

# Guidelines for Accessibility in PIN entry on touchscreen terminals

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Supporting people living  
with vision and / or  
motor impairments

December 2019

Australian  
Payments  
Network



Connect Inspire Thrive

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This document has been prepared by Australian Payments Network [AusPayNet] in collaboration with Perspective Hive Diversity & Communications Consulting.

AusPayNet is the industry association and self-regulatory body for Australian payments. AusPayNet manages and develops regulations, procedures, policies and standards governing payments clearing and settlement within Australia.

Perspective Hive ([www.perspectivehive.com.au](http://www.perspectivehive.com.au)) is a consulting hub of expertise offering services and programs to help organisations across a wide range of industries create diverse and inclusive workplace practices and cultures.

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# Our Commitment

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## Convenient and secure payments for all

Innovation in payment technologies including the use of touchscreens has provided many benefits for retailers, merchants and customers. However, with these new technologies comes the need to ensure inclusion and accessibility for all users.

At AusPayNet, our vision is convenient and secure payments for all. Realising that vision means ensuring that as payment solutions become more convenient, they also remain inclusive and accessible. To safeguard that, we've undertaken an extensive consultation process with people living with vision and / or motor impairments, representative bodies for the disability community, their networks and their supporters.

The community has identified that the ability to enter PINs securely and independently on touchscreen Point-of-Sale (POS) devices, also referred to as "PIN on glass", is an area where accessibility and inclusiveness can be challenging in making independent financial transactions. This is specifically the case when using a touchscreen-only POS device and entering a PIN without assistance or compromising personal security.

Our intent during the consultation was to understand the impact of any barriers that exist for the community who live with disability in making payments using touchscreen technology. We were also keen to explore potential ways in which those barriers could be overcome.

A wide range of solutions and ideas were shared with us. Many have been included in this document, combined with input from organisations involved in banking and payments, and learnings drawn from international research. We have developed the Guidelines to raise awareness and understanding of designing for inclusion and accessibility. The Guidelines aim to ensure that future innovations in payment technologies and platforms using touchscreens are consistently approached from that foundation.

These Guidelines align with the Australian Banking Association's (ABA's) [\*'Every Customer Counts – Accessibility Principles for Banking Services'\*](#) and other relevant frameworks including the [\*Principles of Universal Design\*](#).

Consistency across payment devices was a key theme in the feedback emerging from our consultation, as was a preference from the community for payment devices for keypads with physically distinct keys, and a raised dot on the number five (referred to as a 'tactile keypad'). We recognise that preference while also noting the importance of the Guidelines and supplementary information, which focus on creating a foundation for the inclusive design of future touch screen terminals, especially given the remainder of the consultation feedback and the benefits of such touchscreen technology to retailers, merchants and customers.

On behalf of AusPayNet, I thank everyone involved in the consultation process and for their generous input and feedback. I also encourage everyone in the payments industry to actively consider the Guidelines when developing touchscreen technologies in future, to create solutions that are accessible to all.

**Andy White**

CEO, Australian Payments Network



# 1 Introduction

# 1. Introduction

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## → Objective

This document has been created to assist the payments community in the design and procurement of Point-of-Sale (POS) terminals using touchscreen technology for PIN entry, with the objective of improving the accessibility of these devices for people with vision and/or motor impairments.

The Guidelines for PIN on glass [set out in Section 2] are a starting point for AusPayNet's ongoing work in the area of enhancing accessibility in payments. AusPayNet supports the sentiments expressed in the [2019 Australian Payments Council \(APC\) Strategic Agenda](#), and specifically the requirement to improve accessibility and will continue to work with members to develop usability guidelines for payment product and service design more broadly.

