Inclusive Communications

Submission to the Review of Access to Telecommunication Services by People with Disability, Older Australians and People Experiencing Illness, Department of Broadband, Communications and the Digital Economy

September 2011

About ACCAN

The Australian Communications Consumer Action Network (ACCAN) is the peak body that represents all consumers on communications issues including telecommunications, broadband and emerging new services. ACCAN provides a strong unified voice to industry and government as consumers work towards availability, accessibility and affordability of communications services for all Australians.

Consumers need ACCAN to promote better consumer protection outcomes ensuring speedy responses to complaints and issues. ACCAN aims to empower consumers so that they are well informed and can make good choices about products and services. As a peak body, ACCAN will activate its broad and diverse membership base to campaign to get a better deal for all communications consumers.

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Introduction

i. ACCAN's vision for inclusive communications

> *"I am hard of hearing and fear using the telephone. Since having the luxury of the Captel phone I've had more confidence using the telephone and had a peace of mind that I've responded appropriately, due to the access of captioning. The Captel phone has given me confidence, reassurance and a connection to society."*
>
> Ellen Jansen, 11 August 2011

Ellen Jansen is one of a small number of lucky people who have benefitted from trials of new technologies in Australia. Most of us take for granted that we can use any communications device – land-line, mobile or internet – to connect to people, services and help. But the reality is that a significant number of Australians can't use regular products and services because of illness, disability or other impairment. The patchwork of programs available to these consumers delivers a level of service that was deemed acceptable 20 years ago but is well behind what we expect from communications services today. There are people who are limited to only being able to make calls, not receive them. There are others who can have a useable phone installed but not the device that would allow them to know that the phone is ringing. And others, again, must make do with a service that relays calls at five times as long as a regular call takes place.

Around the world, countries have taken huge leaps forward in ensuring that people can stay connected – much of it based around the possibilities that ubiquitous high-speed broadband offers. This review signals that now is Australia's time to change its laws, policies and practices to deliver inclusive communications.

ACCAN believes that the way forward is fourfold:

- Firstly, we must **maintain and enhance** the existing National Relay Service (NRS). Small but significant changes will remove problems associated with the service's affordability, usability, availability, accessibility and efficiency. The NRS services provided to the Deaf, speech-impaired and hearing-impaired communities are vital but in need of a long overdue overhaul.

- Secondly, we must establish a new ambition to deliver a truly **functionally equivalent** communications service for NRS users. This means funding three new services: next generation text relay, video relay service and captioned telephony. The entire Australian society and economy will benefit from services that bridge the digital divide and, for the first time, will mean Deaf, speech-impaired and hearing-impaired consumers will enjoy the same quality of service as the rest of the population enjoys.

- Thirdly, it's time to reach out to **new consumer communities** that to date have not been able to enjoy subsidised equipment and tailored services. This submission identifies a need for new relay services for culturally and linguistically diverse

consumers with disability, call assistance services for people with cognitive disabilities and call connection services for people with disability.

- Finally, the **assistive devices and technologies** that people need to achieve functionally equivalent telecommunications (be it a TTY, a refreshable Braille display or text-to-speech software) must be universally available. To achieve this we are calling for an end to the Telstra[1] and Optus[2] disability equipment programs[3]. In its place must be a one-stop shop program (that is independent from industry) providing the assistive technology needed to deliver functional equivalence for all telecommunications.

These four steps signal a significant departure from the current legislative and policy approach to providing services for people who have difficulty using regular communications services. The proposed approach not limited to an antiquated definition of a "standard telephone service". Our proposal recognises that enabling high-quality communications is the cornerstone of social and economic participation, with an expectation that the investment in these technologies and services will deliver increased productivity and participation. We look to a future of significantly increased interconnectedness on a ubiquitous high-speed broadband platform while ensuring that the legacies of the past are not forgotten. Significantly, we adopt a social model of disability. This means we look at disability as the barriers that society places in people's way to functionally equivalent telecommunications rather than a medical model of disability which looks at an individual's deficit.

The new Disability Telecommunications Service (DTS) comprising the four actions areas identified above will improve existing services, commit to functional equivalence in telecommunications, reach out to new, underserviced consumer communities and deliver a one-stop-shop for assistive technologies that will be dynamic and cost-effective.

Our vision is that the provision of the DTS would be the direct responsibility of the proposed Telecommunications Universal Service Management Agency (TUSMA). The new vision for disability telecommunications services is aligned with the agency's envisaged role as universal service manager in a broadband-enabled environment.

ACCAN also wishes to acknowledge the work previously undertaken by disability organisations such as Deaf Australia and TEDICORE, over many years, in advocating for reform of telecommunications, and including such successes as the establishment of the NRS itself.

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[1] http://telstra.com.au/abouttelstra/commitments/disability-services/disability-equipment-program/index.htm

[2] http://www.optus.com.au/aboutoptus/About+Optus/Corporate+Responsibility/Our+Customers+%26+Society/Disability+services/Disability+equipment/Disability+Equipment

[3] We note that AAPT http://residential.aapt.com.au/aapt-inc/pdf/aapt-request-special-phone.pdf appears to offer a limited range of disability equipment, which we understand is offered via Telstra's wholesale program. Telstra's wholesale program is also apparently used by Primus, which does not appear to have information on its website about accessing disability equipment.

ii. Guiding principles

The Terms of Reference include mention of the United Nations' Convention on the Rights of Persons with Disabilities (UNCRPD) and the Government's commitment to the principle of access and inclusion enshrined in the convention.

This review provides the opportunity to implement many of the responsibilities that Australia has adopted through its ratification of the UNCRPD. The review has direct relevance to the UNCRPD's General Obligations 4.1(g), Accessibility articles 9.1(b) and 9.2 (c,e,f,g,h), Living independently and being included in the community Articles 19(b) and Freedom of expression and opinion, and access to information Articles 21(a,b,c,e).[4]

The ratification of the UNCRPD, the recently adopted National Disability Strategy[5], the Social Inclusion Agenda[6] and the Government's commitment to the Productivity Commission's recommendation for a Disability Long Term Care and Support Scheme[7] will underpin a transformation in the lives of many Australians. Full and equitable access to telecommunications must be a cornerstone in the implementation of these initiatives if they are to realise their full potential. Our growing digital economy – a ubiquitous high-speed broadband network, increased mobile telephony spectrum as a result of the digital television switchover and the increased range of government services being offered online – has the potential to increase employment opportunities, improve educational outcomes, lower health costs and improve the lives of people with disability, older Australians and people experiencing illness.

ACCAN strongly believes the recommendations resulting from this review should be viewed within a human rights framework. Australia's human rights record was reviewed for the first time before the United Nations Human Rights Council under the Universal Periodic Review in Geneva in January 2011. Several of the recommendations made, which Australia has accepted in part, called for the development and/or strengthening of a comprehensive poverty reduction and social inclusion strategy[8]. Ensuring all Australians have accessible, affordable and available communications services that meet their needs is an important part of such a strategy. Government , industry, regulators, consumer advocates and consumers themselves all have a role to play in achieving this strategy.

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[4] http://www.un.org/disabilities/convention/conventionfull.shtml
[3]http://www.fahcsia.gov.au/sa/disability/progserv/govtint/Pages/nds.aspx
[6] http://www.socialinclusion.gov.au/
[7] http://www.pc.gov.au/projects/inquiry/disability-support/report
[8] United Nations Human Rights Council, Draft report of the Working Group on the Universal Periodic Review Australia A/HRC/WG.6/10/L. 8, 3 February 2011,Recommendations 86.32, 86.33, 86.63 accessed on 30 March 2011 at: http://lib.ohchr.org/HRBodies/UPR/Documents/Session10/AU/Australia-A_HRC_WG.6_10_L.8-eng.pdf ; and Australia's formal Response to the UPR Recommendations, 8 June 2011 accessed on 12 July 2011 at: http://www.ag.gov.au/www/agd/rwpattach.nsf/VAP/(689F2CCBD6DC263C912FB74B15BE8285)~OIL+-+UPR+-+Australia+s+response+-+FINAL+RESPONSE+-+27+May+2011+(2).pdf/$file/OIL+-+UPR+-+Australia+s+response+-+FINAL+RESPONSE+-+27+May+2011+(2).pdf

Overall, as always, ACCAN encourages the DBCDE to take into account ACCAN's principle of available, accessible and affordable communications for Australians.

Response to Review

1. Improving the NRS for Deaf, speech-impaired or hearing-impaired people

The National Relay Service (NRS) is an extremely useful tool in facilitating access to telecommunications for people who are Deaf, hearing-impaired or speech-impaired. However, the service is now over 15 years old and, for many users, relies on technology (the TTY) which is significantly older[9]. This review provides the opportunity to reflect on ways in which the NRS can empower Australians who are Deaf, hearing-impaired or speech-impaired to take advantage of changing telecommunication technologies, in the same way as their non-disabled peers have been able to do, to improve social and civil participation, including access to and efficiency of employment. ACCAN believes that we should look for best practice examples of relay services in other countries, such as the United States, New Zealand and Scandinavia.

There remains a number of barriers to effective communication, outlined below. Because telecommunications are two-way, most barriers around the NRS for people with disability also affect the wider community. Tackling issues such as speed, privacy, accuracy and ease of use is likely to result in a lower rate of call refusals, and will therefore improve the participation in society of people with disability, as well as those with whom they interact. For example, improving the speed of NRS calls would benefit NRS 'primary users', but it would also enhance the efficiencies of business and government, as recipients and initiators of NRS calls, and increase the likelihood that primary users' family and friends would feel comfortable making and receiving NRS calls.

Given the barriers to full access to telecommunications which currently exist, ACCAN recommends the following ways in which relay services might be improved.

1.1 Improving call centre services

The NRS was established as a measure to achieve equivalence to voice telephony for people who are Deaf or hearing-impaired, and later, people who are speech-impaired. Relaying via TTY only, and with other technological limitations of the time, was unavoidable. With changes to technology itself and to how technology is used by people with and without disability in Australia and around the world, however, it cannot be said that the NRS offers true equivalence or even something close to equivalence. Improvements to the NRS call centre are essential if people with disability – including those who are Deaf, hearing-

[9] The TTY was invented in 1964: http://en.wikipedia.org/wiki/Telecommunications_device_for_the_deaf

impaired, speech-impaired or deafblind – are to enjoy the access to communications enjoyed by other Australians, and enshrined in the UNCRPD.

NRS call centre

The NRS call centre currently provides the following call types:

- Type and Read – for TTY users who, in the main, are Deaf/hearing-impaired and do not use their own speech on the phone
- Speak and Read – for TTY users who are Deaf/hearing-impaired and use their own speech on the phone
- Type and Listen – for TTY users who can hear but who do not use their own speech on the phone
- Internet relay – a call type similar to Type and Read but which uses the internet (either via an instant messaging service such as Messenger or AOL, or via the NRS's website) rather than a TTY
- Speak and Listen – for people whose speech is difficult to understand on the phone (some of whom may use electronic speech output devices).

NRS users can contact emergency services in a number of ways:

- TTY users can call 106, in which the NRS relay officer is the Emergency Call Person
- Internet relay, Speak and Listen and TTY users can call 000 via the NRS, in which the NRS relay officer relays the call to the 000 Emergency Call Person (operated by Telstra) and then to the Emergency Service Organisation

While TTYs were once considered an essential telecommunications tool, they are now considered by many to be "old-fashioned" and unwieldy technology, and ACCAN's discussions with Deaf consumers particularly have reflected the fact that many Deaf consumers no longer have a TTY in their home, or, if they have one, it is never or rarely used. The NRS's statistics reflect this, with 47.49% of relay traffic[10] now accounted for by internet relay.

Internet relay

Internet relay has a number of advantages over TTY-based NRS calls, including:

- Internet relay calls can be made from certain mobile devices
- It uses technology which is not 'disability-specific' – that is, desktop and laptop computers as well as certain mobile devices
- Calls are free – the user only pays their normal Internet Service Provider costs

[10] Information provided by ACE at the NRSCCC, May 2011, on NRS Facebook site 4 March 2011 and via personal correspondence with the NRSP, July 2011

- Users can multi-task while making calls, just as many (non-NRS-using) people do when on the phone
- For many users, it is easier to type on a regular keyboard (in the case of desktop or laptop computers) than it is on a TTY
- The screen (of a desktop or laptop computer, and even of many mobile devices) is larger than that of a TTY
- Font size, colour and style can be adjusted to suit the user's requirements
- Any disability-specific equipment (such as special keyboards or Braille output devices) which is suitable for a computer can be used.

However, internet relay currently has a number of disadvantages too:

- Users can only make outbound calls; they cannot receive calls via internet relay. This problem is not insurmountable – internet users in the United States can receive calls, through a system wherein individual, registered users receive regular 10-digit phone numbers[11]. This system also allows inbound (hearing) callers to internet relay users to leave a message if the intended call recipient is unavailable (in the same way as Australian hearing users can leave messages with TTY-based or Speak and Listen calls). In the United States, users of instant messaging-based internet relay services receive the 'voicemail' message via email.[12]
- Callers to 000 do not receive priority over non-emergency calls (although ACCAN understands that ACE is working to rectify this), and their calling location details are not automatically available to either the NRS relay officer, nor to the Emergency Call Person (unlike in the case of 106 calls, or direct 000 calls)
- Conference calls are unavailable
- Callers who are overseas and wishing to call someone in Australia are unable to do so (unlike calls made from a TTY). ACCAN understands the important reasons for disallowing calls via internet relay from overseas (to avoid non-genuine use, and because the NRS is funded by Australian telecommunications providers; however, user registration may be one way of managing both issues.
- Speak and Read, and Type and Listen-type calls are unavailable – that is, the user is unable to use their own speech or their own hearing
- Calls to organisations which have call centres in a number of locations will divert to the Queensland branch of that organisation, rather than to the branch closest to the caller. For example, a caller from Victoria requesting connection to 132 500, and thinking that their call will be relayed to their local State Emergency Service, will in fact be connected to Queensland's SES. This is because the location of the inbound call is unavailable to the NRS (unlike location information from a TTY, which is

[11] http://www.fcc.gov/guides/ten-digit-numbering-and-emergency-call-handling-procedures-internet-based-trs
[12] http://www.ip-relay.com/help.php

provided to the NRS automatically via 'CLI injection'[13] technology so that it can be routed to the appropriate location). A registration process may be able to resolve this issue, as the registrant would need to nominate the state in which they are based. For callers who are outside their state of residence, there could be the opportunity to manually enter a location.

- Similarly, some calls simply cannot be connected, because a caller outside of Queensland may be ringing an organisation which has a 13 or 1800 number which is available intrastate only. So, for example, a caller in Western Australia may be unable to be connected to a WA State Government service because that service recognizes the incoming number as being a Queensland, not WA, number, and only accepts calls from within WA. Again, this issue may be able to resolved using registration.
- Internet relay does not offer 'character by character' conversations (as TTYs, and also European Real Time Text, the text standard[14], do, and as is recommended in the recent Ofcom report[15]) – users must instead press 'send', and must wait for the relay officer to also press 'send' when s/he relays the other party's voice
- Many businesses and government agencies have security in place (such as firewalls) which blocks access to internet relay. In some cases, IT managers have been convinced that the relevant ports should be opened to ensure access to internet relay; however, in many other places, NRS users simply do not have access to this important method of communication. This particularly disadvantages employees, students and those who rely on public computers (for example, libraries and internet cafes). ACCAN is pleased to have learned recently that the NRS is trying to work through this issue, and we look forward to the result

Case study one: Disadvantage in the workplace[16]

Anthony is Deaf and works in a competitive, fast-paced professional environment. Anthony says that his colleagues never call him, because it is so time-consuming and non-user-friendly for them. He says that he appreciates that the NRS makes it relatively easy for him to call his hearing colleagues – but that they need to be able to call him back too.

Further, Anthony is unable to use internet relay at work, or when travelling for work, because firewalls and other security in his workplace and on public computers block his ability to use either instant messaging or web-based internet relay. This further affects Anthony's ability to communicate either from the office or when on the road, unlike his hearing colleagues.

[13] CLI (calling line identity) injection: "(The collection of) the telephone number calling (the NRS is) then (being inserted) into the outbound call dialling string so that 13, 1300 and 1800 numbers that have geographic routing rules are delivered to the right location." – Personal correspondence with NRSP
[14] http://www.myfriendcentral.com/index.php/about/6-about-myfriend#myfriend
[15] Ofcom, 'Review of relay services', July 2011; http://stakeholders.ofcom.org.uk/binaries/consultations/review-relay-services/summary/relay_services_final.pdf
[16] 'Anthony' is a pseudonym. Case study collected via email, July 2011

Disadvantages of the current NRS

Further, both TTY and internet-based NRS calls have a number of disadvantages to users, over the direct calls enjoyed by non-disabled Australians.

NRS calls require the use of a certain etiquette and can be very stilted, because callers cannot interrupt in the normal way but must instead wait for the other party to say/type 'go ahead'. Further, typing is required of Deaf and some speech-impaired customers, and of the relay officer in most circumstances. Typing takes significantly longer than speaking (or indeed signing). Estimates of the time taken via a text-based relay service compared to a non-relayed call vary but there is agreement that NRS calls take significantly longer than non-relayed calls. For example, one call centre manager has said that their average calls take 20 seconds, but their average calls via the NRS take five minutes[17]. Plum Consulting's 2009 report, 'Voice telephony services for deaf people', puts the figure at 170 words per minute for standard voice telephony and only 30 words per minute for text-based relay calls[18]. As Ofcom's Review of Relay Services[19] points out (p27) each minute spent or saved on a call for a Deaf, hearing-impaired or speech-impaired person is mirrored by an equal minute spent or saved on the call by the other (hearing and speaking) party.

Case study two: Speed of the NRS a risk to safety and security[20]

James Blyth is Deaf. He was home one night (when the VRS was closed) when he smelled gas in his home. As he does not have a TTY, he tried to place an internet relay call to the gas company from his laptop. However, he was unable to connect, apparently due to a software problem. After trying a few times, he switched to another laptop and got through.

He says that the call took "a long time - the relay officer had to type the whole menu, like, 'If you're calling about gas, please press 1... "If you're calling about electricity, please press 2...' I needed to be able to press my preference immediately, but I couldn't. I had to wait for the relay officer to type the whole thing, then type 'Go ahead'."

Mr Blyth points out that a hearing person would have been able to choose their preference immediately.

"It was a gas leak - that's a serious hazard. There could have been an explosion while I was suffering through that call! I did eventually get through and sort it out but my point is that it was a real barrier to communication."

Relay calls are by definition relayed by a 'middle person', the relay officer; even when assured by the NRS's commitment to privacy and confidentiality, the presence of what is in effect a third party can cause discomfort for many NRS users and the people they wish to

[17] DCITA, 'Telephone Typewriter (TTY) Use in Australia', April 2005: http://www.dbcde.gov.au/__data/assets/pdf_file/0004/25843/Eureka_report.pdf
[18] Plum Consulting for Ofcom, June 2009: http://stakeholders.ofcom.org.uk/binaries/research/telecoms-research/voice_telep.pdf
[19] http://stakeholders.ofcom.org.uk/binaries/consultations/review-relay-services/summary/relay_services_final.pdf, 28 July 2011
[20] Case study collected by video, May 2011

contact – or to contact them. This lack of privacy also contributes to a lack of equivalence to voice telephony, and contributes to customer frustrations with using the NRS[21]. According to the March 2011 NRS user survey[22], 25% of respondents said that during the past six months, they had tried to call someone via the NRS, and had the other party refuse to take the call[23]. It can be inferred that for at least some of these call recipients, privacy is the overarching issue in the decision to refuse a call. Over the past six years, this figure has varied between 15% (2006) and 26% (2007 and 2008). In the 2011 survey, of those who said that they had had a call refused, 46% said that they call/s were to 'private' individuals (such as family and friends), 39% were to businesses (other than banks), 20% to banks, 16% to government departments and 14% to health providers. In fact, despite the NRS's 'Becoming relay service friendly' campaign[24] and a public statement from the Office of the Federal Privacy Commissioner to the effect that financial institutions should accept calls via the NRS[25], the only sector which has substantially improved its acceptance of NRS calls is the telecommunications provider sector[26]. The high rate of 'hang-ups' was also cited throughout the Plum report 'Voice telephony services for deaf people'[27], listing as many as eight "hang-ups or connection problems" in 21 calls[28].

Case study three: Financial disadvantage[29]

Anthony is Deaf, married with small children. He was interested in taking out a discounted financial product that had a short deadline. Anthony emailed the relevant financial institution, which insisted that the buying of the product had to be done over the phone. So Anthony contacted the financial institution again, via the NRS. The financial institution then refused to deal with Anthony via the NRS, citing privacy concerns.

While attempting to resolve these issues, the deadline for the discount came and went. Anthony missed out on the discount, and was forced to complain about the financial institution to his state's Equal Opportunity Commission. He won only partial compensation for his financial loss – and as far as ACCAN is aware, the financial institution continues to refuse calls made via the NRS.

