Issues of regular and extended dropouts two years ago, with Connected Beginnings compiling evidence and statements from local agencies about the impact on their business and community access to food etc
Communications Programs - Mobile Black Spots, Regional Connectivity Program, ICP, etc	Regional Connectivity Program funding to Telstra (\$2.77million) for Arnhem Fibre Upgrade Project- The project will upgrade core transmission equipment at Telstra sites across East Arnhem Land, increasing existing backhaul capacity between Darwin and Nhulunbuy from 5 Gbps to 100 Gbps. The project will also upgrade the capacity of the 4GX Telstra base station at Mount Saunders near Nhulunbuy.
Any planned upgrades?	Not aware of any other upgrades planned
Emergency information system	No
Telemetry network	Unknown
Media Services Available	
Radio services broadcast- AM or FM	88.9FM ARDS/ Yolŋu Radio; 105.9FM ABC Darwin; 106.7FM TEABBA (not working currently); 107.5FM- Vision FM
TV services -local broadcast, number of DTH services, number working	All TV services via VAST direct-to-home; East Arnhem Real Estate (tenancy managers) estimated 90% of community houses do not have TV working
RIBS radio station- location, staff, roles	No RIBS station active currently
RIMO- regional provider	TEABBA - Top End; ARDS - Arnhemland
Other media services- newspaper etc	NLC Land Rights News (no sign of distribution)

Community Access Facilities	
Internet access facility- where located, number of computers, server, printers, other facilities, videoconferencing	No computers at library (these were recently thrown out due to their age)
Public Wi-Fi availability, free or voucher system, agency, RSP, monthly download limit	Library has limited Wi-Fi access
Access computers available in other facilities – art centres, store, community office, youth centre etc	2 computers at ALPA Higher Education Centre, Buthan with printer
Any programs running to support community access- provider	No
Training / Skills Data	
Number of community members that have undertaken digital training	No data
Nature and provider of training programs?	Cert 1 in Business Skills (through ALPA Higher Education Centre)
Training options available- school, TAFE, CDP other	ALPA Higher Education Centre, works with Charles Darwin University and Batchelor Institute
Any workplace digital skills training – rangers, art centre, media, store etc	No data



Figure 8: Welcome sign near airport at Galiwin'ku



Appendix 3: Galiwin'ku layout map and Marthakal homelands



Appendix 4: Photos of Research Activities



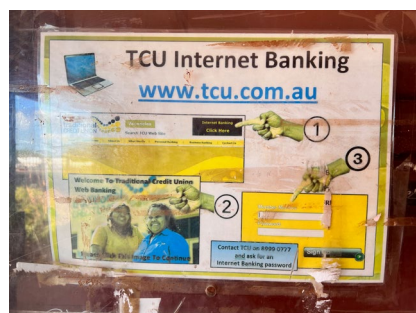
Figures 9 and 10: Daniel and Lyndon doing surveys with residents.



Figures 11 and 12: Megan Yunupingu at Elcho Island Arts; James and Yungirrnga doing surveys with Buthan residents.



Figures 13 and 14: Research team at Elcho Island Arts - James Bayung, Megan Yunupingu (arts worker), Yungirrnga Bukulatjpi, Polly Holt (Art Centre Manager) and Mitchell Garawirtja; Entrance to Shepherdson College.



Figures 15 and 16: Discarded mobile recharge card; sign about how to use TCU Internet banking.