## → Scope of Guidelines

The Guidelines set out in Section 2 specifically apply to the design of POS terminals using touchscreen technology which are:

- Proprietary devices
- Locked down Commercial-off-the-Shelf (COTS) devices

To support innovation, the Guidelines do not provide detailed technical solutions or a step-by-step guide for ensuring accessibility. They do, however, provide key principles and design considerations, allowing organisations involved in payments to continue to innovate, albeit with an enhanced understanding of the needs of the disability community.

## → Adoption of Guidelines

Adoption of the Guidelines is voluntary, but strongly encouraged.

The Guidelines do not have the force of law and adopting the Guidelines does not guarantee fulfilment of legal responsibilities under the Disability Discrimination Act 1992 (Cth), nor does it absolve any organisation from their obligation to comply with the requirements of that Act or any other relevant legislation.

Organisations involved in the design and procurement of POS terminals using touchscreen technology should obtain their own advice in relation to their adoption of the Guidelines, and should take into consideration all related legislation, standards and frameworks that exist to support the needs of the disability community.

## → Updating the Guidelines

The Guidelines capture current-state technology possibilities. To accommodate future changes in technology, the Guidelines will be reviewed annually, and updated as necessary to maintain relevance.

The aim of the Guidelines is to support the payments community in enabling people living with vision and / or motor impairments to:



→ access the touchscreen independently and with dignity



→ enter their PIN securely



→ have options which as far as possible create a similar experience and outcomes as for other users

## → Foundations for enhanced accessibility in payments

Throughout our detailed consultation, we have captured feedback which goes beyond the scope of developing Guidelines for PIN on glass. This has resulted in Supplementary Accessibility Design Considerations, which are set out in Section 3 of this document.

To enhance the understanding of some of the barriers faced by people living with disability, Section 4 provides background and supporting information.

## → Payments Industry Support

To develop the Guidelines, we established a Working Group comprising a cross-section of AusPayNet stakeholders, including:

- ANZ
- Australian Banking Association
- Bendigo Bank
- Commonwealth Bank of Australia
- Diebold Nixdorf
- eftpos
- NAB
- NCR
- Tyro
- Verifone
- Westpac Group

The Guidelines are also supported by AusPayNet's Issuers and Acquirers Community (IAC), which brings a wider range of participants and systems operators together to support innovation.

## → Community Consultation

AusPayNet embarked on a comprehensive consultation process to develop the Guidelines, which also resulted in the development of Supplementary Accessibility Design Considerations.

The consultation process included focus groups and one-on-one interviews, which were supplemented by an online community survey, to ensure a deep understanding of the lived experience of people with vision and motor impairments and how barriers impact their ability to independently make payments using touchscreens.

The consultation process was designed to:

- Provide clarity on the scope of the Guidelines
- Understand the impacts (including personal, financial and emotional) that come from not being able to use POS touchscreens independently
- Ask for lived experiences of entering PINs when using POS touchscreens – what is important, what works well, what creates barriers, and specific requirements
- Find out what is best practice and what a good payment experience using touchscreens could be, including practical ideas and examples of other touchscreen applications that work well for people with vision and / or motor impairment

Individuals living with vision and / or motor impairments, as well as their carers and supporters, were invited to complete the online survey. The survey was accessed by 260 respondents (the majority - 88% - were individuals living with vision and / or motor impairment) during the 4-week period it was open, and feedback received reinforced the key themes captured during the overall consultation.

### Consultation with the disability community and their supporters included input from the following organisations:

- Able Australia
- Australian Human Rights Commission
- Australian Network on Disability
- Blind Citizens Australia
- Centre for Inclusive Design
- Cerebral Palsy Alliance
- Digital Gap Initiative
- Deafblind Australia
- Guide Dogs
- Macular Disease Foundation
- People with Disability Australia
- Public Interest Advocacy Centre
- Royal Society for the Blind
- TCC
- Vision Australia

## → Using this document

This document provides:

1. **Guidelines** for designing accessible and secure PIN entry, including Five Key Principles and specific design recommendations to enhance the accessibility of the PIN entry process.  
*These Guidelines are set out in SECTION 2.*
2. **Supplementary Accessibility Design Considerations** for designing the overall payment process, which draws on the feedback received during the consultation process, as well as existing principles of universal design.  
*These Supplementary Accessibility Considerations are set out in SECTION 3.*
3. **Supporting Material and Background Information** to enable payments organisations to better understand the barriers faced by people living with disability; and to provide related information and standards that should also be taken into consideration.  
*The Supporting Material and Background Information is set out in SECTION 4.*





## **Guidelines for designing and procuring accessible PIN entry on touchscreen terminals**






**2** —

# 2. Guidelines for designing and procuring accessible PIN entry on touchscreen terminals

## → Key Principles

The following Five Key Principles have been developed following extensive consultation, to support those involved in the design and procurement of touchscreen technology on payment devices in considering the needs of people with disability.

### Touchscreen Payment Device and PIN Entry Accessibility Key Principles

-  **Embed accessibility into payment projects**
-  **Make equity and inclusion fundamental**
-  **Overlay security and privacy as critical factors**
-  **Consider the end-to-end user experience**
-  **Work to increase accessibility capability and awareness**

Touchscreen payment device and solution projects should consider the following five key principles:



#### **Embed accessibility into payment projects by:**

- Establishing a business case for accessible and inclusive design
- Following the [Principles of Universal Design](#)
- Considering accessibility in all project phases, starting with project initiation
- Allocating funding for the design and testing of solutions for accessibility
- Requiring hardware and software suppliers to provide evidence of solution accessibility
- Following the recommendations provided in the ABA's ['Every Customer Counts – Accessibility Principles for Banking Services'](#)



### Make equity and inclusion fundamental by:

- Designing for a wide range of physical, sensory and cognitive abilities
- Making user independence and dignity a priority
- Ensuring that activating accessible options is not excessively burdensome for any particular cohort of the community



### Overlay security as a critical factor by:

- Meeting the requirements set out in the AusPayNet [Issuers & Acquirers Regulations and Code Set](#)
- Ensuring users are not required to share their PINs with others to be able to make payments



### Consider the end-to-end user experience by:

- Being mindful that not everyone is able to access the payments terminal in the same way
- Making simplicity, and as far as possible consistency, a priority in the solution design to minimise any cognitive burden of using the terminal and the touchscreen



### Work to increase accessibility capability and awareness by:

- Consulting with users, particularly those with lived experiences of a range of impairments including vision and / or motor impairments, at the start of decision-making on the design and procurement of touchscreen payment solutions
- Providing relevant, practical and accessible information to merchants, users and the broader community around the accessible design features of payment terminals using touchscreen technology

### The importance of independence and dignity:



*Being independent through the use of accessibility enables me to be proud."*



*I don't like people helping me pay for things when I use a card, as I like keeping my bank details to myself..."*



*I have avoided shops with the touchscreen being the only option - this includes having to miss out on services/products that are needed."*



*.... had to tell complete strangers my PIN so my purchase can be completed, which puts me in an extremely vulnerable position."*



*Being able to perform any form of bank transaction myself provides independence..."*

Source: AusPayNet Disability Community Survey August 2019

## → Key Recommendations

When designing for accessibility, and to enhance the ability of users to independently enter their PINs on touchscreen terminals, it is strongly recommended that the following factors should be included in the design and procurement process. In general, best practice is that multiple or alternate means of achieving any given outcome should be provided and should deliver equality and/or equivalence of user experience.

### The keypad

- Where reasonable, include a tactile keypad as an alternative method for entering the PIN.
- If a virtual keypad is used (a keypad that is displayed on the screen), it is recommended that it be placed with the '5' in the centre of the screen, and adopts the layout of '1,2,3 / 4,5,6 / 7,8,9 / Cancel, 0, OK'. The keypad should stay static (not move around) and centralised.
- Provide haptic and audio feedback to provide a virtual indication that the '5' has been selected, to simulate the functionality of the raised button on tactile keypads, while ensuring that the PIN selection is not disclosed in the process.
- Provide non-visual haptic and audio feedback to indicate that different numbers have been selected and, where appropriate, entered as the user moves across the keypad to select their PIN. The feedback should indicate how many digits have been entered so users can keep track of where they are up to with completing the entry of their PIN.
- None of these indicators should have variations in tone that could be used to identify any particular digit of the PIN.