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[21] Ofcom, op.cit, pp 15 and 48; J. Ashford, 'Telecommunication access for people with little or no speech', 2007, p15; http://www.dbcde.gov.au/__data/assets/pdf_file/0019/125173/Novita_Attachment_B.pdf,
[22] Data presented to the NRSCCC meeting, May 2011, and obtained from the ACMA, 3 August 2011
[23] The ACMA notes (personal correspondence) that this may also reflect "some of the delays and frustrations in reaching the right person when contacting call centre and other business operations" and this may well be the case; however, similar statistics are reflected in overseas jurisdictions, and in any case, this cannot reflect the issue of call refusals from family and friends.
[24] http://www.relayservice.com.au/business/becoming-relay-service-friendly/
[25] Australian Communication Exchange, 'Submission – Inquiry into the Privacy Act 1998', March 2004; http://www.aph.gov.au/senate/committee/legcon_ctte/completed_inquiries/2004-07/privacy/submissions/sub41.pdf
[26] Data presented to the NRSCCC meeting, May 2011, and obtained from the ACMA, 3 August 2011
[27] Lewin, et al, 'Voice telephony services for deaf people', Ofcom, 2009; http://stakeholders.ofcom.org.uk/binaries/research/telecoms-research/voice_telep.pdf
[28] Op. cit, p. 16
[29] 'Anthony' is a pseudonym. Case study collected by email, July 2011

All current NRS offerings, other than Speak and Listen, require the use of written English, despite the fact that, due to educational disadvantage, deaf people experience very low English literacy skills compared to the wider community, with the average being possibly as low as that of the average hearing 9-year-old[30]. (Note that this is an average and does not apply to all deaf people, many of whom have excellent English literacy skills, often in addition to Auslan.)

Case study four: Difficulty using the NRS, due to limited English literacy[31]

David is Deaf and is a member of a prominent and well-respected Deaf family. David's first language is Auslan, and English is his second language. David's family members have more difficulties in English than he does.

There was unfortunately a recent crisis in David's family, one which required multiple phone calls to businesses and support agencies. Although David is working full-time and does not have much time available, he was called upon by his family members to make all of these phone calls. This was because the trial VRS service was either closed or unreliable during the period of the crisis – and David is the only person in his family who has the English literacy skills to use the text-based services offered by the NRS.

Case study five: Hearing child interpreting for Deaf parents[32]

Maria is a CODA – a (hearing) child of Deaf adults. Now a young adult, Maria says that her parents never used the NRS, and still no longer use it.

As a child, Maria was frequently called upon to interpret – or even make – phone calls between her parents and the wider community. Her parents were unable to use the NRS because their English literacy was such that they were embarrassed that they might appear to be uneducated or stupid if talking to hearing people via the NRS. Further, they were

[30] In the United States, for example, the median English literacy of deaf high school graduates is the equivalent of 4.5 grades – that is, about the equivalent of a hearing 9-year-old. From: J. Holt, 'Classroom Attributes and Achievement Test Scores for Deaf and Hard of Hearing Students', *American Annals of the Deaf*, 139(4), 430-437. Australian statistics on adult Deaf literacy are unavailable. However: FAHCSIA, 'Report on supply and demand for Auslan interpreters', 2004; http://www.fahcsia.gov.au/sa/disability/pubs/policy/Documents/auslan_report/section1.htm: 30% of signing Deaf people aged over 15 years completed year 12, compared with 41% of the general Australian population; and 54% of signing Deaf people aged over 15 years had left school at year 10 level or below compared to 45% of the general Australian population; http://research.gallaudet.edu/Literacy/index.html: In an American study of Deaf and hard of hearing 17-year-olds and 18-year-olds, the median Reading Comprehension subtest score corresponds to about a 4.0 grade level for hearing students; and a Canadian study, Literacy Ontario, 'Literacy profile of Ontario's deaf and hard of hearing adults'; http://www.tcu.gov.on.ca/eng/training/literacy/hearing/hearing.pdf: "The literacy level of Deaf and hard of hearing is below that of the rest of the Ontario population. In particular, 52% have low literacy (below level 3), compared to 38% among the general Ontario population. Literacy ranges widely depending on the level of hearing loss: those with partial difficulty have a somewhat lower incidence of low literacy than the Ontario average (33%), while those completely unable to hear have a 71% incidence."

[31] 'David' is a pseudonym. Case study collected by instant messaging, August 2011

[32] 'Maria' is a pseudonym. Case study collected by email, July 2011

concerned that they would misunderstand what the other person says, or would be unable to make themselves understood.

Also, Maria's parents have never been taught the 'hearing' norms of making or receiving a phone call – turn-taking behaviours, 'holding', navigating menus and so on – skills which most phone users take for granted. These are not skills that NRS Outreach currently teaches.

For Maria's parents, using Auslan via their daughter was a more reliable and easier method of communication. Maria remembers one particular incident when her brother (also hearing) and father were visiting Maria's sick grandmother in the hospital. Unfortunately, the grandmother passed away. The brother, at the hospital, had to interpret the phone call from his father to Maria, his sister, who then had to interpret the call at the other end to her mother. So Maria, then a child of only 12, had to tell the mother about a death in the family – and the mother was denied the opportunity to inform her daughter about this sad event in her own way and in her own time.

As a child, Maria also frequently pretended to be her mother on the phone, because if she told banks, insurance companies or government agencies that she was interpreting for her mother, those organisations refused to speak with her mother via Maria.

Maria's mother still does not have a TTY, and although she has a computer and uses email with friends, her lack of English literacy and familiarity with 'phone norms' means that, although she has tried internet relay once, she was unwilling to use it again.

Now living out of home, Maria still visits her mother frequently, and continues to interpret phone calls for her

Some deafblind users report that it is difficult for them to read quickly enough (on either a Braille TTY[33] or large-screen display on a Large Visual Display unit or via internet relay). The NRS has procedures in place to assist with this - users may request a 'note' be placed against their CLI so that the relay officer sees the message, for example, "Please type slowly, I am using Braille". However, it appears that this is not always successful.

People in the general community make a phone call by, in the main, dialing 8 digits. However, people who use the NRS need to:

- Decide whether they will use a TTY, internet relay or Speak and Listen, depending on their disability and the available technology, amongst other factors (for example, a person with speech impairment may use Speak and Listen in the morning, and Type and Listen in the evenings, when they are fatigued and their speech is more difficult to understand)
- If they decide to use a TTY, they then need to consider if they should call the regular number (133677) and then request a second, 10-digit number, or if they are making

[33] Able Australia, 'Telecommunications and deafblind Australians', 2011, p28; http://accan.org.au/files/Reports/ACCAN_AbleAustralia_WEB_V1.pdf

an emergency call, they could call 106 (preferably) or call 133677 and then request 000

- If they are using Speak and Listen, they dial a 10-digit 1300 number, then have to request another 10-digit number (or a name or number from their 'preferred caller' list if they are profiled), or in the case of an emergency, they can dial the 1300 number or else remember to use the 10-digit 1800 emergency number
- If users want to contact the NRS Helpdesk, there is a different 10-digit 1300 number.

The fact that there are four contact numbers for the call centre (133677, 1300 555 727, 106, 1800 555 727) as well as the various contact numbers (phone, TTY, fax) for the Helpdesk, makes it difficult not only for individual users, thus not constituting functional equivalence (and see Part 1.5 for further information about why ease of use is important) but also means that it is difficult for Outreach to assist businesses and government agencies in becoming Relay Service friendly, and further publicise the NRS. The current recommended wording for businesses[34] in advertising contact numbers, for example, is very lengthy, and some organisations, while wishing to do "the right thing" simply cannot fit in these words onto brochures, business cards and other materials[35].

Some hearing-impaired callers may have some residual hearing which would be of use to them on the phone; however, they are unable to utilise this during Speak and Read (or any other NRS) calls

Some speech-impaired callers may have some useable speech which they would like to use alongside their typing; however, they are unable to utilize this during Type and Listen calls and if they choose to use Speak and Listen instead, they are unable to then use typing to assist them in making themselves understood

As with any text-based form of communication, the majority of NRS calls (i.e. all calls other than Speak and Listen) lack the normal prosody[36] which a non-disabled person would enjoy, indeed require[37], in a phone call. (Note that a call made via video in a natural signed language would contain the usual prosody in a normal signed conversation, similar to that in a phone conversation[38]. For more information on this, see Part 2.)

NRS users are limited in being able to call – or receive calls from - other NRS users. For example, although Speak and Read users are able to call other Speak and Read users, they are not able to call people who use Type and Read, Type and Listen or Speak and Listen.

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[34] http://relayservice.com.au/business/becoming-relay-service-friendly/check-your-website/

[35] Personal correspondence

[36] According to Webster's Online Dictionary: "(The) intonation, rhythm, and vocal stress in speech. The prosodic features of a unit of speech, whether a syllable, word, phrase, or clause, are called suprasegmental features because they affect all the segments of the unit. These suprasegmental features are manifested, among other things, as syllable length, tone, and stress." http://www.websters-online-dictionary.org/definitions/prosody?cx=partner-pub-0939450753529744%3Av0qd01-tdlq&cof=FORID%3A9&ie=UTF-8&q=prosody&sa=Search#922

[37] Many examples of ambiguity can be resolved by prosodic means only – for examples, see R.J. Price et al, 'The use of prosody in syntactic disambiguation', in *Journal of the Acoustical Society of America*, 90 (6), December 1991: http://www.wjh.harvard.edu/~pal/pdfs/prosody/price91.pdf

[38] Nearly all research into the prosody of signed languages takes place by viewing video. See B. Nicodemus, 'Prosodic boundaries and utterance markers in American Sign Language interpretation': http://gupress.gallaudet.edu/excerpts/PMUB.html for a comparison of prosody in spoken and signed languages

So a hearing-impaired person working on a committee with a Deaf person would not be able to make an NRS call to them. And Type and Listen users cannot call other Type and Listen users – so, for example, two people from the same laryngectomy support group are unable to contact each other via the NRS. For a complete list of call type compatibility – and incompatibility - please see Appendix C.

Some users[39] report that they find some NRS processes (such as the 'greeting prompt', the prompt at the end of a call "Do you wish to make another call?" and prompts regarding leaving voicemail/answering machine messages) to be "insulting" to regular users at worst, and a waste of time at best.

Callers to NRS users must dial the NRS first (133 677) and then request the outbound party's phone number. Many NRS users[40] report that this creates a further barrier to receiving calls. In the United States, registration and provision of a 10-digit number[41] means has resolved this issue – the NRS user simply provides this number to friends, family and business associates in the same way as any other person provides a phone number to potential inbound callers. Case study six illustrates the use of the NRS's Personal Relay Service as a means to enable a direct-dial service. We believe there is merit in reinstating this or a similar service.

Callers are not able to 'dial in' a relay officer to a call which is already in progress. For example, a hearing-impaired person may be able to successfully make many of their calls directly (that is, not via the relay service) using a volume-control handset (such as that included, for example, in at least one model of TTY[42]), but may require relaying if the other party has a strong accent or a high voice. So an individual could ring a bank on their volume-control phone, successfully discuss an issue with one party, then be transferred to another party whose voice the individual does not fully understand, and would then have to hang up, call the NRS and request the bank's number, then speak to yet another party and have to repeat the entire conversation. Similarly, an NRS user who receives a direct (non-NRS) call is unable to 'dial in' a relay officer to assist with the call.

Case study six: Access to inbound calls affecting employment and entrepreneurship[43]

Jennifer is hearing-impaired and works in the financial services sector. An important aspect of her job is her ability to handle inbound calls from members of the public.

Jennifer uses PRS (the NRS's Personal Relay Service) to handle these calls, and also inbound calls from her colleagues. The PRS means that inbound callers are provided with a 'regular' 10-digit number to call, which automatically connects to Jennifer via the NRS. Callers do not have to dial 133 677 (the NRS number), then ask for Jennifer's number.

[39] ACCAN collected data from members of the Deaf community on video, via online chat services, and via Deaf Australia

[40] ACCAN collected data from members of the Deaf community on video, via online chat services, and via Deaf Australia

[41] FCC, 'Ten-Digit Numbering Requirements for VRS and IP Relay FAQ',http://www.fcc.gov/guides/ten-digit-numbering-requirements-vrs-and-ip-relay-faq

[42] http://www.printacall.com.au/docs/products/uniphone1150.htm

[43] 'Jennifer' is a pseudonym. Case study collected by email, July 2011

However, the NRS no longer offers the PRS to new CLIs, although it continues to support 'legacy' PRSes.

Jennifer says, "If I did not have the PRS, every time one of these people wanted to call me, when I answered their calls, I would have had to blindly say into the phone, 'I am sorry, I am deaf, and can't hear this call, can you please call back dialling 133 677 first, and follow the prompts?' And then hang up and hope they'd call me back. Of course most people don't bother calling back."

Jennifer continues, "In fact, the PRS is such an important service that when applying for new jobs, it is a major incentive for new employers to hire me - they have the understanding that even though I am deaf, it would not pose an issue in using the phone, because of the PRS.

"When I changed jobs a few years ago, I was told by the National Relay Service on the day I was starting my new job that the PRS was being discontinued because of technical difficulties... My heart sank because my new job was at stake, the very day I was starting. I could not have performed my job without the PRS, so I managed to get a special concession to continue to use the PRS on my phone number. But if I had not, I would have lost my job. I often think about others who had to let the service go... There was nowhere they could really complain to, the service was just stopped... How would a small business run by a deaf person possibly operate without a PRS? If you owned a dry-cleaning business for example, would you answer every phone call with, "Could you please hang up and call back dialling 133 677 first and follow the prompts?"

Australia is a multicultural country, with many Australians speaking English as a second language, or not speaking English at all. As the population ages, so too will the population of people from a non-English-speaking background, and as they age, they may have more difficulty with English than they did previously[44]. More than one million Australians with disability are from non-English-speaking backgrounds[45], and more than 25% of people with low English proficiency have a core activity restriction, around double that of the rest of the population[46]. Yet NRS calls can only be relayed in English[47] and cannot be used in conjunction with the Translating and Interpreting Service (TIS) except in very rare circumstances[48]. This is in contrast to relay calls within some American states[49]; further, for

[44] http://en.wikipedia.org/wiki/Second_language_attrition
[45] National Ethnic Disability Alliance, 'Communicating Difference: Understanding Communications Consumers from Non English Speaking Backgrounds (NESB)', 2010, p24; http://accan.org.au/files/Reports/Communicating%20Difference%20Report.pdf
[46] 'People From NESB With Disability – Barriers to Accessing Telecommunications', provided to ACCAN, based on Australian Bureau of Statistics, 'General Social Survey: Summary Results', 2006, http://www.ausstats.abs.gov.au/Ausstats/subscriber.nsf/0/9EBEEE90D2746F45CA2572E20013BD17/$File/41590_2006.pdf
[47] 'National Relay Service Plan 2010-2011', p5; http://www.relayservice.com.au/media/uploads/resources/NRS_Plan__2010-11_2.pdf
[48] The segment of the call which is to be relayed must be in English. In theory, therefore, a Speak and Read user could speak directly in a language other than English to the other party, but the other party would have to respond in English so that the relay officer could type their words to the Speak and Read user
[49] For example, http://www.sprintrelay.com/sprint_relay_services/sprint_national_traditional_relay_services.php; another

all interstate text-based relay services within the United States, non-English intralingual (i.e. in most cases Spanish-to-Spanish) calls must be provided[50].

ACCAN is concerned that callers may have to wait for a relay officer to become available. Although the NRS provides a high level of quality in terms of call abandonment (less than 2% per quarter), the definition of 'call abandonment' itself means that callers may wait for up to 60 seconds without being defined as having their call 'abandoned'[51].

Case study seven: NRS answering times are frustrating[52]

Jennifer Holdsworth is Deaf and feels comfortable with English, so is happy using the NRS. However, she says that frequently when she calls, she gets a message that the NRS is busy and she should call back later. Ms Holdsworth does not think this is fair, when hearing people can make a direct call immediately.

Case study eight: NRS answering times are frustrating – and expensive[53]

Stuart is Deaf and is professionally employed. He is happy to use the NRS but says that often when he goes to make an NRS call, it's engaged. He says that it "..doesn't seem to matter what time of the day I call. I have business to do and it's just so frustrating. I'll try and try and try – then I give up and ask a hearing person to make the call for me. I don't like doing that but I have to – time is precious. Sometimes I have to pay for a hearing person to do that for me at work. I'd rather do it myself but it's just so much quicker that way."

NRS users cannot request particular relay officers, or specify a preferred gender of the relay officer to relay their call, so, for example, a male Deaf person will be represented to his caller with a female voice[54].

People with disability are extremely over-represented in the ranks of the unemployed and under-employed[55], so it is likely that they are also likely to be over-represented in the ranks of people who have yet to convert their mobile phone to a smartphone. Although internet relay is available from some smartphones, SMS is available from all mobile phones, no matter how inexpensive or old, and it remains an extremely common way of connecting[56] for

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service, Lifelinks, provides a VRS in which users can use either American Sign Language or Mexican Sign Language to speak with a user of a large range of spoken languages: see http://www.lifelinks.net/products.html

[50] http://www.fcc.gov/guides/telecommunications-relay-service-trs See 'Shared non-English language relay services'

[51] ACMA; 'National Relay Service Performance Report 2009-10', http://www.acma.gov.au/webwr/_assets/main/lib100096/nrs_report_2009-10.pdf

[52] Case study collected by video, May 2011

[53] 'Stuart' is a pseudonym. Case study collected by video, May 2011

[54] This is not the case in the United States, where text relay providers must attempt to meet a relay user's request for a specific gender of relay officer ('communications assistant'): http://www.fcc.gov/guides/telecommunications-relay-service-trs

[55] National People with Disabilities and Carer Council, 'SHUT OUT: The Experience of People with Disabilities and their Families in Australia', 2009; http://www.fahcsia.gov.au/sa/disability/pubs/policy/community_consult/Pages/2_4_cantgetajob.aspx

[56] M.R. Power et al, 'Deaf people connecting via SMS, TTY, relay service, fax, and computers in Australia'; http://jdsde.oxfordjournals.org/content/12/1/80.full.pdf+html

Deaf consumers, as may well be the case for other people with disability. However, the NRS does not, unlike some other relay services[57], relay SMS messages.

Case study nine: Contacting hospitals and other agencies[58]

Charlene is deaf and says that in many situations, the only way she has to communicate is by using SMS - but most businesses, including hospitals, won't accept or send SMS messages. Charlene says that it is essential to deaf people's independence that they are able to communicate with government agencies, hospitals and businesses via SMS.

Individuals with multiple disability

Potential users who are Deaf/hearing-impaired/speech-impaired and who also have an intellectual or neurological disability, or experiencing mental illness, are not currently well served. An important condition of the NRS as it currently stands is that users are responsible for the "progress and the content of the call"[59]. While this is appropriate for many individuals, it does not give people with cognitive disabilities access to the telephone. For example, people with cognitive disabilities may have difficulty navigating menus or having to repeat the same message to a number of different parties. This issue is further explored in Section 2 of this document, in which ACCAN argues that services should in fact be expanded to include people with cognitive disabilities but who are not Deaf, hearing-impaired or speech-impaired.

Speak and Listen

Finally, the users of the Speak and Listen call type, who use their own speech or use computer-aided speech, rely upon the relay officer to re-speak what they have said if the other party does not understand them. For many Speak and Listen users – or potential Speak and Listen users – this has proven to be unreliable, and there are particular concerns regarding making 000 calls, because in times of stress, a user's speech may become less easily understood. The number of Speak and Listen users, particularly amongst those who had not received intensive training, had halved since a previous study, according to a 2007 study[60]. Respondents who had ceased using Speak and Listen indicated that problems included relay officers:

- Behaving in patronizing ways
- Being unable to understand the Speak and Listen customer, despite frequent repetitions
- Anticipating what the customer was attempting to say
- Speaking loudly to a person with speech impairment (but no hearing impairment).

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[57] For example, in Sweden: http://www.pts.se/en-gb/People-with-disabilities/Services/
[58] 'Charlene' is a pseudonym. Case study collected by video, May 2011
[59] Is the NRS right for me? http://www.relayservice.com.au/making-a-call/making-a-call-with-little-or-no-speech/is-the-nrs-right-for-me/
[60] J. Ashford, 'Final report – Telecommunication access for people with little or no speech', pp 14-15; http://www.dbcde.gov.au/__data/assets/pdf_file/0019/125173/Novita_Attachment_B.pdf

Consideration should be given to accrediting relay officers as 'speech interpreters', as is the case in Sweden[61] and Finland[62], where people who wish to work as 'speech interpreters', either for relay services or in person, have to undertake a degree. It may be worth investigating whether the National Accreditation Authority for Translators and Interpreters[63] would consider accrediting this form of 'interpretation'. Training could be similar to that currently undergone by Deaf Relay Interpreters[64], who perform similarly intralingual 'interpreting' tasks. Training and accreditation at this level of professionalism would allow relay officers to both improve their career opportunities and provide a much more reliable and less frustrating level of service for Speak and Listen users.

Case study ten: Needs a more reliable service[65]

Gary has complex communication needs and uses the NRS's Speak and Listen service to make phone calls. He reports that the quality of the relaying is highly variable and that he sometimes has to hang up and try to make a call later, because a relay officer – or even a series of relay officers – has been unable to understand him. He says that sometimes he encounters a relay officer who is excellent at relaying the call – but then, in the middle of the call, comes to the end of their shift or needs a break, and transfers the call to a relay officer who does not understand him.

Gary suggests that it would be easier to communicate with the relay officers if he had the ability to send text as well as voice to the relay officers, and if they could view him via video.

Financial disincentives

Most NRS primary users (that is, people who are Deaf, hearing-impaired or speech-impaired) can only use the NRS from a landline phone (or via the internet) and therefore only pay a cost similar to that of a local call when calling the NRS's 13 or 1300 numbers, and free or essentially free when calling 106 or the NRS's 1800 emergency Speak and Listen number (and in the case of internet relay, pay normal Internet Service Provider and data costs rather than specific call costs).

However, calls to 13, 1300 and 1800 numbers (which are toll-free or free from landlines) are not in fact toll-free or free when calling from mobile phones. As outlined in ACCAN's Fair Calls for All campaign[66], this significantly disadvantages people who are often already disadvantaged.

One group which can be significantly financially disadvantaged by this are primary users of the Speak and Listen service, because Speak and Listen calls use the 1300 prefix (or 1800 in the case of emergency calls). In fact, people who use Speak and Listen are even more disadvantaged than other users of 'toll-free' numbers, because if you have a speech

[61] http://www.pts.se/en-gb/People-with-disabilities/Services/
[62] Personal communication
[63] www.naati.com.au
[64] http://www.aslia.com.au/index.php?option=com_content&view=article&id=155&Itemid=140
[65] 'Gary' is a pseudonym. Case study collected by email, July 2011
[66] http://accan.org.au/files/Campaigns/Fair%20Calls%20For%20All%20PDF.pdf

impairment, it's likely that your calls will take significantly longer than the 'average' person's calls.

The other group for which this creates a financial disincentive are people who need to (or should!) use the NRS to contact someone who is Deaf, hearing-impaired or speech-impaired. As fewer people in the general community use a mobile phone only or primarily[67], the high call costs of 13 and 1300 numbers from mobile phones are likely to affect the willingness of non-disabled people to interact via phone with NRS users.

And in the event that NRS services are expanded to cover other people with disability (not only people who are Deaf, hearing-impaired or speech-impaired), as will be recommended in Section 2, the high costs of making 'toll-free' or 'free' calls from mobile phones will become even more of an issue.

Recommendations

General

1. **Any changes or improvements to the NRS call centre offerings must not detract from or in any way negatively affect current offerings.**
2. **All NRS users – whether TTY, Speak and Listen, VRS or captioned telephony – need to be offered a service comparable to the NRS's legacy Personal Relay Service; that is, an equivalent to voice telephony for inbound calls.**
3. **All NRS users must be able to receive messages, preferably in the format and language in which they were originally relayed, when they are not available – the equivalent to voice telephony users being offered voicemail.**
4. **All NRS users should be able to contact other NRS users, regardless of the call type the caller and the recipient use.**
5. **ACCAN strongly encourages the DBCDE and the ACMA to work together to ensure that callers to the NRS's 13, 1300 and 1800 numbers from mobile phones are not financially disadvantaged or discouraged from using the service. As an alternative, consideration should be given to identifying new NRS numbers in the '1' number range which can be 'zero-rated' and therefore operated at no cost to consumers.**
6. **All NRS users should be able to provide a 'profile' to the NRS outlining their communication preferences**
7. **The NRS call centre should only have two contact numbers – an emergency number (106) and a non-emergency number.**
8. **Research is undertaken into the feasibility of a system in which NRS users can 'switch' to the NRS during a call when necessary – for example, if they receive a direct (non-NRS) call, or if they attempt to make a direct call and then have difficulty understanding, or being understood by, the other party.**

[67] From 2009 to 2010, the number of Australians aged 14 and over without a landline telephone went from 1.7 million to 2.3 million, which is over 10% of the population. ACMA, 'Communications report 2009-2010', p.14; http://acma.gov.au/webwr/_assets/main/lib311995/2009-10_comms_report-complete.pdf

9. **The DBCDE, the ACMA and the NRS Relay provider keep abreast of changes to technology which might allow NRS services to be offered in future without the need for a third party, in order to provide completely private calls**
10. **The contract between the Relay provider and the Commonwealth should reflect the fact that technology can change quickly and dramatically, and should encourage rather than discourage the Relay provider to enhance services where possible**
11. **NRS users should be able to request that the relay officer for a particular call be of a specified gender, and this request should be met whenever possible**
12. **Consideration should be given to whether SMS messages and faxes can be relayed**
13. **Consideration should be given to tightening the targets for the percentage of NRS calls which are answered by a relay officer immediately**
14. **Consideration should be given to investigating whether NRS users wish to be able to view and provide caller ID when making or receiving NRS calls**

Internet relay

15. **Internet relay calls need to be available for inbound calls, as well as outbound.**
16. **All calls to 000 (whether they are made with a TTY, internet relay or Speak and Listen) need to be given priority over non-emergency calls. Caller location details – with the same degree of timeliness and accuracy as would be the case for a voice call - need to be made available to the relay officer and/or the 000 ECP[68].**
17. **Conference calls need to be available for internet relay users (as they are currently for TTY and Speak and Listen callers). This service is already available in the United States[69].**
18. **Internet relay should be available to Australia from overseas, whether the primary NRS user is the initiator or receiver of the call**
19. **Calls to 13, 1300 and 1800 numbers need to be directed to the caller's state, not automatically to the call centre closest to the Brisbane-based NRS call centre.**
20. **The issue of having to open specific ports in order to allow access to internet relay through firewalls needs to be overcome.**
21. **Speech-impaired callers who wish to use their own hearing should be able to use a product which allows them to hear as well as type what they want to**

[68] For further information about necessary changes to emergency calls via the NRS (and other ACE offerings), see ACCAN's report 'The Queensland flood disaster: Access for people with disability to phone services and emergency warnings', 2011, particularly Recommendations 1 to 8; http://accan.org.au/files/Reports/The%20Queensland%20flood%20disaster%20Access%20for%20PWD%20Final.pdf

[69] http://www.sprintrelay.com/sprint_relay_services/relay_conference_captioning/index.php

say – that is, a form of Type and Listen via internet relay (and/or via a form of web-based captioned telephony/'Next Generation Text Relay'[70])

Speak and Listen

22. Consideration should be given to accrediting Speak and Listen relay officers as 'speech interpreters'.

1.2 Improving outreach services

NRS Outreach

The NRS Outreach provider is responsible for:

- Marketing the NRS to potential users, including members of the wider community, including providing information sessions to users, potential users and intermediaries such as audiologists and speech pathologists
- Providing training in use of the NRS to potential and current users
- Providing a Helpdesk to assist with troubleshooting, provide resources and respond to general queries about the NRS
- Handling complaints, feedback and compliments.

However, NRS Outreach needs to be enhanced in order to better meet the needs of current and potential users, given the barriers that exist for some individuals.

Many potential users have difficulties with English literacy and/or with understanding the norms of phone usage[71]. For many, these barriers mean that they are unlikely to even investigate the possibility of making phone calls for themselves, and instead rely on others (children, carers, parents, support workers), resulting in a lack of independence and privacy, and, in the case of parents whose children have to make calls for them, a loss of parental authority and the ability to manage information to and from their children. Outreach needs to provide training in phone use 'norms' (such as turn-taking, interrupting, 'NRS etiquette', holding and menu navigation) as well as basic literacy strategies, including learning how to ask the other party to simplify their language.

Similarly, users who are deafblind report that a lack of access to learning Braille, lack of access to literacy support and difficulties receiving training in equipment appropriate to their needs[72] all work against their using their NRS. For example, some potential users who are deafblind may not have enough residual sight to take advantage of large-screen displays on either a Large Visual Display unit[73] (which, in any case, is no longer available to rent or buy on the Australian market) or via internet relay. In these cases, the only way to have access to the standard telephone service is to use Braille; if such an individual cannot learn Braille

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[70] Ofcom, op. cit.; http://stakeholders.ofcom.org.uk/binaries/consultations/review-relay-services/summary/relay_services_final.pdf

[71] See Case Study Five as well as Ashford, op.cit, and Able Australia, op.cit.

[72] Able Australia, op.cit.

[73] http://telstra.com.au/abouttelstra/commitments/disability-services/disability-equipment-program/index.htm#tab-Teletypewriters%20%28TTY%29

elsewhere, then they are currently unable to access the NRS. NRS Outreach needs to be able to provide basic Braille education, as well as training in using the equipment which is vital to using NRS services, such as a Braille TTY and/or computer-attached Braille output device

The number of people who are deafblind or have complex communication needs (see Appendix D) is fairly large, and their current lack of access to telecommunications is extremely poor. For example, of 71 respondents to Able Australia's recent survey, 14 live in group homes and do not have access to *any* telecommunications[74]; almost half of a group of people with little or no speech surveyed in 2006 indicated that they never used telecommunications, and gave reasons such as that they were "not allowed" to access telephones and did not know how to use telecommunications[75]. Given these numbers, and their current lack of access to telecommunications, Outreach needs to increase the number of information and training activities targeting these two groups, and particularly work closely with organisations with a strong and stated interest in enhancing independence and empowerment for these individuals. Similarly, as Relay services become more accessible to people with cognitive disability – as will be recommended in Section 2 - Outreach will need to target marketing, information, training and Helpdesk activities at this new section of the market – for example, providing materials in Easy English.

Not all users or potential users may find it easy to access Helpdesk services. The Helpdesk currently accepts contacts via phone (including, of course, via the NRS), fax, email, mail and, laudably, SMS. Currently, however, Auslan users may not contact the Helpdesk in their first language (unless they are able to participate in the current VRS trial), and the Helpdesk also does not accept contact via instant messaging, which would be particularly useful to internet relay users, many of whom already use MSN/Messenger as the platform for making NRS calls. Consideration should be given to allowing users to contact the Helpdesk using Auslan and also to accepting contact via instant messaging.

The number of call refusals remains high (see Section 1.1), including to 'private' recipients (such as family and friends). Given this, and the growing number of people with hearing impairments in the Australian community[76], Outreach may require further funding in order to spread the message about the NRS to the wider community, particularly to older people and their families – for example, by using paid TV and radio ads (as opposed to Community Service Announcements only).

There are a number of issues around access to emergency calls. The nature of the emergency call environment (for example, the numbers of people calling 000 via internet relay; the coming capability of making emergency calls via SMS and/or a smartphone app; the fact that Deaf or hearing-impaired direct 000 callers are likely to be disconnected without realizing it[77]) is changing. NRS users and potential users (including people who are currently

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[74] Able Australia, op.cit., p17
[75] Ashford, op.cit., p9
[76] Over half the Australian population aged 60 to 70 has a hearing loss; it is predicted that one in every four Australians is likely to have a hearing impairment by 2050; Australian Hearing, Hearing loss in Australia – it's more common than you might think; http://www.hearing.com.au/upload/media-room/Hearing-loss-in-Australia.pdf. For further statistics, see Appendix D
[77] ACCAN, 'The Queensland flood disaster: Access for people with disability to phone services and emergency warnings', 2011, p8;

not served by the NRS, such as people who have an intellectual disability and who have difficulty making a direct 000 call but may be able to use an emergency app on a smartphone) would benefit from emergency-specific workshops or other training opportunities, outlining how to make emergency calls in a range of situations and environments. This may require further funding, including the consideration of funding from different sources – such as under the emergency aspects of the Universal Service Obligation – in order to ensure the safety of consumers who are Deaf, hearing-impaired or speech-impaired.

NRS Outreach must be funded to provide marketing, information and training services to all users and potential users of the NRS, particularly for those individuals who require tailored solutions, such as those who have cognitive disabilities (for example, the early stages of dementia) or who have limited experience with and confidence around technology (for example, those who are very elderly).

Recommendations

23. **NRS Outreach should be expanded – and funded appropriately - to provide training and information opportunities for users, potential users and the broader community**
24. **NRS Helpdesk needs to be able to accept contact from Auslan users and instant messaging.**

1.3 Important aspects of the NRS

Case study eleven: NRS 'etiquette'[78]

Jessica is young, Deaf and has Deaf parents. She uses the NRS, including making calls for her parents, who are not comfortable with English or with phone 'norms' and so never use the NRS themselves.

Jessica says: "I had countless barriers with the NRS... I felt that there are different sets of rules for Deaf and hearing people - hearing people could interrupt while I couldn't. Should an NRS call be like a phone call between two hearing people or two Deaf people on TTY? Or a culture of its own where hardly anyone is comfortable with the call - very formal and perhaps very robotic. Is this how it should be - businesslike?

"Sometimes I do wonder how [the relay officers] are trained, how [they] convey our messages, how do I sound to the person on the other end, what if I didn't say the sentence very well - how would the relay officer convey my message - do they convey even though they didn't understand what I mean?

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http://accan.org.au/files/Reports/The%20Queensland%20flood%20disaster%20Access%20for%20PWD%20Final.pdf

[78] 'Jessica' is a pseudonym. Case study collected via Facebook, August 2011

"Sometimes I am interested in the tone of the person at the other end because at times [it seemed that they were] angry. At times I would email after the phone call to make sure that I am understood."

ACCAN has spoken to a variety of members and individuals about the NRS, viewed the NRS's community service announcements and viewed comments by text relay users in overseas locations[79]. ACCAN notes that, based on this, as well as on the measures used in the Plum report 'Voice telephony services for deaf people'[80], aspects which are important to relay service users are:

- That the NRS exists
- 24/7 availability
- The ability to make emergency calls
- Not having to rely on friends, family, neighbours and carers to make calls
- Speed and accuracy
- Relay officers who are patient and polite
- Real-time conversations (unlike email)
- The fact that (unlike SMS or instant messaging) you can contact businesses and government
- Ease of use
- Mobility (in the case of internet relay, for example)
- Ability to reconnect with family and friends
- Having their call answered by a relay officer without having to wait in a queue.

According to 'Telecommunications for All'[81], the basic requirements of a text telephony 'system' include:

- The ability to combine with voice telephony and video telephony "as many users may want to combine these modes in the conversation"
- Network functionality, including call waiting and freecalls
- Caller ID – note that this is not currently available with NRS
- User procedures – "The connection procedure should be safe and not require unrealistic decision capabilities from the user. This means, for example, not requiring the user to select between different text telephone methods or parameters when initiating a connection." (It could be argued that the four NRS phone numbers, not including emergency 106, could constitute a requirement that the user has to selection between different methods or parameters.)
- Combine text and speech - "It should be possible to use text and speech in combination in a session in a convenient way. This can mean simultaneous text and speech in some situations, and alternating between text and speech mode in other. A

[79] http://www.alldeaf.com/relay-services/91966-relay-service.html
[80] Lewin et al, 'Voice telephony services for deaf people', 2009, p17; http://stakeholders.ofcom.org.uk/binaries/research/telecoms-research/voice_telep.pdf
[81] Gunnar Hellström and Kelvin Currie, 'Text Telephony and Relay Services' in P. Roe (ed.), Telecommunications for All, COST 219, The European Commission, 1995; http://speech.di.uoa.gr/hestia/books/telecomm/indeks.html

call can be set up in either mode. There should be simple procedures to switch mode or add the other mode during the call."

- Interworking throughout networks – "There should be established and supported standards for text telephony in all networks where voice telephony is supported. Interworking methods should be established to text telephony in the other networks. (Specifically this is valid for GSM, ISDN, PBX and networks and future mobile networks)."
- Call diversion – when the call recipient is unavailable, calls should be divertible to the equivalent of voicemail services.

1.4 Barriers to access and use of the NRS

ACCAN outlines in detail the many and varied barriers to access and use of the NRS in Sections 1.1, 1.2 and in Appendix D. However, ACCAN wishes to draw attention to two more issues which constitute a barrier to access and use of the NRS:

- Access to the Telecommunications Industry Ombudsman (TIO) [82]
- Access to government-funded or government-contracted telephone helplines.

Telecommunications Industry Ombudsman

The NRS's complaints policy[83] states that Relay-related complaints can be progressed to the TIO, but Outreach-related complaints must be progressed to the ACCC or Office of Fair Trading.

There are three issues of concern here:

- Should a customer be dissatisfied with how a complaint about Relay is handled by Outreach (and a significant proportion of complaints to the TIO are indeed about complaint handling[84]) they must then have the dispute resolved by two separate bodies, even though the complaint effectively relates to one initial complaint, and in fact, the 'secondary' complaint – that is, about customer service and how the initial complaint was handled – may involve both NRS providers (Outreach and Relay)
- Although the NRS complaints policy is clear, consumers may require greater awareness as to their right to take complaints to the TIO.
- It must be acknowledged that Relay, Outreach and the TIO are all in unusual positions in this matter, given that it is Outreach's responsibility to be the 'face' of the NRS to consumers, and to the consumer, is likely to be seen as responsible for whether the complaint has been resolved satisfactorily or not, and this may or may not be the case. Further, complainants may or may not be aware of whether their initial complaint is about Relay or not.

[82] www.tio.com.au
[83] http://www.relayservice.com.au/media/uploads/resources/R_Complaints_policy.pdf
[84] 22% in July-December 2010; 18% in January-March 2011, according to the relevant issues of 'TIO Talks'; http://www.tio.com.au/publications/TIO_talk_issues/default.htm

Helplines

The Commonwealth Government funds and/or contracts out a number of helplines. If the Government is to adhere to its own policy of taking a whole-of-government approach to disability, as outlined in the NDS, then it should be a requirement of any contract between the Commonwealth and a contractor that the service provided must be 'Relay Service friendly'.

Recommendations

25. **NRS Outreach should inform all complainants about the existence of the TIO and the fact that complaints (if they are Relay-related) may be taken to the TIO**
26. **Commonwealth-funded or Commonwealth-managed phone helplines must be Relay Service friendly, and this must be outlined in the contract between the Commonwealth and the winning tender.**

1.5 Better ways to assist people

As outlined in Sections 1.1 and 1.2 above, and in Section 2 below, ACCAN believes that there are indeed better ways than are currently provided within the NRS for people to make and receive telephone calls. ACCAN argues that these should be incorporated within an enhanced NRS - or Disability Telecommunications Service (DTS).

At the moment, people who are Deaf, hearing-impaired or speech-impaired can make phone calls (or use telecommunications) in the following ways, other than using the NRS:

- Use the phone independently without the use of any specialised service or equipment. This may work for some people, some of the time. For example, a person with a significant speech impairment may nonetheless be understood on the phone by their mother.
- Use the phone independently but using specialised equipment. Again, this may work for some people, some of the time. For example, a person who uses a computerized voice output device may be understood some of the time, by some other parties, or a person with hearing impairment may be able to use a volume-control phone some of the time, depending on the other person's pitch and accent.
- Use one or more of ACE's offerings that are being trialled - that is, handset-based captioned telephony or VRS, or until recently, web-based captioned telephony.
- When communicating with friends or family, send an SMS and wait for a response
- When communicating with friends or family (or, in very limited cases, companies such as Internet Service Providers), use instant messaging (also known as online 'chat' services) such as MSN Messenger.
- Send an email and wait for a response.
- Ask family, friends, support workers or neighbours to make a call on their behalf.
- In the case of Deaf people, ask an interpreter who is with them to interpret another assignment to interpret a call or make a call on their behalf. For example, the Deaf person is going to the GP, and after the appointment finishes, the Deaf person asks the interpreter to call their employer to say they will be late for work.

- In the case of Deaf people, attend their local Deaf Society for the express purpose of having a call made, either on their behalf or via an interpreter.
- In the case of Deaf people in certain work situations, pay an interpreter to attend their workplace for the express purpose of making phone calls.

While some of these methods may be useful to some individuals in some circumstances, some of the time, they have the following disadvantages:

- They may not be able to be relied upon for accuracy and comfort;
- They may require reliance on another person, leading to a loss of privacy, independence, empowerment or authority;
- They may result in a call refusal, or a refusal to handle the call in the way the caller desires (for example, a Deaf caller may be told by a government agency that their details cannot be disclosed via an interpreter);
- They may not be a 24/7, dependable and predictable way of making contact;
- They may not be in real time; or
- They may be expensive.

In Section 2, we outline ACCAN's recommendations for a Disability Telecommunications Service which would provide better ways for people who are Deaf, hearing-impaired or speech-impaired to make and receive phone calls.

2. Meeting everyone's telecommunications needs

ACCAN has consulted with our membership and the disability sector more broadly in compiling a comprehensive evidence base of the barriers that Australian consumers with disability face when accessing telecommunication equipment and services under existing government and industry programs and services. These barriers exclude many consumers with disability from functional equivalence in telecommunications and the benefits that telecommunications provide to their non-disabled counterparts. These barriers include;

- the limited scope of the Universal Service Obligation that only guarantees access to the voice-equivalent standard telephone and is silent on access to broadband;
- the limited range of adaptive equipment that is available through the carriage service providers (CSP) disability equipment programs (DEP);
- the lack of educational material for consumer awareness about equipment and services;
- the lack of adequate training in the use of telecommunications equipment and services; and
- the lack of funding to acquire the equipment and services which can provide access to telecommunications- including telephone, internet and mobile devices.

These barriers in isolation often make the difference between being able to use telecommunications or not for many people with disability, older Australians and people experiencing illness. In conjunction they have, and continue to, exclude many Australians from the economic, social and cultural benefits of our growing telecommunications society.

In light of a ubiquitous high-speed broadband infrastructure it is essential that these barriers be dismantled if Australia is to be a truly inclusive and accessible society.

The attached Compendium (Appendix D) highlights the specific barriers in both telecommunications equipment and services that many people with disability face in accessing the information and communications services that most Australian consumers take for granted. ACCAN believes that an awareness of these barriers is instrumental in building an understanding of the telecommunications needs of people with disability, older Australians and people experiencing illness.

This submission proposes a Disability Telecommunications Service (DTS) under the auspice of the proposed Telecommunications Universal Service Manangement Agency (TUSMA. ACCAN envisions this DTS as the contract manager for a suite of new and enhanced telecommunications solutions that will bridge the current digital divide – by ensuring that ensure that all Australians have equitable access to telecommunications services, specialised equipment, training and information about telecommunications solutions that meet their needs.

2.1 Overcoming barriers

As indicated by the data gathered in our Compendium (Appendix D) there are many barriers to accessing telecommunications for Australian consumers with disability, older Australians and people experiencing illness.

For some people with disability overcoming these barriers has been facilitated through assistive technologies, for others access to communication has come through adopting different modes of telecommunications to meet their needs. For example, Deaf consumers adopted SMS as a way to communicate both with other Deaf people and also with hearing people, in a way that made their Deafness invisible,[85] whereas for consumers who are blind or vision-impaired, use of the standard telephone has been made easier through the adoption of the (AS/ACIF S040)[86] standard, which mandates a raised pip on the number five key on the telephone keypad; access to mobile telephony for blind consumers is only possible if the mobile handset has text-to-speech capability. Until the recent introduction of the iPhone which has built-in accessibility features, access to mobile telephony for consumers who are blind required the purchase of high-end smartphones and additional add-on software providing text-to -speech functionality, at a cost of nearly $1000. The introduction of an off-the-shelf universally designed mobile handset, the iPhone is a fantastic advancement, however the higher cost of this product ($850) compared to a standard mobile handset makes it unaffordable for many consumers who are blind. Similarly, access to the internet for blind or vision impaired consumers is dependent on assistive technology such as screen-reader software or screen-magnification software. Again the high cost of these assistive technologies has been a barrier to getting online for many consumers who are blind or vision-impaired.

[85] Power, M. R., Power, D., & Horstmanshof, L. (2007). 'Deaf people communicating via SMS, TTY, relay service, fax and computers in Australia', Journal of Deaf Studies and Deaf Education, 12, 80-92. (DOI: 10.1093/deafed/en1016)

[86] www.commsalliance.com.au/__data/assets/pdf_file/0017/.../S040_2001.pdf

For many Deafblind consumers the only way to access internet services is through the use of a refreshable Braille display which connects to a computer. The cost of an entry level Braille display (including text-to-speech software) is approximately $4000.[87] The cost of this equipment is beyond the financial means of the majority of people who are deafblind. Able Australia's 2011 report *Telecommunications and Deafblind Australians*, indicates that

"While technological advances are proving to be beneficial to those experiencing single sensory loss (i.e.; deafness or blindness), it is becoming evident that such advances are not taking place for people who are deafblind, with a particular barrier being the high cost of purchasing the equipment."[88]

2.2 Addressing gaps in assistance

There are a number of telecommunications services which have the capacity to provide greater access for people with disability.

Captioned Telephony

The auditory nature of the telephone can often be a barrier to communication for consumers with hearing impairment. A captioned telephone service can overcome some of these barriers for people with hearing impairment when using fixed-line telephones. Captioned telephony provides near real-time captions during a telephone conversation. Consumers with hearing impairment can supplement their residual hearing by reading the captions. The use of residual hearing in conjunction with text captions offers a greater level of conversation clarity, allowing for a less stressful use of the telephone.

Case study twelve: Values his independence and ability to have natural conversations[89]

Stephen is deaf but uses his own speech. Having used Speak and Read for many years, he has been trialling ACE's captioned telephony service. He says that he is treated differently when using Speak and Read, because the other party knows he is "getting assistance" with the call – but he has more privacy and independence with captioned telephony, because the presence of the relay officer is not obvious. This is particularly important, he says, when he is "trying to obtain a job interview, when I need to make phone calls as part of my employment role, or if I'm simply trying to attract a new client to my business".

Stephen says that captioned telephony is "much faster and more efficient: whilst traditional relay services have done a basic job of enabling me to access a telephone in the past, there was a lot of stress involved, it took longer and it was often a negative experience for me (and probably for lots of people on the other side of the calls). For example, in my previous career as a Chartered Accountant I often had to chase up a list of outstanding debtors. I can tell you now that there is simply no way you can perform such a task using traditional relay services without losing your mind!

[87] http://www.humanware.com/en-australia/products/blindness/braille_displays/_details/id_32/brailliant_24.html
[88] Able Australia, op.cit.
[89] 'Stephen' is a pseudonym. Case study collected by email, August 2011

"In stark contrast, this relatively simple task can be performed using captioned telephony - both efficiently and effectively. Using CapTel also means that I am able to use my abilities and strengths to the fullest and it is not subject to communications which are controlled by a 3rd party with its unavoidable variations, which might be caused by a relay operator paraphrasing or a lack of knowledge, failing to provide the emotional context of the conversation and so on. For example, I can be enthusiastic and demonstrate my knowledge and understanding of a subject."

Stephen says that captioned telephony "..really is the closest thing to a functionally equivalent phone call for me. I wouldn't even attempt to use traditional relay services in these circumstances today."

Captioned telephony can provide captions on a telephone's built-in screen (handset-based captioned telephony) or via a computer monitor (web-based captioned telephony).

There are two models for captioned telephony service[90]. One requires that the consumer call the captioning service before placing a call. This model needs incoming calls to also be initially made to the captioning service, and then the call is put through to the captioned telephone user. This is similar to the current National Relay Service. A second and more user-friendly model utilises two telephone lines: when a call is made from the captioned telephone, the phone simultaneously connects to the captioning service. Similarly, when receiving an incoming call, the person calling dials the captioned telephone directly and the captioned telephone automatically connects to the captioning service via a broadband connection. The captions are displayed on the telephone's built-in screen, or on a computer screen in the case of web-based captioned telephony.

Currently the Australian Communications Exchange (ACE[91]) is privately funding a captioned telephony trial. This trial offers a limited number of consumers the opportunity to access the standard telephone with the same ease of use as their hearing colleagues. Captioned telephony is not a new service; Australian consumer groups have been urging the Government for several years to implement captioned telephony service in Australia.[92]

Internationally, captioned telephony is serving the needs of hearing-impaired consumers through government subsidized programs. For example, the majority of States in the U.S have been providing captioned telephony fixed-line services to those consumers who are hearing-impaired for several years. And beginning 1 October 2011, the New Zealand Relay Service will be providing a captioned telephone service to New Zealand consumers with hearing impairment between the hours of 7am and 9pm 7 days a week[93].

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[90] http://stakeholders.ofcom.org.uk/market-data-research/telecoms-research/captioned/
[91] www.aceinfo.net.au/index.php?option=com_rsgallery2&gid
[92] http://www.archive.dbcde.gov.au/2010/august/independent_disability_equipment_feasibility_study/independent_disability_equipment_program_feasibility_study_submissions/submissions/deafness_forum_australia/deafness_forum_australia_html/attachment_b_-_captioned_telephony
[93] http://www.aceinfo.net.au/index.php?view=article&id=114&itemid=15&option=com_content&Itemid=15

Recommendation

27. A 24/7 Captioned Telephone Service (including handsets) be funded as part of an enhanced NRS.

Web-based Captioned Telephony

Web-based captioned telephony offers similar access as a captioned telephone service to consumers with hearing impairment - with the added flexibility of 'any phone, anywhere' access. Consumers can access web captioned telephony using any phone and an independent broadband connection. This service offers consumers with hearing and vision impairment the ability to use their own speech and read near real-time captions on their computer monitor; using adjustable font, font size and contrast that best suits their individual circumstance. The ability to use any phone, including mobile phones, provides a greater level of independence and mobility than the standard captioned telephone service.

ACCAN understands that the Australian Communications Exchange (ACE) trial of a Web-Captioned Telephone Service was discontinued because of questions relating to the *Telecommunications (Interception and Access) Act 1979* (TIA), the *Privacy Act 1988*, and State and Territory-based surveillance legislation. We also understand that in their submissions to the Review both ACE and Deafness Forum have discussed how interpretations of these legislative instruments may inadvertently impose barriers to functional equivalent telecommunications for consumers who are Deaf or hearing-impaired. Recalling the obligations outlined in Article 4 of the UNCRPD, ACCAN supports the ACE and Deafness Forum position that these legal and regulatory questions need to be promptly resolved in order to provide consumers with functional equivalency offered through new and emerging telecommunications solutions.

Web-based captioned telephone services are being offered in overseas markets. For example, two of the United States relay service operators, Sprint[94] and Hamilton[95], offer Web CapTel to their customers.

Recommendation

28. A 24/7 web captioned telephone service be introduced as a part of an enhanced NRS.

Video Relay Service – Deaf consumers

Video relay[96] is a service which allows Deaf Australians whose first language is Auslan to make and receive calls via an interpreting service. Video relay offers Deaf consumers the equivalent access to telephony that the majority of Australians take for granted - near real-time telephone conversations in their first language.

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[94] www.sprintcaptel.com
[95] www.hamiltonwebcaptel.com
[96] http://en.wikipedia.org/wiki/Video_Relay_Service

Case study thirteen: Wants a level playing field with hearing colleagues[97]

Andrew Wiltshire is Deaf and is a manager whose work involves dealing with a range of businesses.

While Mr Wiltshire values the NRS, he finds the slow speed (about five times slower than a normal conversation) a real disadvantage in his work: "When I'm talking to people from the wider community it's so time-consuming that it's really problematic for them. We live in a busy world. From a business perspective, we need something straightforward and simple to use."

Mr Wiltshire has been using ACE's VRS trial service, but due to limited hours and waiting times, he sometimes has to resort to hiring an interpreter in order to use the phone. As he says: "That puts me at a disadvantage compared to Hearing people."

Mr Wiltshire also says that VRS is important after-hours too, so that he can make personal calls from home in the evenings.

He is frustrated that seven years after Deaf Australia first commenced advocating for a VRS, the Deaf community is "still waiting" He also notes, "Emergency services are an issue too – I can't use the NRS's 106 service because I don't have a TTY anymore. What am I supposed to do?"

Mr Wiltshire's final message is: "Government of Australia, it's time to wake up!"

Video relay provides a number of tangible benefits for Deaf consumers whose first or preferred language is Auslan (as noted in Section 1.1):

- VRS allows those people whose primary language is Auslan to communicate in Auslan, instead of having to type what they want to say.
- English is a second language for many Deaf consumers and consequently lower literacy levels can make text relay difficult or impossible for some Auslan users.
- Communication via VRS offers access to normal prosody which is unavailable via text, leading to a higher level of understanding and comfort for both parties
- A video relay call flows back and forth in a similar way to a telephone conversation between two hearing persons. For example, the parties can interrupt each other, which they cannot do with a NRS call using a TTY (where the parties have to take turns communicating with the relay operator)
- Because the conversation flows more naturally back and forth between the parties and does not rely on typing, the conversation can take place much more quickly than with a text-based relay call – 150wpm compared to 30wpm (where 170wpm is a non-relayed, direct call[98]). As a result, the same conversation is much shorter through VRS, providing greater benefit for both parties.

[97] Case study collected via video, May 2011
[98] Lewin, et al, 'Voice telephony services for deaf people', Ofcom, 2009, p22; http://stakeholders.ofcom.org.uk/binaries/research/telecoms-research/voice_telep.pdf

Case study fourteen: The slow speed of text-based relay is a risk to safety and security[99]

James Blyth is Deaf and prefers not to use the NRS because it requires English and is "really slow - even if you're making what should be a very simple call, like ordering pizza, it can take 15 minutes of typing back and forth." He says that in Auslan, such a call takes five minutes.

For Mr Blyth, using the NRS is "a lot of effort and wasted time, waiting to connect to the NRS, dialing the number, connecting to the outbound party, having to explain to them about the NRS, and then even after all that, frequently experiencing hang-ups because they think you're a telemarketer or something - and all you're trying to do is order a pizza!"

Mr Blyth says that he was home one night (when the VRS was closed) when he smelled gas in his home. As he does not have a TTY, he tried to place an internet relay call to the gas company from his laptop. However, he was unable to connect, apparently due to a software problem. After trying a few times, he switched to another laptop and got through.

He says that the call took "a long time - the relay officer had to type the whole menu, like, 'If you're calling about gas, please press 1... f you're calling about electricity, please press 2...' I needed to be able to press my preference immediately, but I couldn't. I had to wait for the relay officer to type the whole thing, then type 'Go ahead'."

Mr Blyth points out that a hearing person would have been able to choose their preference immediately.

"It was a gas leak - that's a serious hazard. There could have been an explosion while I was suffering through that call! I did eventually get through and sort it out but my point is that it was a real barrier to communication."

Mr Blyth says the solution is a reliable 24/7 VRS.

Case study fifteen: Disadvantage in the labour market[100]

Glenn is Deaf and recently applied for a job interstate. To save costs, the potential employer requested a phone interview. Glenn said that he had to do this via VRS because via NRS would be too slow and unnatural, with the potential employer "waiting on the phone – it would be jerky, uncomfortable and unnatural for both parties".

Glenn says that his phone calls "need to be quick, like a normal phone call, which VRS offers. Without this, it's hard for Deaf people to get a job."

Glenn also notes that it's important that Deaf people have access to high-speed broadband in order to use VRS.

[99] Case study collected via video, May 2011
[100] Glenn has asked that only his first name be used. Case study collected via video, May 2011

Any 24/7 Australian VRS needs to provide allocation of phone numbers to users in order to facilitate incoming calls and message forwarding services. The allocation of telephone numbers will also facilitate emergency services calls and the provision of caller location information to emergency service agencies.

Video relay as a means of telecommunications has been successfully adopted internationally for many years. Sweden has had a public video relay service in operation since 1997[101] and the United States has 24-hour video relay services across all States.[102]

With the advancement of telecommunications equipment and higher capacity networks, video relay is possible for many mobile devices.

Previously, concerns have been raised about the relatively low numbers of NAATI-accredited Auslan/English interpreters could service a 24/7 video relay service in Australia. However, advancing technology combined with improved understanding of signed linguistics may resolve this. It has long been known that both British Sign Language (BSL) and New Zealand Sign Language (NZSL) are very similar to Auslan. Recent research has shown that in fact, there may be more differences between some varieties of BSL than between some varieties of BSL and some varieties of Auslan[103]. With the advent of high-speed broadband and the coming video relay services in the UK and NZ, Australian, New Zealand and British sign language interpreters could provide overnight and overflow services for their colleagues in other countries, provided that the platforms for the three video relay services are interoperable.

Currently the Australian Communications Exchange (ACE) is privately funding a trial Auslan/English video relay service. This trial is available Monday to Friday between the hours of 7am and 7pm EST.

Case study sixteen: Limited VRS hours mean limited access[104]

Leah is Deaf and uses ACE's VRS trial to make her phone calls whenever possible. For Leah, VRS means a faster, more natural conversation, because it's easy to understand, visual, fast and comfortable, and provides eye contact, leading to better rapport.

However, Leah says that she often needs to make personal calls on weekends, and also call her employer and potential employers before 9am on a weekday. Even with the recently extended opening hours, she is disadvantaged because she lives in a state in a different time zone to ACE. She is asking for a 24/7 VRS so that everyone around Australia can use it any time.

Recommendation

[101] www.tiresias.org/cost219ter/inclusive_future/(6).pdf
[102] http://www.fcc.gov/guides/video-relay-services
[103] Johnston, T. (2003). BSL, Auslan and NZSL: Three signed languages or one? In A. Baker, B. van den Bogaerde & O. Crasborn (Eds.), Cross-Linguistic Perspectives in Sign Language Research, Selected papers from TISLR 2000 (pp. 47-69). Hamburg: Signum Verlag.
[104] 'Leah' is a pseudonym. Case study collected via video, May 2011

29. **Introduction of a 24/7 video relay service with NAATI-accredited Auslan/English interpreters (or equivalent level of qualification of BSL/English or NZSL/English interpreters, if overseas interpreters are used) with text relay, as part of the National Relay Service (NRS).**

Video relay service – hearing-impaired consumers

ACCAN also sees opportunities for VRS to provide greater telecommunications access to a wider cohort. With an enhanced National Relay Service, which includes VRS, greater access could be possible for a wider range of consumers with speech impairments. For example, VRS with trained lipspeakers[105] relaying calls would facilitate communications for people who lip-read, and who may also wish to use text and/or residual hearing. This solution may also be of use to people who are deafblind but with some residual sight.[106]

Case study seventeen: Hearing-impaired Indigenous people disadvantaged[107]

Jody Saxton-Barney works with Indigenous people, including in rural and regional Australia. Jody points out that the number of Indigenous people with hearing loss is high and that English literacy is problematic for many. Jody suggests that one telecommunications solution for this group is a VRS for lipreaders – but that this will require reliable, affordable high-speed broadband to achieve.

Recommendation

30. **Introduction of a 24/7 video relay service with trained lipspeakers, as part of the National Relay Service (NRS), specifically for people who lip-read, and who may also wish to use text and/or residual hearing.**

Video relay service – speech-impaired consumers

Consumers with speech impairments would also benefit from the dual media offered through video communication, in combination with the utilisation of relay officers trained to 'interpret' speech[108]. Thus, the use of video would enhance Speak and Listen calls. The speech-impaired caller could view the relay officer, and vice-versa: this is likely to assist with mutual comprehension.

The video medium would also readily alert relay officers as to which kind of technology, if any, the consumer is using to speak.

Recommendations

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[105] www.lipspeaking.co.uk/what.html

[106] S. Rutgersson and M. Arvola, 'User interfaces for persons with deafblindness', http://www.antrop.se/pdf/user_interfaces_for_persons_with_deafblindness.pdf

[107] Case study collected via video, May 2011

[108] It appears that such a service may be offered in Finland already: see http://feed.ne.cision.com/wpyfs/00/00/00/00/00/0D/28/E9/wkr0003.pdf; see also 'Videotelephony', by Jan-Ingvar Lindström and Leonor Moniz Pereira , in P. Roe (ed), Telecommunications for all, COST 219, The European Commission, 1995. http://speech.di.uoa.gr/hestia/books/telecomm/chap4-2.html

31. **Introduction of a 24/7 video relay service using trained 'speech interpreters' for people with speech impairment, as part of the National Relay Service (NRS).**

32. **All funded video relay services provide users with 10-digit phone numbers to facilitate incoming calls, message service and emergency service calls.**

Total Conversation

Total conversation is real-time multimedia telecommunications - audio, video and real-time text which can be accessed with information and communications equipment implementing the SIP[109] multimedia calls protocol.

This real-time text differs from instant messaging systems because it is the transmission bi-directionally of one character at a time. This gives the user the feel of real-time communication, just like voice or video systems that transport streaming media over IP.[110]

Total conversation can provide accessibility and usability of telephony for all consumers; however it offers a range of benefits for consumers with disability. Through the use of all three channels, consumers with disability can communicate in their preferred way without being constrained by technology which when used in isolation can create barriers. For example, a consumer with complex communication needs who can hear but has a speech impairment can use both the audio to hear the other caller's conversation and respond in real-time text. This can eliminate the need for third-party communications assistance while allowing the conversation to have a more natural flow.

Total Conversation is currently being trialed in several countries as part of the European Commission's Reach 112 project[111].

Recommendation

33. **The Australian Government encourage the telecommunications industry to adopt voluntary guidelines to include Total Conversation in mainstream products and services.**

Next Generation Text Relay

In the recent review of relay services[112] released by Ofcom, the UK's independent telecommunications regulator, the following recommendations were made:

- the criteria which communications providers must meet under the Universal Service Directive should be extended to include requirements to support simultaneous two-way speech with live captions/text on relay services

[109] http://www.itu.int/rec/T-REC-F.703/en
[110] http://www.itu.int/en/ITU-T/studygroups/com16/accessibility/Pages/conversation.aspx
[111] http://www.reach112.eu/view/en/index.html
[112] http://stakeholders.ofcom.org.uk/consultations/review-relay-services/

- the service should be accessible via off the shelf/mainstream consumer electronics such as PCs, while still supporting the current level of service to existing terminals.

The benefits of such a service to consumers with disability is that it can provide greater access for a wider range of consumers. Similar to the functional operation offered by Total Conversation , with the supplemental advantage of having a relay officer included in the call.

Recommendation

34. Expand the National Relay Service to include simultaneous two-way speech with live captions/text.

Telecommunications Equipment

In order to overcome some of the inherent barriers to access that consumers face with standard telecommunications equipment adoption of different communication modes, specialised solutions and assistive technology have needed to be adopted. For example, consumers who are deafblind require a range of specialised equipment to enable access to mainstream telecommunication services. One of these solutions is the Deafblind Communicator - a combination of mobile phone and portable Braille display.[113] The Deafblind Communicator can be used as a stand-alone portable teletypewriter or as an SMS mobile handset.

Smartphones

Smartphones with video capability are being used by Deaf consumers to communicate in their first language, Auslan.[114] While smartphones have been developed to provide a greater range of services to the wider population, the adoption of smartphones as the telecommunications equipment of first choice for many Deaf consumers highlights the importance of Universal Design and access-for-all functionality in product development. While these devices have provided greater independence for Deaf consumers, the higher cost of smartphones compared to a standard mobile handset financially discriminates against Deaf consumers who are unable to use a standard mobile phone. Deaf consumers are also disadvantaged by lack of choice, because many of these devices are not interoperable. For example, a consumer with a newer iPhone can access FaceTime[115] to make video calls – but only to another person who has access to Apple's FaceTime facility.

Smartphones are allowing blind or vision–impaired consumers to have greater independence and safety when they are away from home. Add-on text-to-speech software, and the built-in access features of the iPhone (for example), enable these consumers to access SMS services, find contact phone numbers and access directory assistance information. For those consumers who have the financial resources to purchase a smartphone and the additional text-to-speech software (currently a minimum of $200 for an

[113] http://www.humanware.com/en-australia/products/blindness/deafblind_communicator/_details/id_118/deafblind_communicator.html
[114] http://www.wired.com/gadgetlab/2010/08/deaf-students-sign-language/
[115] http://www.apple.com/iphone/features/facetime.html

Android-based phone with text-to-speech app[116]or $850 for an accessible iPhone) these products provide a level of telecommunications not previously available. However, in the same way as Deaf consumers are financially disadvantaged, blind consumers are financially disadvantaged by not being able to use a standard mobile handset in the same way as the general population.

An abundance of evidence highlights the higher cost of living with disability which is often coupled with low levels of employment. These factors contribute to the digital divide that Australian consumers with disability face in accessing telecommunications. Non-disabled consumers can access mobile telephony with handsets that are commonly available for as little as $30. Having to pay considerably more to purchase a smartphone to provide the same level of communications access exacerbates this digital divide. For those consumers who do not have the financial resources to cover these higher cost products, access to telecommunications continues to be out of reach. Clearly equipment is becoming more accessible and adaptable to the needs of consumers with disability but until equipment that meets the needs of all consumers is available off-the-shelf right across the market, this sector of our community will continue to be disadvantaged in the telecommunications environment. ACCAN asserts that it is in the economic interest of the nation to ensure that people with disability, older Australians and people experiencing illness have access to the full benefit offered through our increasingly digital economy.

Case study eighteen: Lack of affordability is a barrier to employment[117]

Robert became blind in middle age. In order to undertake the necessary training to develop employment skills as a blind person, he needed screen reader and screen-magnification software, at a cost of over $2000. There were no subsidies to cover the cost of the solutions he needed to become employable.

Robert found that the cost of telecommunications equipment created a range of obstacles around employment opportunities – for example, he could not afford $1000 for a smartphone compatible with text-to-speech software, which meant that he was unable to receive SMS notification about work opportunities or find employment resource phone numbers in his contacts.

Robert appreciates being able to access assistive technology solutions through the Government's Job Access Workplace Modifications Scheme once he had found unemployment, but notes that this was "a great benefit for my employer, but not much help to prepare me for employment."

"As a person who was keen to work, the lack of access to affordable mobile phone and assistive technology was a real barrier. I consider myself very lucky that I was able to overcome these barriers and now have a permanent fulltime role that I enjoy. For many people who are blind, the lack of opportunity for employment is compounded by their inability to afford the assistive technology they need."

[116] http://codefactory.es/en/press.asp?id=388&y=2011&n=88
[117] Robert has asked that only his first name be used. Case study collected via email, August 2011

Deafblind Communicator

For deafblind consumers, the equipment needed to be able to equitably access telecommunications is even more expensive. The Deafblind Communicator is a device which can provide many deafblind consumers access to the NRS as well as standard SMS text. The recent report *Telecommunications and Deafblind Australians* indicated the extraordinary difficulties that deafblind consumers encounter accessing telecommunications. The report highlights the need for equipment which can provide the type of access that the Deafblind Communicator offers. The extent to which this group of consumers has been historically disadvantaged is further highlighted by international programs that are being implemented to provide greater inclusion of deafblind consumers. For example, the United States' *Twenty-First Century Telecommunications and Video Accessibility Act* includes provision of an annual $10 million equipment program for low-income deafblind consumers.

Screen reader and screen magnification software

In order for blind or vision-impaired consumers to be able to access the internet or broadband services, additional software is needed. Screen reader software has until recently been only available commercially at retail pricing of approximately $1800. This extraordinary cost to enable access to computers has long been a financial barrier for many consumers. For those in employment over eight hours per week, the cost has been carried by the Federal Job Access workplace modifications program. Fortunately for consumers who have computers and rely on text-to-speech, an open-source option has become available. Non Visual Desktop Access (NVDA)[118] provides an entry level screen reader for Windows computers that is free to use and can be used via an external plug-in storage device. Screen magnification software however is still priced out of the financial reach of many blind or vision-impaired consumers.

This equipment highlights how advancements in technology can provide greater access to telecommunications for a number of consumers with disability. However, all of the equipment solutions listed above have a higher cost than equipment providing functional equivalent access for non-disabled consumers. Research consistently identifies a higher cost of living with disability, and many people with disability are either under-employed or unemployed. The higher cost of these telecommunications solutions can further disadvantage or completely exclude many people with disability from accessing telecommunications. The following information lists the equipment solutions that are needed to provide functional equivalency to telecommunications for people with disability.

Telecommunications Equipment Solutions

Functional equivalence to land-line telephone services for consumers with disability requires the following equipment (unless noted this equipment is not available through any disability equipment program). This equipment needs to be available at no additional cost than the cost for non-disabled consumers to access standard land-line telephone services:

- teletypewriters (TTYs) (currently available from DEP)

[118] http://www.nvda-project.org/

- teletypewriters with large screen (not currently available in Australia)
- teletypewriters with Braille display (currently available from DEP)
- corded and cordless amplified telephones (currently available from DEP)
- telephone ring flashing and/or wireless vibrating indicators (available from Telstra DEP only)
- telephone ringing amplifiers (available from Telstra DEP)
- captioned telephones (only available on trial basis from ACE)
- large button phones (currently available from DEP)
- phones with speech enabled contact list, menu options and caller ID
- cochlear implant telephone adaptor
- switch-compatible phone (available from Telstra DEP)
- one touch switch[119].

Functional equivalence to mobile telephony for consumers with disability requires the following equipment. (None of this equipment is available on any disability equipment program although all of these devices are available in Australia). This equipment needs to be available at no additional cost than the cost for non-disabled consumers to access standard mobile telephony services:

- inductive hearing loops
- mobile handsets with internet relay capability (smartphones)
- mobile phones with hearing aid compatibility
- mobile phones with speech-to-text capability
- mobile phones with text-to-speech capability
- mobile phones with large screens
- mobile phones with adjustable font size
- mobile phones with screen magnification capability
- mobile phones with thumbnail contact list capability
- mobile phones with large button keypad

[119] http://www.novitatech.org.au/subcategory.asp?p=247&id=6

- switch-compatible mobile phones[120]
- wireless keyboard
- refreshable Braille display
- attachments to enable communication devices.

For functionally equivalent access to internet communications the following equipment needs to be available at no additional cost than the cost of access to Internet services for non-disabled consumers:

- speech recognition software
- screen magnification software
- Braille displays
- large monitors
- keyboards and mice designed for consumers with dexterity disabilities
- onscreen keyboards.

Recommendation

35. The Disability Telecommunications Service include an expanded disability equipment program, independent from the telecommunications providers, to provide all assistive technologies that allow functional equivalence to mainstream telecommunications (landline, mobile and internet) services for people with disability, older Australians and people experiencing illness.

Informing the consumer community

ACCAN's consultation has identified a number of gaps in assistance to telecommunications for consumers with disability - gaps which create barriers to harnessing the benefits offered by advancements in information and communications technologies for Australian consumers with disability and older Australians. These gaps include:

The lack of a comprehensive public procurement policy for accessible information and communications technology;

[120] http://www.tecsol.com.au/ClickToPhone.htm

The limited scope of the Universal Service Obligation, only guaranteeing access to a fixed-line telephone service;

- The limited scope of carriage service providers' disability equipment programs;
- The lack of telecommunications services for particular groups of consumers with disability'
- The lack of financial assistance to ensure disadvantaged consumers with disability and older Australians can access the equipment and services that they need to participate equitably in telecommunications;
- The lack of consumer awareness about telecommunications equipment and services that meet their individual needs; and
- The lack of adequate training for consumers with disability and older Australians to enable them to use the telecommunications equipment that best suits their individual needs.

Case study nineteen: Older disabled people becoming more isolated[121]

Stan Batson is an older Deaf man who lives in regional Australia, and who has strong links with older people in his community. He believes that many people who are deaf or hearing-impaired and who live in regional Australia are becoming more isolated, because they find the communications available to them (computers and SMS, for example) too confusing. He says that as people get older, they are more fearful of going outside but that they are unable to maintain social connections from their home because they cannot use telecommunications.

Mr Batson believes that many people would benefit from a basic, user-friendly videophone, and that there should be a bricks-and-mortar or online shop (accessible via videophone) for disability products and services.

Public Procurement Policy for Accessible ICT

ACCAN asserts that one of the major policy gaps which continues to adversely impact the uptake of information and communications technology by consumers with disability and older Australians is the ongoing lack of a robust government-wide procurement policy for accessible information and communications technology. The negative impacts of this policy gap include:

- Making public sector employment difficult for people with disability;
- Making access to government information and services that are delivered online more difficult for Australians with disability and older Australians; and

[121] Case study collected via email, August 2011

- Under-utilising the power of the public purse to encourage a wider marketplace of accessible and usable information and communications equipment.[122]

Recommendation

36. The Australian Government adopt a procurement policy for accessible information and communications technology

Universal Service Obligation

The Universal Service Obligation which protects consumers in the telecommunications marketplace by ensuring that all Australian consumers can access a standard telephone service is outdated. Since its adoption in 1997 the Australian telecommunications landscape has undergone significant change, the uptake of mobile telephones outnumbers the number of fixed-line telephones and reports both from industry and the Australian Communications and Media Authority (ACMA)[123] indicate the number of fixed-line telephones in service is declining.

ACCAN asserts that this data, along with the inherent barriers that standard fixed-line telephony cause for many consumers with disability, indicates there needs to be a change in the provision of the USO to ensure that consumers have not just access to the standard telephone service but to the telephony equipment and service that best meets their specific needs. For example, ensuring access to standard fixed-line telephony provides little value for someone who is deafblind and does not have the requisite information and communications equipment needed to access the standard telephone service. ACCAN believes that in order for all Australian consumers to be guaranteed equitable access to telephony the USO must accommodate the differing needs of consumers and not take the current 'one size fits all' approach to telecommunications consumer protection.

Recommendation

37. The expanded disability equipment program envisioned as a key component of a Disability Telecommunications Service must not be constrained by the outdated limitations of the current Universal Service Obligation

Current Disability Equipment Programs

In 2009 the Government undertook a review into the feasibility of an independent disability equipment program. There were 35 submissions to this review and ACCAN's review of these submissions found that the majority of them called for the formation of a disability equipment program independent from the telecommunications providers. Additionally, many of the submissions called for an expansion of the equipment that is offered through current

[122] Hawkins, Wayne. 2011. 'Australia's missing accessible information and Communications technology procurement policy'. Telecommunications Journal of Australia. 61 (2): pp. 23.1 to 23.9. http://tja.org.au

[123] ACMA 2008 09 Communications Report Chapter 2

disability equipment programs in order to meet the telecommunications needs of many consumers with disability. As yet the Government has not released a report on the review, a situation which is particularly disturbing given that two years later we are being called on to consult further in the area of telecommunications for people with disability.

In reviewing the submissions to the feasibility study of independent disability equipment scheme along with the data that ACCAN has gathered from wide consumer and disability group consultation we assert that there needs to be a wider range of information and communications equipment offered via an independent equipment program. For example, an independent disability equipment program needs to be able to provide deafblind consumers with the telecommunications equipment that meets their individual needs, be that a Deafblind Communicator, a refreshable Braille display with compatible handset or a refreshable Braille display with compatible computer to enable access to the internet.

Current operation of the CSP disability equipment programs restricts consumer choice. In order to provide the same equity of service for all telecommunications consumers, consumers with disability need to have the same market choice as other consumers. ACCAN asserts that the current Telco disability equipment programs are not meeting the needs of consumers. An expanded disability equipment program, independent from the telecommunications providers, as recommended above, would provide consumers with market choice and access to the equipment that meets their telecommunications needs. ACCAN understands that the Telecommunications Universal Service Management Agency (TUSMA) will become the umbrella agency to manage the NRS contracts and USO. ACCAN envisions TUSMA being the appropriate agency to manage an independent disability equipment program.

Recommendation

38. The current telecommunications provider disability equipment programs be de-commissioned and replaced with an expanded disability equipment program as recommended above

Telecommunications services

In part 1 of this submission we discuss the merits and shortcomings of the current NRS. Acknowledging that the NRS provides a critical service for a range of Australian consumers with disability, ACCAN sees the need for a broader scope for NRS services in order to provide access to telecommunications services for consumers who are currently excluded from equitable access to telecommunications. ACCAN has identified a number of services which will provide more inclusive telecommunications for these consumers:

- Relay service for consumers with cognitive disability, including intellectual disability, acquired brain injury and mental illness;
- Access for non-English speaking Australians with disability - run in conjunction with the Telephone Interpreting Service (TIS); and
- Free call-connect directory assistance service for all consumers with disability.

Consumers with cognitive impairments often have difficulty navigating Interactive Voice Response (IVR) systems, having to repeat information to different people when transferred between calls, remembering phone numbers and or information provided over the phone. A relay service with relay officers trained in assisting people with cognitive impairments would make telecommunications available for these consumers.

Currently the Department of Immigration and Citizenship offers interpreting services for Australians who do not use English to communicate. This is a free service for non-English speaking consumers; however there is no equivalent service for non-English speaking consumers who are hearing- or speech impaired. A relay service working in conjunction with the TIS will provide these consumers with the functional equivalence in telecommunications that English-speaking consumers enjoy.

For many consumers with disability, call-connection when accessing directory assistance information is either not possible or extremely difficult. For example people with cognitive impairment may have difficulty remembering telephone numbers, consumers with dexterity impairments may not be able to dial telephone numbers independently and blind or vision-impaired consumers may not be able to write down telephone numbers to re-dial independently. A free call-connect service included as part of the directory information service will provide consumers with disability the functional equivalence that their non-disabled peers access through directory assistance information.

Recommendations

39. **The NRS be expanded to provide telecommunications access to consumers with cognitive disability**

40. **The NRS be expanded to provide telecommunications access to consumers with cognitive disability who also are Deaf, hearing-impaired or speech-impaired**

41. **The NRS be expanded to provide telecommunications access to culturally and linguistically diverse (CALD) consumers with hearing and/or speech impairments**

42. **A free directory call connect service be provided as part of an expanded NRS for all consumers with disability, older Australians or people experiencing illness.**

Financial Assistance

One of the paramount barriers to equitable access to telecommunications equipment and services for consumers with disability is the extraordinary cost of assistive technology, high-end telephony equipment and greater service costs to access the communications solution that best meets their individual need. As indicated in the 2009 *Shut Out* report, Australians with disability are critically under-represented in the workforce.[124] This under-representation is particularly evident in the public sector where only 3 percent of the workforce is people with disability.[125]

[124] FaHCSIA 2009 Shut Out report www.fahcsia.gov.au/sa/disability/pubs/policy/.../default.aspx
[125] Hawkins 2011 ibid.

There are some subsidies available for consumers with disability and older Australians, such as the Centrelink telecommunications allowance and a range of ad-hoc State and Territory equipment programs; however, these do not remove the extraordinary financial barrier to telecommunications that many Australian consumers with disability face. ACCAN believes that until universally designed ICT equipment is available off the shelf there needs to be a nationwide program which provides the necessary subsidies for equipment and services which enable consumers with disability to access telecommunications equitably. ACCAN understands that the Productivity Commission has recently delivered its final report on the inquiry into a disability long term care and support scheme; in the long term a national disability insurance scheme could provide the necessary funding for people with disability to obtain the telecommunications equipment needed to access their preferred telecommunications service.

Recommendation

43. The expanded independent disability equipment program have responsibility for funding of assistive technology needed to provide functional equivalence to mainstream telecommunications for people with disability (subject to review upon implementation of a National Disability Insurance Scheme).

Consumer Awareness and Training

The lack of consumer awareness about available telecommunications solutions that may meet their needs is a significant barrier in the uptake of telecommunications for people with disability, older Australians and people experiencing illness. ACCAN's research into consumer awareness - through our Standing Advisory Committee on Disability Issues, our national conference consumer summit and from the information we receive through consultation with new ACCAN members - identifies significant gaps in information about telecommunications solutions for many consumers.

The Able Australia report *Telecommunications and Deafblind Australians* revealed that both telecommunications awareness and the lack of adequate training in the use of telecommunications equipment and services for deafblind consumers create significant barriers for many of this group in the uptake and ongoing participation in telecommunications services.

Four of the key goals of the National Digital Economy Strategy (NDES) are to:

- Increase Australian household's online participation;
- Improve health and aged care;
- Expand online education; and
- Increase digital engagement in regional Australia

Given this, ACCAN believes that there needs to be a whole-of-government initiative to raise community awareness and provide adequate training for people with disability, older Australians and people experiencing illness in order to ensure that these Australians are included in our digital future.

ACCAN envisions a Disability Telecommunications Service as the contract manager and provider of funding for a telecommunications 'one-stop-shop'. Providing: telecommunications product and service information; telecommunications equipment training referral service; and a comprehensive telecommunications information repository offering person-to-person, telephone and online information to consumers, disability organisations and service providers. Information about telecommunications solutions will improve the uptake of telecommunications by those Australians who have traditionally been excluded from the economic, social and cultural benefits of telecommunications.

Recommendation

44. Funding be provided for a 'one-stop-shop', providing consumer information and consumer training for telecommunications solutions that meet the needs of people with disability, older Australians and people experiencing illness.

2.3 Consumer information and training

As indicated and discussed above, the limited availability of information and training for many consumers is a real barrier in the uptake of telecommunications. Having large numbers of our community excluded from the social, economic and cultural benefits that digital inclusion affords affects all Australians.

In a recent report from Able Australia[126] on the telecommunications needs of consumers who are deafblind, a significant finding highlighted the lack of information about telecommunications solutions for deafblind consumers is available in accessible formats. The 2010 National Ethnic Disability Alliance (NEDA) report *Communicating Difference: Understanding Communications Consumers from Non English Speaking Backgrounds*[127] also highlighted that a lack of available information for non-English speaking Australians with disability creates ongoing barriers to telecommunications. The lack of access to relevant information about telecommunications solutions for consumers with disability, specifically information in appropriate formats, creates barriers in uptake when solutions are available.

ACCAN, through partnerships in our Grants program, has assisted in development of two online community forums; websites by and for disability groups to provide and share information about telecommunications solutions. The Newell network[128]provides the Complex Communication Needs (CCN) community with a resource to share information about the telecommunications solutions that meet their needs. A similar website, for

[126] Able Australia ibid.

[127] http://accan.org.au/index.php?option=com_content&view=article&id=195:communicating-difference-understanding-communications-consumers-from-non-english-speaking-backgrounds&catid=133:completed-grants&Itemid=66

[128] www.newell.org.au

Deafblind consumers[129] provides information sharing about telecommunications solutions for this community.

Advocacy groups for blind or vision-impaired consumers report that information about telecommunications equipment and services is routinely not available in accessible formats for consumers who are unable to read standard print. While some CSPs do provide billing information in alternative formats, contracts and product disclosure statements are not accessible. This often results in consumers who are blind or vision-impaired entering into contracts without the requisite informed consent.

Inarguably, telecommunications equipment and service information in a range of accessible formats is needed in order to effectively engage these consumers. This means that information about telecommunications solutions should be available in; easy English, large print, Braille, audio files, accessible web content, captioned video and Auslan etc.

Consumer reports and feedback from the 2010 ACCAN Conference Consumer Summit: Inclusive Communications Session highlighted the need across many disability groups that telecommunications provider product advertising, product disclosure statements and contracts were confusing, overly complicated and often inaccessible for people with disability.

Case study twenty – Deaf person is sold the wrong phone[130]

James Blyth tells of his friend, who is also Deaf, buying an iPhone at a mobile phone shop. The friend told the salesperson he wanted an iPhone 4, and pointed out the iPhone 4 from amongst the phones on display.

The assistant indicated that they understood and went and wrote out a document. The Deaf man read the document and signed it, and bought an iPhone 4 cover for it before leaving. At home, he took the phone out of the box and it seemed to work fine. But then he tried to put the cover on, and it wouldn't fit. Later, the man's colleagues told him that the reason it would not fit is because the phone was in fact an iPhone THREE.

The man had not been able to understand the contract, which according to Mr Blyth was very non-specific and unclear, and had been sold the oldest model of iPhone despite telling the shop assistant that he wanted an iPhone 4 so that he could use it for signed conversations, which is not available on earlier versions of the iPhone.

The Deaf man returned to the shop with Mr Blyth, but the staff refused to change the phone or take any further action, and it was only after the Deaf man went to the TIO that the shop agreed to exchange the handsets, although the man still had to pay extra.

In addition to information about telecommunications equipment and service solutions in accessible formats, there is a very significant need for industry plans, contracts and product disclosure statements to be available in formats that are accessible for consumers with disability.

[129] www.dbt.org.au
[130] Case study collected via video, May 2011

An advisory body under the auspice of the TUSMA would provide ongoing information sharing between consumers, industry and government. This information sharing would provide up-to-date and relevant information about telecommunications needs of different consumer groups, new and emerging telecommunications equipment and service solutions and the gaps in telecommunications for consumers with disability, older Australians and people experiencing illness.

Recommendations

45. **That a Disability Telecommunications Service, as recommended above provide funding to develop and support Online Community Forums which encourage consumer information sharing.**
46. **That a Disability Telecommunications Service, as recommended above be informed by an advisory board consisting of equal numbers of representatives from consumer organisations, industry and government to share information.**

2.4 Working with industry

As noted in 2.3 an advisory board under the auspice of TUSMA would provide an interactive flow of information between consumers, industry and government. This advisory board would facilitate a growing awareness of the benefits of Universal Design and access-for-all principles in the design of telecommunications equipment and services. Through the ongoing exchange of information about the telecommunications needs of consumers with disability and the advancements in new equipment and services, consumers and industry would be encouraged to work together in providing mainstream telecommunications products that provide consumers with disability, older Australians and people experiencing illness with the benefits of telecommunications that the rest of the Australian community enjoy. ACCAN sees this as one of the key roles of the Advisory Board; ongoing consultation between consumers, industry and government.

Consumers would be encouraged to provide direct feedback to industry on barriers that current equipment and services create, while industry could inform consumers about advancements and adoption of new equipment and services as they become available. This free flow of information would encourage innovation in telecommunications and help bridge the digital divide that exists for consumers with disability, older Australians and people experiencing illness.

3. Getting in touch with people who have problems communicating

This review considers in detail the needs of people who have barriers to using regular telecommunications equipment services. Throughout this submission, ACCAN has identified the steps we believe are necessary to remove those barriers and therefore enable all Australian to use telecommunications services. We expect that following the adoption and implementation of these measures, Australians with disability, older Australians and people

experiencing illness will be able to use telecommunication services to contact the government or, if they wish, to have the government contact them.

The third term of reference for the review notes that there are circumstances in which the Government may wish to contact people who have difficulty using communications and cannot use telephones. The principle of any-to-any-connectivity enshrined in the *Telecommunications Act 1997*[131] means that there should exist no barrier to a communication service connecting to any other communications service. For example, the National Relay Service is one vital means by which any-to-any connectivity is achieved for people who are Deaf or have speech or hearing impairments. In short, we see no reason why the government should not be able to use a telecommunications service to contact people who have problems communicating and who cannot use a regular telephone, if the barriers identified in this submission are addressed.

However, we do note that users of specialised services generally do not have to register their personal details, including details of their disability or illness, in order to access these services. ACCAN does think it is a legitimate role of the review to consider whether or not users of assistive equipment and services should register for these programs and, subject to Australian privacy and spam laws, be able to receive information about services or comment on services they use. We recognise that it is not currently necessary for users of the NRS or the various DEPs to register their personal details in order to access the programs and that a change to this approach would need to be very carefully handled. However, there is merit in creating an optional register for users of assistive equipment and service programs to register their details in order to be consulted on and informed about new programs and the quality of programs they use.

We recognise that the question of being contacted in an emergency situation such as fire or flood is much more complicated than creating an optional register of users of assistive programs. For example, ACCAN understands that current warnings to landline phones cannot recognise if the call is answered by a TTY or TTY answering machine. The emergency warnings systems being used by the Australian government should be reviewed for accessibility and, if necessary, integrated into the NRS service platform, to ensure accessibility of emergency alerts for its users.

[131] http://www.austlii.edu.au/au/legis/cth/consol_act/ta1997214/

4. Conclusion

ACCAN's research, our consultation with our Standing Advisory Committee on Disability Issues, our members , and our ongoing discussion with the disability sector indicate that access to telecommunications for many Australians with disability, older Australians and people experiencing illness is far below the level of access that most Australians take for granted. The data compiled in our attached compendium of barriers to telecommunications supports the existence of this digital divide.

Our recommendations, summarized below will help to bridge this digital divide by facilitating greater uptake of telecommunications equipment and services by people who have traditionally been excluded. ACCAN sees this review as an opportunity for Australia to implement our obligations under the UNCRPD, progress our Social Inclusion Agenda and achieve the goals of the National Digital Economy Strategy by ensuring that all Australians are able to benefit from the digital economy of the 21st century.

4.1 Summary of recommendations

ACCAN believes that the way forward is fourfold:

- Firstly, we must **maintain and enhance** the existing National Relay Service (NRS). Small but significant changes will remove problems associated with the service's affordability, usability, availability, accessibility and efficiency. The NRS services provided to the Deaf, speech-impaired and hearing-impaired communities are vital but in need of a long overdue overhaul.

- Secondly, we must establish a new ambition to deliver a truly **functionally equivalent** communications service for NRS users. This means funding three new services: next generation text relay, video relay service and captioned telephony. The entire Australian society and economy will benefit from services that bridge the digital divide and, for the first time, will mean Deaf, speech-impaired and hearing-impaired consumers will enjoy the same quality of service as the rest of the population enjoys.

- Thirdly, it's time to reach out to **new consumer communities** that to date have not been able to enjoy subsidised equipment and tailored services. This submission identified a need for new relay services for culturally and linguistically diverse consumers with disability, call assistance services for people with cognitive disabilities and call connection services for people with disability.

- Finally, the **assistive devices and technologies** that people need to achieve functionally equivalent telecommunications (be it a TTY, a refreshable Braille display or text-to-speech software) must be universally available. To achieve this we are calling for an end to the Telstra and Optus disability equipment programs. In its place must be a one-stop shop program (that is independent from industry) providing the assistive technology needed to deliver functional equivalence for all telecommunications.

1. **Any changes or improvements to the NRS call centre offerings must not detract from or in any way negatively affect current offerings**
2. **All NRS users – whether TTY, Speak and Listen, VRS or captioned telephony – need to be offered a service comparable to the NRS's legacy Personal Relay Service; that is, an equivalent to voice telephony for inbound calls**
3. **All NRS users must be able to receive messages, preferably in the format and language in which they were originally relayed, when they are not available – the equivalent to voice telephony users being offered voicemail**
4. **All NRS users should be able to contact other NRS users, regardless of the call type the caller and the recipient use**
5. **ACCAN strongly encourages the DBCDE and the ACMA to work closely with telecommunications providers to commit to Fair Calls for All, so that callers to the NRS's 13, 1300 and 1800 numbers from mobile phones are not financially disadvantaged or discouraged from using the service. As an alternative, consideration should be given to identifying new NRS numbers in the '1' number range which can be 'zero-rated' and therefore operated at no cost to consumers**
6. **All NRS users should be able to provide a 'profile' to the NRS outlining their communication preferences**
7. **The NRS call centre should only have two contact numbers – an emergency number (106) and a non-emergency number**
8. **Research is required into the feasibility of a system in which NRS users can 'switch' to the NRS during a call when necessary – for example, if they receive a direct (non-NRS) call, or if they attempt to make a direct call and then have difficulty understanding, or being understood by, the other party**
9. **ACCAN recommends DBCDE, the ACMA and the NRS Relay provider keep abreast of changes to technology which might allow NRS services to be offered in future without the need for a third party, in order to provide completely private calls**
10. **The contract between the Relay provider and the Commonwealth should reflect the fact that technology can change quickly and dramatically, and should encourage rather than discourage the Relay provider to enhance services where possible**
11. **NRS users should be able to request that the relay officer for a particular call be of a specified gender, and this request should be met whenever possible**
12. **Consideration should be given to whether SMS messages and faxes can be relayed**
13. **Consideration should be given to tightening the targets for the percentage of NRS calls which are answered by a relay officer immediately**
14. **Consideration should be given to investigating whether NRS users wish to be able to view and provide caller ID when making or receiving NRS calls**

15. **Internet relay calls need to be available for inbound calls, as well as outbound**
16. **All calls to 000 (whether they are made with a TTY, internet relay or Speak and Listen) need to be given priority over non-emergency calls. Caller location details – with the same degree of timeliness and accuracy as would be the case for a voice call - need to be made available to the relay officer and/or the 000 ECP**
17. **Conference calls need to be available for internet relay users (as they are currently for TTY and Speak and Listen callers). This service is already available in the United States**
18. **Internet relay should be available to Australia from overseas, whether the primary NRS user is the initiator or receiver of the call**
19. **Calls to 13, 1300 and 1800 numbers need to be directed to the caller's state, not automatically to the call centre closest to the Brisbane-based NRS call centre**
20. **The issue of having to open specific ports in order to allow access to internet relay through firewalls needs to be overcome**
21. **Speech-impaired callers who wish to use their own hearing should be able to use a product which allows them to hear as well as type what they want to say – that is, a form of Type and Listen via internet relay (and/or via a form of web-based captioned telephony/'Next Generation Text Relay'**
22. **Consideration should be given to accrediting Speak and Listen relay officers as 'speech interpreters'**
23. **NRS Outreach should be expanded – and funded appropriately - to provide training and information opportunities for users, potential users and the broader community**
24. **NRS Helpdesk needs to be able to accept contact from Auslan users and instant messaging**
25. **NRS Outreach should inform all complainants about the existence of the TIO and the fact that complaints (if they are Relay-related) may be taken to the TIO**
26. **Commonwealth-funded or Commonwealth-managed phone helplines must be Relay Service friendly, and this must be outlined in the contract between the Commonwealth and the winning tender**
27. **A 24/7 Captioned Telephone Service (including handsets) be funded as part of an enhanced NRS**
28. **A 24/7 web captioned telephone service be introduced as a part of an enhanced NRS**
29. **Introduction of a 24/7 video relay service with NAATI-accredited Auslan/English interpreters, with text relay, as part of the National Relay Service (NRS)**

30. **Introduction of a 24/7 video relay service with trained lipspeakers, as part of the National Relay Service (NRS), specifically for people who lip-read, and who may also wish to use text and/or residual hearing**
31. **Introduction of a 24/7 video relay service using trained 'speech interpreters' for people with speech impairment, as part of the National Relay Service (NRS)**
32. **These video relay services to provide users with 10-digit phone numbers to facilitate incoming calls, message service and emergency service calls**
33. **The Australian Government encourage the telecommunications industry to adopt voluntary guidelines to include Total Conversation in mainstream products and services**
34. **Expand the National Relay Service to include simultaneous two-way speech with live captions/text**
35. **The Disability Telecommunications Service include an expanded disability equipment program, independent from the telecommunications providers, to provide all assistive technologies that allow functional equivalence to mainstream telecommunications services for people with disability, older Australians and people experiencing illness**
36. **The Australian Government adopt a Federal procurement policy for accessible information and communications technology**
37. **The expanded disability equipment program envisioned as a key component of a Disability Telecommunications Service must not be constrained by the outdated limitations of the current Universal Service Obligation**
38. **The current telecommunications provider disability equipment programs be de-commissioned and replaced with an expanded disability equipment program as recommended above**
39. **The NRS be expanded to provide telecommunications access to consumers with cognitive disability**
40. **The NRS be expanded to provide telecommunications access to consumers with cognitive disability who also are Deaf, hearing-impaired or speech-impaired**
41. **The NRS be expanded to provide telecommunications access to culturally and linguistically diverse (CALD) consumers with hearing and/or speech impairments**
42. **A free directory call connect service be provided as part of an expanded NRS for all consumers with disability, older Australians or people experiencing illness**
43. **The expanded independent disability equipment program, recommended above, have responsibility for funding of assistive technology needed to provide functional equivalency to mainstream telecommunications for people with disability (subject to review upon implementation of a National Disability Insurance Scheme)**

44. **Funding be provided for a ‘one-stop-shop’, providing consumer information and consumer training for telecommunications solutions that meet the needs of people with disability, older Australians and people experiencing illness**
45. **That a Disability Telecommunications Service, as recommended above provide funding to develop and support Online Community Forums which encourage consumer information sharing**
46. **That a Disability Telecommunications Service, as recommended above be informed by an advisory board consisting of equal numbers of representatives from consumer organisations, industry and government to share information**

Appendices

Appendix A – Definitions

Captioned telephony – handset	A way of making and receiving phone calls using a special phone which has a screen. The user speaks for themselves, but a relay officer creates 'captions' in real time so that the user can read on the screen what the other person says. Unlike NRS calls, the relay officer re-speaks what the other person says, and speech recognition software translates this into captions (rather than the relay officer typing what the other person says). Currently in trial form using CapTel handsets under the Australian Communication Exchange (ACE) with plans to become a trial under the NRS. Available for both outbound and inbound calls.	Used by people with hearing impairment
Captioned telephony - web	Similar to captioned telephony with handset, but the user makes a phone call using a regular phone, and views the captions via the internet. Currently in trial form under ACE using web-based captioned telephony. Available for both outbound and inbound calls; however, for inbound calls, customer must be awaiting the call with both a regular handset and web access available.	Used by people with hearing impairment
Internet relay	A type of National Relay Service call in which the user contacts the NRS using the internet from a computer or smartphone (via the NRS website or instant messaging) and the NRS relay officer relays the call to a landline, mobile phone or TTY. Currently available for outbound calls only.	Used by people who are Deaf, hearing-impaired or speech-impaired (including those with complex communication needs)
National Relay Service (NRS)	An Australia-wide relay service, funded by a levy on eligible carriers, which enables real-time phone calls between people who are Deaf, hearing-impaired or speech-impaired, and those in the wider community. The NRS is currently provided by contract to the ACMA by the Australian Communication Exchange (ACE) and WestWood Spice.	Used by people who are Deaf, hearing-impaired or speech-impaired, and people in the wider community to contact these groups
Next Generation Text	A term used by Ofcom to describe a new relay service which would include	Deaf, hearing-impaired and speech-impaired people, and

Relay	"the introduction of simultaneous two-way speech with 'live captions'... (and) use of mainstream equipment (allowing) allow users to access services either through existing relay equipment or through mainstream consumer electronics such as PCs and netbooks."[132]	people in the wider community to contact these groups
TTY	Also known as telephone typewriter or textphone; a specialised telephone which includes a keyboard and screen.	Used by Deaf and hearing-impaired people and some speech-impaired people
Video relay service, or VRS	Usually used to mean a type of telephony whereby the user signs in Auslan (Australian Sign Language), using Skype via a computer or, possibly, smartphone, to an interpreter, who relays what the caller says in spoken English to a hearing person who is using a landline or mobile phone. The interpreter then interprets the spoken English of the other party into Auslan. Available for both outbound and inbound calls; however, for inbound calls, customer must be awaiting the call, with web access available. VRS is not currently provided by the NRS but is being trialled by ACE.	Used by Deaf people.
	A separate VRS could also be used to provide lipspeaking rather than Auslan interpretation	Used by hearing-impaired people
	A separate VRS could also be used to provide an adjunct to the Speak and Listen service	Used by speech-impaired people

[132] Ofcom news release, 'Ofcom plans to upgrade telecoms services for disabled people', July 28, 2011; http://media.ofcom.org.uk/2011/07/28/ofcom-plans-to-upgrade-telecoms-services-for-disabled-people/

Appendix B - Ability for NRS users to contact each other

Between	Yes	No
Type and Read and voice	✓	
Speak and Read and voice	✓	
Type and Listen and voice	✓	
Speak and Listen and voice	✓	
Type and Read and Type and Read		✓
Speak and Listen and Speak and Listen	✓	
Internet relay and voice	✓ (IR to voice only; voice to IR not possible)	
Internet relay and Type and Read	✓ (IR to T&R only; T&R to IR not possible)	
Internet relay and Speak and Read		✓
Internet relay and Type and Listen		✓
Internet relay and Speak and Listen		✓
Speak and Read and Speak and Read	✓	
Speak and Read and Type and Read		✓
Speak and Read and Type and Listen		✓
Speak and Read and Speak and Listen		✓
Type and Listen and Type and Read		✓
Type and Listen and Type and Listen		✓
Speak and Listen and Speak and Read		✓
Speak and Listen and Type and Read	✓	
Speak and Listen and Type and Listen		✓

Appendix C - Further case studies

Quantifying disadvantage (Source: video interview, May 2011)

Peter (not his real name) is Deaf and has excellent English but says that using the NRS "doesn't feel like a real conversation. There's no real human contact, no possibility of real rapport with the other person, no way to interrupt – it's unnatural. Video relay is like a real conversation, with normal turn-taking and the ability to clarify easily when necessary."

Peter says that he's heard that an NRS call using a TTY takes eight times longer than a direct call for a hearing person – so "a deaf person using the NRS is eight times more disadvantaged than a hearing person".

Peter is looking forward to Deaf Australians having the same access to VRS as their peers in the United States, and sees the NBN as a great tool in making VRS accessible to all.

SMS only users disadvantaged using mobile plans (Source: video interview, May 2011)

Jody Saxton-Barney can't make or receive voice calls on a mobile phone. She says that she was informed that her mobile phone plan was changing and found that the cost of SMSes suddenly rose. She points out that she has no need for a voice element in a phone plan so objects paying for this.

Privacy is a barrier to using NRS (Source: video interview, May 2011)

Ann Darwin is Deaf and an NRS user, but says that it's very frustrating that her bank won't accept calls via the NRS. She says that she encounters this problem frequently with other companies too, even if she's not calling about something which is particularly personal.

Access to smartphone (Source: email, August 2011)

Anne McGrath is hearing-impaired and uses hearing instruments - a BTE (behind the ear) hearing aid and a BAHA (bone anchored hearing aid).

She says, "I have the use of a Telecoil on both these hearing instruments to help me hear with more ease on the telephone. I use a Nokia mobile for work as well and that has a port that supports the LPS4 loop set - older but very effective technology that provides direct input to my hearing instruments. I have tried Bluetooth loop sets and found them to give a variable response with not enough volume.

"I have held off in my personal life from using an iPhone as I was concerned about my ability to hear. Eventually the lure of the device won and I now have an iPhone 4. The ear buds provided don't fit my ears and also using that mode to hear for a hearing impaired person is not sufficient. I now need to put all my personal mobile phone calls on speakerphone and have no privacy. I now need to try and schedule personal calls when I know when I'll be

alone - which is frustrating in the least. I think it's a shame that the Nokia LPS4 is no longer available as the phones it supports are no longer available. To me this is a great shame. It would be wonderful if phone companies could provide a port that was generic and compatible with a loop for direct input access for hearing impaired users.

“I am participating in the CapTel trial presently and have high praise for the trial - the installation and setup were seamless - delivery of the phone was very prompt. I love making captioned calls. I'm not making as many calls as I would like, as I work full time - but I squeeze as many calls in as I can before 7pm. I understand that the trial has time parameters - however if they were extended it would be great to be able to use the CapTel handset more. I find after 7pm I still switch on the caption button, to benefit from the 40db gain in the handset. I am really happy with the delivery of the captions and find it just fantastic that the stress is taken out of using the telephone, as the captions are there. The dB gain is wonderful too - it's been years since I could hold a phone directly to my ear and hear without having to use a T switch (and the resultant buzz) - the combination of captions and augmented sound works very well to provide the access I need. One of the foibles about being hearing impaired and using a phone with increased volume in the past, has been the fact that my family could hear everything that a caller would say (as sometimes I needed to put the caller on speakerphone to hear people with soft voices) - I had no privacy and that had been something that has bothered me. With the captioned phone, I can now mute the caller, if needed, and use the captions solely and enjoy a relax conversation in total privacy.”

<u>Suggestions about captioned telephony (Source: Email, August 2011)</u>

Keith McKenzie has used since he was 40 years of age; he is now 90. He has had a cochlear implant, with limited success. He uses captions for watching TV.

He says, “In the 5 years, I have had evident problems with the telephone. Increasingly my wife, who has normal hearing, has had to answer and make the calls on the phone. That is not always possible e.g. when she is out.

“Since late 2009 I have had access to the Web Cap Tel phone arrangements. That helped with making calls but in practical terms did not assist with incoming calls. I could not be relied on to take general messages, let alone where there were numbers involved.

“Since the beginning of 2011, I have had the use of a Caption Phone.

“The Caption Phone is generally satisfactory. Occasionally you have to wait for Captions. As to the Captions themselves, they are particularly good in respect of dates, times and phone numbers which can be key elements with appointments or requests to someone to call back. You can repeat the Captions to check/confirm the details. The Captions are less accurate with people’s names and places and general language, as can be the case with TV captions. Nonetheless, the overall result gives greater confidence.

“The service from 7am to 7pm Monday to Friday is better than the 9am to 5pm. ideally; the service should be available 24 hours a day 7 day a week. Meantime my choice would be extension to 7am to 7pm Saturday and Sunday, in line with weekdays.

“It would be helpful to set down useful practices to help Caption Phone users. Suggest the following:

- Continue to use the T switch on your hearing aid.
- When you are seeking information on your Caption Phone, if possible you need to prepare suitable questions before making a call so that you can relate the Caption answers to the questions.
- When your call is answered by a recording which places you in a queue, the arrangement can be wasteful of the operator’s time. Is it appropriate not to press the Captions button until you are speaking to a person? Is there a protocol on how long an operator stays on the line with these calls?
- Be conscious that if the power to the phone is turned off, all the information in the memory is lost.
- Is it possible to delete the captioned conversation after its recording without deleting everything in the memory?
- The Caption Phone can be used with another phone on the fixed line. (We live in a retirement village where the other phone is, inter alia, for emergency calls.) Where calls are made or answered on the Caption Phone, another person can participate on the other phone and the captions continue. On the other hand, where the non-Caption Phone is used to call or answered first, captioning does not occur. Can this be achieved? On one occasion where my wife and I were using both phones and captioning was operating, the operator requested that I ring back using a conference call and the call was terminated. Is that correct where we were using the same line?

<u>Comparing handset captioned telephony and web-based captioned telephony (Source: Email, August 2011)</u>

Barney Lund is 36 and has been hearing-impaired since birth.

He says, “In late 2009 I was told about ACE's Webcaptel service and decided to give it a try. The only problem was that I needed to convince the IT department at work to alter my firewall settings so I could access the captions. That took some time, but the service worked brilliantly on my PC with a standard telephone and also on my Smartphone. For the first time in a long time I was able to relax and simply read the captions instead of worry about missing vital information. I was amazed at how accurate and fast the captions were and how much fresher I felt at the end of the day compared to my usual practice of cranking up the volume on my hearing aid and blasting my poor ear drum every time I needed to talk to someone!

“In mid 2010 I received the CapTel handset. Again there was rather a lot of persuasion needed to get the IT department to install an extra internet port for the phone and make the necessary firewall adjustments, but once it was working it was great. The IT boys love me (not!) because I've had relocate a number of times due to role changes, requiring that my phone is rerouted.

“In practice I found the phone a lot quicker and more spontaneous to use than logging into Webcaptel. The volume control and sound quality is fantastic and the ability to review the captions after the call has ended is very handy. The distinctive ring tone makes it easy to know when my phone is ringing. I also like how the phone flashes when it rings as my directional hearing is very poor. But the main benefit is the real-time captions themselves - because I find it hard to distinguish certain words and sounds the captions really help, especially if the person has an accent, is a soft speaker or there is background noise.

“Sometimes I am called out of the office to attend meetings. This is where having a Webcaptel service (or a real-time transcription service like Ai Live@Work which I also use) would be having benefit. The ability to access captions in meetings remotely via an internet enabled tablet or Smartphone would ensure 100% access in all aspects of my job and life. I know this works well for me as I have live captioning in my post-grad university classes and it is brilliant.

“I would love to see a cost effective remote captioning service as part of the NRS - a service that can be accessed by any deaf or hearing impaired person for work or personal use in any setting. It could also be a useful back up when Auslan interpreters are not available, particularly in regional areas where services for the deaf are limited.

“What I have realised since I began using captions is that I need to rely on my other senses to communicate - particularly my vision. So for me captions are great and using them makes sense. I read somewhere that the human brain processes visual information three times faster than aural information... no wonder I feel less stressed! So I see captions vital to my future at work at university and in my personal life. I hope to see greater funding and support for this technology by government as it can benefit thousands of Australians.”

Captioned telephony needs to have longer operating hours (Source: Email, August 2011)

Maggie Campbell went deaf suddenly as an adult.

She says, “I think I was one of the first to trial the CapTel & what a huge difference it has made. Briefly, when I went suddenly deaf I lost obviously so much independence. I organised a phone to be able to use the NRS. Then I used the WebCapTel which was better as I could contact people when away from home & even hear some of what they were saying on the phone. Then that closed. The captioned phone is good--I should love it to be 7 days & longer hours. I have to organise to use it weekdays & before 7pm. I should love it to be a portable phone. I can now use a phone without using the NRS (which is excellent) the captions often come up a bit after the spoken word so I then explain to the other person that I am using a captioned phone. It is also important when phoning businesses etc to be able to speak & hear/read without the NRS having to explain their service.

“In conclusion, it is a very important part of my life & I would be devastated if I couldn't use it.”

Captioned telephony better than a TTY (Source: Email, August 2011)

Kevin Hobbs is profoundly hearing-impaired. He says, “I would like to tell you how happy I am with my CapTel Trial Phone service. Conversations on the phone are a hollowing

experience, particularly when the call gets transferred overseas for problem solving and also calls within Australia.

“Since being selected to participate in the CapTel trial and having received a phone, for me these daunting events have now become a less worry for me.

“It is my hope that the service will be accepted for hearing-impaired and deaf under the Disability Act, further use of this service, funding etc for extended hours of operation and acceptance of the services under the Discrimination Act and Disability Act, would greatly improve the quality of life for us.

“The Phone allows us for increase size of the written words, the color of the text, the brightness of the screen, adjustable volume for non text services and the capability for use with the telecoil within the hearing aids.

“I have tried the TTY service, but none of the equipment available from providers compare to the CapTel Phones.

“I sincerely hope serious consideration will be given to ACE for expansion and Government assistance to expand on this great, beneficial service and provide a low-cost service to us impaired and deaf users within Australia.”

Frustrating delays (Source: Email, August 2011)

Marlene Thompson says, “I have been trialling the captioned telephone & am enjoying the hearing capabilities of this telephone but having problems as although the captions are fantastic the delay time is somewhat frustrating both me & the businesses I am contacting. That’s the only problem I have so far entailed.”

Captioned telephony helps with understanding in difficult situations (Source: Email, August 2011)

Kathleen Westbrook has been hearing-impaired for many years. She says, “I have had a hearing disability for many years. I used a hearing aid for 10 years, then, when that no longer helped me, one cochlear implant for 20 years from 1986 to 2006 and, since then, two cochlear implants. For several years before the first cochlear implant I was unable to use the phone at all. I did have a teletypewriter for a while, but after the first implant I found I didn't need it and, perhaps rashly, gave it away. With my first implant and the additional use of a Telstra telephone adaptor I was able to hear extremely well on the phone. With the introduction of the behind the ear speech processors, and subsequently unable to use of the Telstra adaptor, my hearing ability on the phone decreased considerably, even with the use of phones with volume control or speaker function. Poor connections or speakers with a foreign accent made it difficult or sometimes impossible.

“So the captioned phone seemed to be the answer and I was delighted when I was given one for the trial. I love it, and yes, it is great - that is, when the captions are available. The captions are lightning fast and I have time to keep up with the conversation. Foreign accents don't matter. The only problem is, for various reasons (e.g. connection failure, Captioner not available); the captions do not always appear. This seems to happen more often when I most need them e.g. with a difficult speaker (too soft, too fast, foreign accent etc), and it is

very disappointing. Sometimes I am able to hear fairly well without the captions, but sometimes I just have to give up and pass the phone to someone else. I have also found that one of the people whom I have to contact and who is herself deaf, cannot hear me when I am using the CapTel.

“However, as I have these problems with the blue volume control Telstra phone and also with the big button phone, the captioned phone fills a big need for my easeful telecommunication.”

Captioned telephony needs to be more accurate and longer operational hours (Source: Email, August 2011)

Ms. R has a severe to profound hearing loss, with a heavy reliance on lip-reading. She says, “The initial concept of CapTel was very exciting. I could have more independence with phone calls, feel more confident etc. The phone itself has a higher volume that the phone I used to use with the t-coil, which is great. But the captions themselves are slow and often inaccurate or missing. For example, when I was having a conversation with someone re: an appointment, the Captioner did not even caption the time on the screen, despite me asking the person I was talking to again to confirm the time (as it wasn't captioned!). Also, captioning times and days are limited. It needs to be 24/7 - equal access alongside those who do not have a disability.”

Captioned telephony needs to be affordable (Source: Email, August 2011)

Earl Albion and his wife are both hearing-impaired. He says, “My wife is awaiting a Cochlear Implant. She has relied on text messages to communicate with myself and her family, as she can`t hear anything but “noise” on landlines, OR mobiles, for many years. Since we`ve been trialing the CapTel `phone through ACE marketing, she has been able to talk to others for the first time in years. I also find it very easy to use, as I`m totally deaf in one ear. Problems with trial are: - It needs to be “on duty” for longer periods per day, 7 days per week. Callers often have to be told to speak more slowly, as operators can`t always keep up to the conversation. Incoming calls sometimes have to be put off until an operator is available (this can only be done on a trial/error basis, and sometimes takes 2 or 3 attempts). Making calls is easy, if captions aren`t ready by the time the number is dialled, we just wait a few seconds and try again. When the service becomes a reality, we`ll certainly have a CapTel IF we can afford one.”

Can use the phone at last (Source: Email, August 2011)

Elisa Frasca says, “I am now happy to use this telephone service whereas before I could not make calls because I could not hear the words clearly on the phone. With captioned I am able to reply while I read it.”

Advantages and disadvantages of web-based captioned telephony (Source: Email, August 2011)

Doreen Chater says, “I did find the WEBCAPTEL better to use.

“Advantages:

- Direct dialling was excellent, made me feel more independent.
- I was able to interrupt a conversation, especially when my daughters phone, which was not possible when using the NRS. Because you could only reply when the other person said go ahead. They controlled the conversation.
- I made an international call, which was fine and the added benefit was my husband was able to continue the conversation without the Caption. Something that cannot be done using the NRS.
- My friends, appointments, big pond technical support and others have responded positively to the WebCapTel.

“Disadvantages:

- If the internet is down there is no way of communicating if you did not have a Printer call (NRS) to use. Therefore need to have both, which is a bother.
- The NRS relay officers are more efficient in typing than the caption person. Most of the time I get a message ‘cannot understand the accent of the person I am calling’.
- The other not being a 24 hour service is not very convenient.

“Wish list:

- I would like to have equipment that combines the two, so that when the internet is down the NRS can be called through the same telephone.”

Captioned telephony great at work (Source: Email, August 2011)

Joe Stewart has a cochlear implant but it did not help him use the phone successfully.

He says, “For almost 30 years as my hearing slowly failed I still remained employed in a capacity where using the phone was an important part of my job function. When my threshold of hearing using BTE aids was no longer sufficient to hear and respond to verbal communications I sought and received the CI. However, even using the special CI Telephone Device, sufficient and correct word discrimination to understand important parts of telephone conversation was then impossible.

“I did try the TTY Captioning [Speak and Read] service from home but this really didn’t suffice for business conversations with colleagues and clients. I really couldn’t remain in my then employment so I took a redundancy package and then sought alternative work, in a less demanding communication via the telephone role. In the 14 years since I was implanted I have never really found a complete solution for my lack of correct word discrimination via the telephone. The problem with deciphering words, to get a correct understanding, it often dependent on the caller speaking very clearly and me having a fair level of understanding of the discussion topic; which in reality doesn’t happen that frequently.

“Why I love the CapTel phone:

1. When a specific name, number or any unanticipated words that provide vital information to me are spoken, I have an almost instantiation verification on screen.

2. I can ask the caller's name and not be worried about several repeated attempts get this correct. This also applies to any other specific question asked by me, or the caller.

3. I don't really need to tell the caller that I am deaf, which in a sense is a privacy issue.

4. 1300 calls with their rapid menu selection process are, I suspect, a real challenge to many hearing callers and, almost non achievable to the hearing impaired. Since the selections offered appear on screen, I can now make an intelligent selection and if one is "timed-out" it's simply a matter of recalling, and going through the process again. This type of calls no longer intimidates me.

5. I have developed my own techniques. For example, I can choose, depending upon the caller, whether to inform him/her that a voice recognition process is being used. If I need to explain why there is an error, or the delays are noticeable, I can simply state that the software, the phone or the connection line is malfunctioning.

6. Most people I have phoned and then explained to them what is happening to the call via the CapTel phone are more than willing to continue the call. My family are now delighted that after a 10 year gap, I am back on the phone talking to them.

Again, a 24/7 CapTel service with even faster voice to text conversion and, an error rate of 0% in the captioning process."

A government emergency register (Source: Email, August 2011)

Ian Thrussell is 68 years old and has difficulty hearing people speak. He says, "The Caption Telephone unit is a great idea and I have been happy to take part in the trial.

"Some comments:

"I have not had a lot of experience with the unit as the staffing by [ACE] operators is only during the day. A lot of phone interaction is of necessity during the evenings when no operator is available. I believe this has been partially resolved. Is the next development to use voice recognition software to take the place of the operator which would give full 24 hr service?

"In general regards to the development of better hearing aids, the current set I have are quite suitable and have 4 programmable settings for different situations. One programme has a Bluetooth type setting for use with TV/ Landline Telephones /Mobiles and inductive loops in cinemas & Theatres. Unfortunately each of these communication devices has its own digital conversion unit & corresponding Inductive loop receiver. It would be good to have one standard loop receiver that worked with all devices, rather than having to wear 4 different ones. It's a bit like having a different remote control for TV, VCR, DVD, Blue Ray. Although once again I believe a single multiple input units is now available.

"A Government Register for people hard of hearing would be useful for situations that require Emergency contact, e.g. Floods, Bush Fires and probably SMS would be the ideal means of communicating."

Appendix D – Compendium: Barriers to accessing telecommunications for people with disability, older Australians or people experiencing illness

Consumer community:	**Deaf consumers**
Community size:	There are 6,500 – 15,000[1] signing Deaf people in Australia.
Nature of communication impairment/ limitation:	Cannot adequately hear conversation on phone; may not be able to hear phone ringing; may have limited literacy skills in English (with Auslan being the first or preferred language) [2;] may not be able to speak well enough to be understood on the phone.
Barriers to fixed-line telephone communications:	Accessible equipment is prohibitively expensive to purchase[3] – reliance on subsidised equipment such as via DEP Limited choice of service provider as not all CSPs have a DEP Not all DEPs provide the full range of equipment required – for example, Telstra is the only DEP which provides equipment so that users are aware they are receiving inbound calls The technology in use can be incompatible with some phone systems – for example, teletypewriters (TTYs) may not work on many switchboards/PBX systems Outdated technology can be challenging for young Deaf people Current technology cannot always be used – or used in preferred mode – when travelling[4] TTYs require use of English, which is problematic for many Deaf people whose first language is Auslan Limited number of TTY payphones (170 Telstra payphones[5] as well as a number of Tritel payphones based in airports and shopping centres) NRS's TTY-based services: • Rely on having TTY (see above) or TTY simulation software • Personal Relay Service no longer available[6] • Relay calls (via TTY or internet relay) take significantly longer than a direct call between two hearing individuals, and also significantly longer than a call from a Deaf person using a video relay service[7] • Available in English only except in very rare circumstances[8] – that is, there is no access for Deaf/hearing-impaired people from CALD backgrounds (unlike, for example, most states in

	the United States[9]) • Requires formalised turn-taking • Requires 'NRS etiquette'
Barriers to mobile device communications:	Internet-based NRS services and video relay do not work with all internet-enabled mobile devices, and it is difficult to get information as to which phone to use. This information is not provided by the NRS or by GARI[10], for instance Inbound voice messages can be converted to text but this costs extra[11] and is not provided by all telecommunications providers Basic mobile phones do not provide functional equivalence (for example, do not provide access to video calls) so consumers are forced to pay extra for high-end smartphones, because mobile phones unavailable on DEPs Regional and rural mobile coverage not robust enough to provide reliable access to internet or video relay services Limited culturally and linguistically appropriate training opportunities SMS is not functionally equivalent to voice telephony: • Relatively expensive • Not real-time[12] • No service quality guarantee[13] • Unable to contact most companies/govt agencies • Not interactive • No SMS relay service • Some customers are unaware that long SMS messages attract further charges
Barriers to internet communication:	Consumers requiring video equipment for video calls or video relay[14], high-end smartphones or high-speed broadband are forced to pay extra to access these equipment and services, as no internet-related equipment or services are provided through any DEP Instant messaging is not functionally equivalent to voice telephony: • Not available to contact most agencies/ companies • Not character-by-character streamed real-time Limited culturally and linguistically appropriate training opportunities Video relay service is available currently as trial only – not reliable and not 24/7; required high-speed broadband connection NRS's internet relay is not functionally equivalent to voice telephony: • Not character-by-character streamed real-time[15] • Inbound calls not available • Conference calls not available • Available in English only • Little support for emergency calls[16]

	Users of both VRS and internet relay report that employers (particularly government departments and large companies), educational institutions and public libraries block access to both of these services, due to security concerns

Consumer community:	Hearing-impaired consumers
Community size:	There were 4,017,666 hearing impaired people in 2010[17] and the community is projected to grow to 7,852,253 people by 2050
Nature of communication impairment/ limitation:	May be unable to hear, or have difficulty hearing, conversations on the phone; may be unable to hear the phone ringing; may have speech which is difficult to understand on the phone
Barriers to fixed-line telephone communications:	Limited access to volume-control phones and tone-control phones on DEPs No DEP provides neckloop Telstra is the only DEP which provides equipment so that users are aware they are receiving inbound calls NRS's TTY-based services: • Rely on having TTY (see above) or TTY simulation software • Personal Relay Service no longer available[18] • Relay calls (via TTY or internet relay) take significantly longer than a direct call between two hearing individuals, and also significantly longer than a call from a Deaf person using a video relay service[19] • Available in English only except in very rare circumstances[20] – that is, there is no access for Deaf/hearing-impaired people from CALD backgrounds (unlike, for example, most states in the United States[21]) • Requires formalised turn-taking • Requires 'NRS etiquette' • Does not allow use of residual hearing SMS is not functionally equivalent to voice telephony: • Relatively expensive • Not real-time[22] • No service quality guarantee[23] • Unable to contact most companies/govt agencies • Not interactive • No SMS relay service • Some customers are unaware that long SMS messages attract further charges Captioned telephony: • web-based no longer available; • handset-based available on trial basis only not 24/7;

	• sometimes inaccurate and slow – response time can be frustrating to both user and receiver of the phone call[24]
Barriers to mobile device communications:	Basic mobile phones do not provide functional equivalence so consumers are forced to pay extra for high-end smartphones, because mobile phones unavailable on DEPs Not all phones are compatible with hearing aids or neckloops Limited training/advice available, but required, particularly by older people[25]
Barriers to internet communication:	Consumers requiring video equipment for video calls, high-end smartphones or high-speed broadband are forced to pay extra to access these equipment and services, as no internet-related equipment or services are provided through any DEP Limited training/advice/information available, but required, particularly by older people[26] Instant messaging is not functionally equivalent to voice telephony: • Not available to contact most agencies/ companies • Not character-by-character streamed real-time VRS currently available as trial only, and only for Auslan users, not for lipreaders; also unavailable in 'Speak and Read' (voice carry over) mode for people who know Auslan but wish to use their own speech (unlike similar services overseas[27]).

Consumer community:	Blind consumers
Community size:	66,500 over age 40 in 2009[28]
Nature of communication impairment/ limitation:	Unable to view or navigate phone features or screen features (e.g. caller ID, contacts list); unable to write/review notes (such as phone numbers)
Barriers to fixed-line telephone communications:	Not eligible for Telstra's Call Connect Fee Exemption[29] (which allows people with dexterity issues to connect to access Call Connect at no cost), despite the difficulty of writing down phone numbers provided by Directory Assistance Lack of Product Disclosure Statements and Contracts in accessible formats – this creates barriers to being able to provide informed consent and to sign documents
Barriers to mobile device communications:	Basic mobile phones do not provide functional equivalence so consumers are forced to pay extra for high-end smartphones, because mobile phones unavailable on DEPs Braille/screen reader equipment to be used with mobile phones unavailable on DEP. Inbound text messages require text-to-speech function – requires extra equipment. Not eligible for Telstra's Call Connect Fee Exemption[30] (which allows people with dexterity issues to connect to access Call Connect at no cost), despite the difficulty of writing down phone numbers provided by Directory Assistance Lack of Product Disclosure Statements and Contracts in accessible formats - creates barriers to being able to provide informed consent and to sign documents
Barriers to internet communication:	Consumers requiring specialised equipment (such as screen magnification software, Braille displays or large monitor) are forced to pay extra to access these equipment and services, as no internet-related equipment or services are provided through any DEP (unless can access workplace modifications scheme if employed over 8 hours per week) Limited training available in appropriate format for use of equipment Lack of Product Disclosure Statements and Contracts in accessible formats - creates barriers to being able to provide informed consent and to sign documents

Consumer community:	Vision-impaired
Community size:	510,000 over age 40 in 2009[31]
Nature of communication impairment/ limitation:	Have difficulty viewing or navigating phone features or screen features (e.g. caller ID, contacts list); may be unable to write/review notes (such as phone numbers)
Barriers to fixed-line telephone communications:	Not eligible for Telstra's Call Connect Fee Exemption[32] (which allows people with dexterity issues to connect to access Call Connect at no cost), despite the difficulty of writing down phone numbers provided by Directory Assistance Lack of Product Disclosure Statements and Contracts in accessible formats - creates barriers to being able to provide informed consent and to sign documents
Barriers to mobile device communications:	Basic mobile phones do not provide functional equivalence (e.g. large display, large button keypad, adjustable font size) so consumers are forced to pay extra for high-end smartphones, because mobile phones unavailable on DEPs Braille equipment to be used with mobile phones unavailable from DEPs Not eligible for Telstra's Call Connect Fee Exemption[33] (which allows people with dexterity issues to connect to access Call Connect at no cost), despite the difficulty of writing down phone numbers provided by Directory Assistance Lack of Product Disclosure Statements and Contracts in accessible formats - creates barriers to being able to provide informed consent and to sign documents
Barriers to internet communication:	Consumers requiring specialised equipment (such as screen magnification software, Braille displays or large monitor) are forced to pay extra to access these equipment and services, as no internet-related equipment or services are provided through any DEP (unless can access workplace modifications scheme if employed over 8 hours per week) Limited training available in appropriate format for use of equipment Lack of Product Disclosure Statements and Contracts in accessible formats - creates barriers to being able to provide informed consent and to sign documents

Consumer community:	Consumers who are deafblind or who have dual sensory disability
Community size:	7000-9000 under 65; 281,000 over 65 includes mild hearing impairment[34]; 1.4% of population has dual sensory[35]; Dual sensory and multiple disability = 4% of the population in 2005[36]. Projection: 2.8 million people (9% of population) in 2050 will be either Deafblind or have both a sensory disability and physical, intellectual or psychological disability.[37]
Nature of communication impairment/ limitation:	May be unable to hear conversation on phone; may not be able to hear phone ringing; may have limited literacy skills in English (with Auslan being the first or preferred language)[38;]may not be able to speak well enough to be understood on the phone; may be unable to view or navigate phone features or screen features (e.g. caller ID, contacts list); may be unable to write/review notes (such as phone numbers)
Barriers to all telecommunications:	Limited culturally and linguistically appropriate, accessible training available in use of or how to access equipment, in Braille itself[39] Lack of Product Disclosure Statements and Contracts in accessible formats - creates barriers to being able to provide informed consent and to sign documents
Barriers to fixed-line telephone communications:	Telstra is the only DEP which provides a large-button phone with amplification Many consumers may be unable to use large-button phone with amplification, and will require TTY with large visual display or Braille TTY No TTY available which meets needs of people who are deafblind/have dual sensory disability and use own speech[40] Users of Braille TTYs are unable to review conversation; frequently 'speech' is too fast to 'read'[41] The Braille TTY does not allow use of residual hearing The Deafblind Communicator[42], which allows landline and mobile communication, is unavailable on any DEP Telstra is the only DEP which provides equipment with vibrating alert so that users are aware they are receiving inbound calls[43]
Barriers to mobile device	Basic mobile phones do not provide functional equivalence so consumers are forced to pay extra for high-end smartphones,

communications:	because mobile phones unavailable on DEPs Braille/screen reader equipment to be used with mobile phones unavailable from DEP - can be extremely expensive to buy Deafblind Communicator unavailable on DEP Configuring a Braille display to work with a mobile phone is complex and usually not 'product-tested'[44]
Barriers to internet communication:	Consumers requiring specialised equipment (such as screen magnification software, Braille displays, webcams or large monitor) or services (high-speed broadband) are forced to pay extra to access these equipment and services, as no internet-related equipment or services are provided through any DEP (unless can access workplace modifications scheme if employed over 8 hours per week) Braille/screen reader equipment to be used with computers unavailable from DEP - can be extremely expensive to buy

Consumer community:	Consumers with manual dexterity issues
Community size:	N/A
Nature of communication impairment/ limitation:	May be unable to grasp, handle or hold phone; may be unable to press buttons or use keyboard or gesture-based phone
Barriers to telecommunications:	Have to pay (basic unit rental $3.30/month plus up to $2.80/month to store numbers) to use Telstra's abbreviated dialling service Delayed hotline service only available with Telstra Basic mobile phones do not provide functional equivalence (e.g. speech recognition, speech to text functionality, click-to-phone switch accessible phone which enables users to access and control phone via single switch, plug-in keyboard accessory for smartphone) so consumers are forced to pay extra for high-end smartphones and specialised equipment, because mobile phones and related equipment are unavailable on DEPs Consumers requiring specialised equipment (such as speech to text, large keyboards and 'sticky keys' functionality[45]) are forced to pay extra, as no internet-related equipment are provided through any DEP (unless can access workplace modifications scheme if employed over 8 hours per week)

Consumer community:	Consumers with mobility issues
Community size:	N/A
Nature of communication impairment/ limitation:	May be unable to reach ringing phone in time
Barriers to telecommunications:	Telstra is only DEP to provide cordless phone The 'extended ring time' service provided by some telecommunications providers allows ring time to be extended to 30 seconds maximum, which is not always sufficient to get to phone; it can also be difficult to find info on how to do this

Consumer community:	Consumers with speech impairment and/or complex communication needs
Community size:	1 in 7 Australians has a communication disability[46] which is around 2.7 million people
Nature of communication impairment/ limitation:	Unable to speak clearly or at all; may be intermittent; may use speech output device; may also have dexterity and/or mobility issues
Barriers to telecommunications:	Telstra is only DEP to provide big button phone Basic mobile or landline phones and computer equipment do not provide functional equivalence (e.g. text to speech functionality, click-to-phone switch accessible phone which enables users to access and control phone via single switch[47], plug-in keyboard accessory for mobile phone, on-screen keyboards, 'sticky keys' functionality) so consumers are forced to pay extra for high-end smartphones, apps[48], software and specialised equipment, because none of this equipment is available from any DEP (some consumers may be able to gain access to these through workplace modifications scheme if employed over 8 hours per week) Requires telephone compatible with attachment of communication devices Not all NRS officers appear to be able to relay Speak and Listen calls accurately - may require more in-depth and/or specialised training than the NRS currently offers Callers to the NRS's Speak and Listen number from mobile phones pay high rates, despite it being a 'toll-free' number; these consumers are hit disproportionately hard by this as their calls are likely to take significantly longer than direct calls No or very limited training available in using equipment in accessible format

Consumer community:	Consumers with cognitive disability
Community size:	• 3% of the population has an intellectual disability, with most aged under 65 years; almost 60% of people with intellectual disability have severe communication limitations[49]. • 338,700 Australians (1.9% of the total Australian population) has a disability related to an acquired brain injury (ABI). • 18% of Australians experience a "mental disorder" [50] during a 12-month period; 44% of people experiencing a "mental disorder" experienced disability due to their psychiatric illness
Nature of communication impairment/ limitation[51]:	May have difficulty using menus/IVRs; may have difficulty understanding and/or remembering instructions; may have difficulty pressing the correct button; may prefer to speak to a person rather than dealing with an IVR; may have difficulty tracking calls or understanding contracts; may have difficulty responding to questions posed on the phone (including proof of identity questions)
Barriers to telecommunications:	May not access services which are labelled 'disability' or 'intellectual disability' Limited appropriate, accessible training available in use of or how to access and use equipment Lack of Product Disclosure Statements and Contracts in accessible formats (such as Easy English[52]) - creates barriers to being able to provide informed consent and to sign documents Basic mobile or landline phones and computer equipment may not provide functional equivalence (e.g. may require smartphone in order to access upcoming emergency app) so consumers are forced to pay extra for high-end smartphones and apps[53] because none of this equipment is available from any DEP Difficult to track calls/bill shock[54]

[1] Access Economics. 'Listen Hear! The economic impact and cost of hearing loss in Australia', February 2006: http://www.audiology.asn.au/pdf/ListenHearFinal.pdf, p. 38

[2] For example, UK consumers with British Sign Language as their first language reported that "the barriers for using English for email, SMS and instant messaging prevent them from using these services as frequently [as do people with English as a first language]", in 'Voice telephony services for deaf people', D. Lewin et al, June

2009, p11; http://stakeholders.ofcom.org.uk/binaries/research/telecoms-research/voice_telep.pdf; Australian statistics on adult Deaf literacy are unavailable. However: http://www.fahcsia.gov.au/sa/disability/pubs/policy/Documents/auslan_report/section1.htm: 30% of signing Deaf people aged over 15 years completed year 12, compared with 41% of the general Australian population; and 54% of signing Deaf people aged over 15 years had left school at year 10 level or below compared to 45% of the general Australian population; Also: http://research.gallaudet.edu/Literacy/index.html: In an American study of Deaf and hard of hearing 17-year-olds and 18-year-olds, the median Reading Comprehension subtest score corresponds to about a 4.0 grade level for hearing students (that is, about that of a hearing 9-year-old); Also: http://www.tcu.gov.on.ca/eng/training/literacy/hearing/hearing.pdf: "The literacy level of Deaf and hard of hearing is below that of the rest of the Ontario population. In particular, 52% have low literacy (below level 3), compared to 38% among the general Ontario population. Literacy ranges widely depending on the level of hearing loss: those with partial difficulty have a somewhat lower incidence of low literacy than the Ontario average (33%), while those completely unable to hear have a 71% incidence."

[3] Superprint (most suitable for Deaf): $1172.60 (most suitable for hearing-impaired or speech-impaired): Uniphone - $817.95 from Printacall as at May 2011

[4] Jolley, ibid.

[5] http://telstra.com.au/abouttelstra/commitments/payphone-services/tty-payphones/

[6] The Personal Relay Service (PRS) was a feature previously offered by the NRS, which allowed hearing people to call deaf people via the relay service but without having to dial the NRS first, then request the outbound person's phone number. It was also used by some businesses so that NRS users could call them 'directly'. The PRS is no longer available to NRS users, although some legacy users continue to be supported. A similar service continues to be provided in the US – for example, http://relayservices.att.com/content/130/10Digit_Number_FAQs.html#show

[7] Damon Timm; "Telephone Interpreting." American Sign Language Interpreting Resources, 12 December 2000. http://asl_interpreting.tripod.com/situational_studies/dt1.htm: A non-relayed 'hearing' call took just under five minutes; the call relayed via a sign language interpreter took just over five minutes; the call relayed via a TTY relay service took almost 30 minutes. A similar experiment in Australia yielded the following results: A call via the NRS using a TTY took 4 minutes 18 seconds; the same call via the Video Relay Service took 2 minutes 15 seconds (Source: Australian Communication Exchange; personal correspondence)

[8] Such as when a Speak and Read customer speaks language other than English, which is understood by their interlocutor, who then responds in English, which is relayed by the relay officer, and read and understood by the hearing-impaired person

[9] Personal correspondence with Sprint, which offers Text Relay Services across the US

[10] http://www.mobileaccessibility.info/

[11] http://www.telstra.com.au/mobile/services/voice2text.html (Telstra also offers a 3-second free message service); http://personal.optus.com.au/web/ocaportal.portal?_nfpb=true&_pageLabel=Template_woRHS&FP=/personal/mobile/mobilefeaturesandservices/spinvox&site=personal

[12] SMS and email cannot be viewed as equivalent to voice telephony, given the extra time and non-interactiveness of these methods. See 'Voice telephony services for deaf people', D. Lewin et al, June 2009, p12; http://stakeholders.ofcom.org.uk/binaries/research/telecoms-research/voice_telep.pdf

[13] Jolley, op. cit; http://www.hreoc.gov.au/disability_rights/communications/tide4.htm#sms

[14] http://www.aceinfo.net.au/index.php?option=com_content&view=article&id=5&Itemid=16

[15] Guideo Gybels, 'Deaf and hard of hearing users on 2G and 3G mobile networks', October 2004; http://www.observatory.gr/files/meletes/Deaf%20people%20and%203g%20Networks.pdf

[16] See http://accan.org.au/index.php?option=com_content&view=article&id=113:supplementary-submission-to-telecommunications-emergency-call-service-determination-2009&catid=142:access-for-all&Itemid=178 for further information

[17] Based on Wilson (1997) and Australian Hearing (2005) reported in Access Economics, 'Listen Hear! The economic impact and cost of hearing loss in Australia', February 2006: http://www.audiology.asn.au/pdf/ListenHearFinal.pdf

[18] The Personal Relay Service (PRS) was a feature previously offered by the NRS, which allowed hearing people to call deaf people via the relay service but without having to dial the NRS first, then request the outbound person's phone number. It was also used by some businesses so that NRS users could call them 'directly'. The PRS is no longer available to NRS users, although some legacy users continue to be supported. A

similar service continues to be provided in the US – for example, http://relayservices.att.com/content/130/10Digit_Number_FAQs.html#show

[19] Damon Timm; "Telephone Interpreting." American Sign Language Interpreting Resources, 12 December 2000. http://asl_interpreting.tripod.com/situational_studies/dt1.htm: A non-relayed 'hearing' call took just under five minutes; the call relayed via a sign language interpreter took just over five minutes; the call relayed via a TTY relay service took almost 30 minutes. A similar experiment in Australia yielded the following results: A call via the NRS using a TTY took 4 minutes 18 seconds; the same call via the Video Relay Service took 2 minutes 15 seconds (Source: Australian Communication Exchange; personal correspondence)

[20] Such as when a Speak and Read customer speaks language other than English, which is understood by their interlocutor, who then responds in English, which is relayed by the relay officer, and read and understood by the hearing-impaired person

[21] Personal correspondence with Sprint, which offers Text Relay Services across the US

[22] SMS and email cannot be viewed as equivalent to voice telephony, given the extra time and non-interactiveness of these methods. See 'Voice telephony services for deaf people', D. Lewin et al, June 2009, p12; http://stakeholders.ofcom.org.uk/binaries/research/telecoms-research/voice_telep.pdf

[23] Jolley, op. cit; http://www.hreoc.gov.au/disability_rights/communications/tide4.htm#sms

[24] According to a user

[25] Council on the Ageing, WA, 'Where do I start?' 2011: http://accan.org.au/files/Reports/Where%20do%20I%20start%20Female%20seniors%20and%20the%20internet.pdf

[26] Council on the Ageing, WA, 'Where do I start?' 2011: http://accan.org.au/files/Reports/Where%20do%20I%20start%20Female%20seniors%20and%20the%20internet.pdf

[27] http://www.sprintrelay.com/sprint_relay_services/sprint_video_relay_services.php for example

[28] Vision 20/20 2010 *Clear Focus Report Access Economics* http://www.vision2020australia.org.au/resources.cfm

[29] http://telstra.com.au/abouttelstra/commitments/disability-services/additional-products-services/index.htm#dahelpline

[30] http://telstra.com.au/abouttelstra/commitments/disability-services/additional-products-services/index.htm#dahelpline

[31] Vision 20/20 2010 *Clear Focus Report Access Economics* http://www.vision2020australia.org.au/resources.cfm

[32] http://telstra.com.au/abouttelstra/commitments/disability-services/additional-products-services/index.htm#dahelpline

[33] http://telstra.com.au/abouttelstra/commitments/disability-services/additional-products-services/index.htm#dahelpline

[34] Centre for Eye Research Australia (CERA) 2004 *Clear Insight*

[35] Making Sense: The economic impact of dual sensory impairment and multiple disabilities; Penny Taylor Associate Director Access Economics
April 2010; http://www.deafblind.org.au/content-files/Penny%20Taylor%20-%20Making%20Sense%202010%20%5BCompatibility%20Mode%5D.pdf

[36] Ibid

[37] Ibid

[38] For example, UK consumers with British Sign Language as their first language reported that "the barriers for using English for email, SMS and instant messaging prevent them from using these services as frequently [as do people with English as a first language]", in 'Voice telephony services for deaf people', D. Lewin et al, June 2009, p11; http://stakeholders.ofcom.org.uk/binaries/research/telecoms-research/voice_telep.pdf; Australian statistics on adult Deaf literacy are unavailable. However: http://www.fahcsia.gov.au/sa/disability/pubs/policy/Documents/auslan_report/section1.htm: 30% of signing Deaf people aged over 15 years completed year 12, compared with 41% of the general Australian population; and 54% of signing Deaf people aged over 15 years had left school at year 10 level or below compared to 45% of the general Australian population; Also: http://research.gallaudet.edu/Literacy/index.html: In an American study of Deaf and hard of hearing 17-year-olds and 18-year-olds, the median Reading Comprehension subtest score corresponds to about a 4.0 grade level for hearing students (that is, about that of a hearing 9-year-old); Also: http://www.tcu.gov.on.ca/eng/training/literacy/hearing/hearing.pdf: "The literacy level of Deaf and hard of hearing is below that of the rest of the Ontario population. In particular, 52% have low literacy (below level

3), compared to 38% among the general Ontario population. Literacy ranges widely depending on the level of hearing loss: those with partial difficulty have a somewhat lower incidence of low literacy than the Ontario average (33%), while those completely unable to hear have a 71% incidence."

[39] Ibid; and from Claire Tellefson, Able Australia: "The overwhelming majority of people with disabilities "get by" with a range of adaptations to the headset to use a phone. Usually they have to source these adaptations from Telstra shops or from advice from friends or family. There is no central place where people with disabilities can go to see a range of phone handsets that might provide better access to a landline phone."

[40] There are currently two models of TTY available in Australia, the Uniphone and the Superprint. The Uniphone includes a regular handset; the Superprint does not. The Superprint is recommended only for people who cannot hear *and* do not use their own voice, because in order to be used by a person who uses their own voice, the person would also need to plug in a separate handset, and for technical reasons, this is not considered reliable. However, the Uniphone – unlike the Superprint – does not have the capacity to attach to a Large Visual Display unit, and the Uniphone's screen is small and can be difficult to read. Similarly, Braille TTYs available in Australia are based upon the Superprint, not the Uniphone.

[41] Able Australia and ACCAN: 'Telecommunications and Deafblind Australians', 2011

[42] A device which can be used as a TTY, for face to face communication and also to receive and send SMS messages: http://www.humanware.com/en-australia/products/blindness/deafblind_communicator/_details/id_118/deafblind_communicator.html

[43] 47% of Deafblind respondents to a survey could not answer the phone when it rings: Able Australia and ACCAN: 'Telecommunications and Deafblind Australians', 2011

[44] Able Australia and ACCAN: 'Telecommunications and Deafblind Australians', 2011

[45] http://en.wikipedia.org/wiki/StickyKeys

[46] Speech Pathology Australia, Fact Sheet; http://www.speechpathologyaustralia.org.au/library/1.2_Who_has_a_Communication_Disability.pdf

[47] http://www.tecsol.com.au/TSphone.htm

[48] For example http://www.spectronicsinoz.com/article/apps-for-literacy-support

[49] Australian Institute of Health and Welfare, 'Disability in Australia: Intellectual Disability', 2008; http://www.aihw.gov.au/publication-detail/?id=6442468183

[50] http://www.ausstats.abs.gov.au/Ausstats/subscriber.nsf/0/CA25687100069892CA25688900233CAF/$File/43260_1997.pdf

[51] In relation to using interactive voice responses (IVRs/phone menus), 68% of respondents said they had problems "understanding the instructions and forgetting the instructions", 42% had difficulty "pressing the appropriate button", The option of speaking directly to a human being – which would alleviate anxiety and confusion - is not available with many IVRs, or is the final (rather than first) option; Difficulty remembering menu options (ARBIAS Inc. Automated Services: The experience of people with acquired brain injury, 1999, www.hreoc.gov.au/disability_rights/inquiries/ecom_resource/arbias.htm; Case studies presented by Brain Injury Australia to ACCAN, 2010; Personal communications with representative of an employment service providing support for people with psychiatric disability, 2011

[52] Personal communication with representative of an advocacy body for people with intellectual disability, 2011

[53] For example http://www.spectronicsinoz.com/article/apps-for-literacy-support; http://www.spectronicsinoz.com/article/iphoneipad-apps-for-aac

[54] Case study presented by Brain Injury Australia to ACCAN, 2010