### Accessibility mode

- Accessibility mode should be able to be turned on in a variety of ways, which could include, but are not limited to:
  - o a physical button with a tactile means of location and identification so it can be turned on easily and independently by the user, so as not to rely solely on the merchant.
  - o a distinct gesture, such as a single-finger (or stylus) double-tap on any part of the touchscreen.
  - o tapping a recognisable symbol for accessibility displayed on the device screen.
  - o insertion of headphones into the audio jack.
  - o reading and activating an individual user's preferences e.g. for accessibility mode, from the payment token presented if such a feature is available.
- A headphone jack should be provided, with a tactile means of location. Plugging in a headphone should automatically activate accessibility mode.
- All terminals should be capable of using speech output to provide instructions, feedback as the transaction progresses, status information, error messages, and helpful prompts. Speech output should be automatically established when either accessibility mode is activated or headphones are inserted.
- Feedback to the user in this mode should be either audible, haptic, or preferably both.
- Once accessibility mode is activated, the first step is to get to the PIN entry quickly and simply, however it should also provide easy-to-access menu options for either help or further personalisation to individual preferences of e.g. audio volume, font size, screen lighting and contrast, choice of different colour palettes, haptic strength etc.

- The ability to zoom the screen in and out should be provided. This may be achieved through numerous ways, including but not limited to:
  - a 'pinch to zoom' gesture.
  - an accessibility mode menu to control the font and button size.
  - tapping a 'zoom in' and 'zoom out' button on the screen.
- The ability to move the screen around should be provided when the screen is zoomed in.
- In accessibility mode, the device should read out all information on the screen to the user that a fully sighted person would be able to see, including payment amount and payment progress status (except for the PIN number), as well as when any buttons are selected and tapped by the user.
- The ability to repeat the audio feedback at any stage of the payment flow, if required, should be provided.
- Once accessibility mode is activated, it should stay on for the duration of the transaction. On completion, accessibility mode should automatically deactivate, resetting to standard mode for the next customer.
- Rollout of all devices should be accompanied by a user guide and training for merchants, including regular reminders about educating any new staff, particularly in retail environments where team members may turn-over regularly.

### PIN Security

- To meet the security standards relating to PIN entry, under no circumstances should any digit of the PIN, or the completed PIN, be displayed or announced. However, audible and/or haptic confirmation of the successful entry of each digit of a PIN (but not the number itself) may be provided. Refer to the [\*AusPayNet Issuers & Acquirers Regulations and Code Set\*](#) for further details regarding PIN security requirements.

Dr Ben Gauntlett, Disability Discrimination Commissioner, Australian Human Rights Commission

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“ **Technology is fundamentally changing the world for everyone... central to our daily activities and is also increasingly the main gateway for people to access their rights... For many people, technology can provide a gateway to inclusion, or result in an enormous barrier... Australians with disability experience lower digital inclusion rates compared with those who do not have a disability.**”

### → Key Questions

When designing the PIN entry process for those with vision and / or motor impairment, answering the following questions may be beneficial for enhancing accessibility:

- What are the accessible options provided to enter the PIN safely and securely for people who may not be able to see or feel the screen?
- With a strong preference from the disability community for a tactile keypad, can this functionality be included with, or replicated realistically by, the touchscreen?
- How can accessibility mode be activated by the customer or merchant and is it streamlined to allow the customer to enter their PIN quickly, accurately and securely?
- How is the PIN entry solution designed so as not to compromise customer security or the disclosure of the PIN?
- What are the options for users requiring alternative inputs (such as a stylus if they have dexterity limitations) or outputs (for example plugging in headphones) to be able to enter their PIN?
- What designs can be included for customisation of the way the payments terminal responds, such as strengthening the haptic vibrations, adjusting the audio volume or increasing the screen contrast, so that the customer can easily and quickly change settings according to their individual needs?
- Is accommodation for different retail environments considered, such as busy or noisy situations?
- How does the touchscreen sensitivity accommodate for accidental or unintended gestures or touches?
- What happens if the merchant also has a vision and / or motor impairment and has to support a customer with disability when making the payment?

### → Balancing multiple stakeholder requirements

While touchscreens may create issues for accessibility in general, the security requirements for entering a PIN add additional challenges to accessible design.

Solution designs need to balance multiple requirements, including:

- Meeting the requirements of the AusPayNet [Issuers & Acquirers Code Set](#).
- The general obligation of banking customers to keep their PIN secret from anyone, including family members or friends.
- The need for users to make payment transactions independently.
- Protecting people with disability, who may also be in the category of 'vulnerable customers' and are more likely to experience financial abuse, from exploitation through having to share personal information such as their PINs.
- Allowing financial institutions to enhance outcomes for customers and merchants by innovating through new technologies, including in the payments and touchscreen space.



# **3** Supplementary Accessibility Considerations

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# 3. Supplementary accessibility considerations

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While the focus of these Guidelines and the consultation that informed the content was on PIN entry for touchscreen terminals, feedback around the accessible design of the overall payment experience using touchscreens was also captured, and is set out below for supplementary consideration. These additional considerations draw on, and are aligned with the [Principles of Universal Design](#).

## → The transaction flow

It is useful for people who may not be able to see the screen clearly or at all, to have the following information provided to them in an alternative way:

- the payment amount due (ideally before the PIN is entered)
- which accounts can be selected and which is ultimately chosen
- the status of the payment e.g. 'authorising', 'complete' or 'declined'
- any other information that would be available to a person with sight

## → The virtual keypad

In the absence of a consistent standard for virtual keypads, combined with the variation in individual needs of people living with disability, the following considerations may lead to further enhancements in overall accessibility:

- Customers may access the keypad in a variety of ways – some people may not have clear vision or any useable vision, some may have limited, or no use of hands or fingers, including circulation or dexterity impairments. Some people may also be living with additional or other disabilities such as having full or partial hearing loss, or other impairments.
- The design of the keypad (including button size, layout, colour, font used), is best developed and tested in consultation with people who live with vision and / or motor impairments.
- Interactions with the touchscreen should be simple and not place any excessive burdens on any type of user.
- Users should be provided with feedback around what has been entered on the keypad or where the process is up to, for example, by using beeps or voice over to provide a status update.
- It may also be useful to consider the Worldwide Web Consortium (W3C)'s [Web Content Accessibility Guidelines](#) (WCAG), specifically those relating to the [accessibility of keyboard design](#) and display of content on a screen, as some of the practices may be applicable in other contexts, such as payment device touchscreens.
- Where colour coding is provided, it should not solely be relied on to convey meaning as some people may not be able to see colour.



## → Haptic feedback

Feedback received from the disability community identified varying requirements in the application of haptics and how they are controlled. Preferences are generally dictated by an individual's unique circumstances and how their impairments may impact their ability to interact with a touchscreen. For example, people with diabetic neuropathy may have reduced sensitivity in their fingertips and require higher levels of haptic feedback.

It is therefore recommended as useful to:

- Provide some level of control over the haptics, such as the strength of the vibration in how the touchscreen responds to user input. This may, for example, be controlled via the accessibility mode of the device.
- Ensure that haptics don't confuse the user in terms of how they are used to indicate the response from the payment terminal.
- Develop and test the solution in consultation with people who live with vision and / or motor impairments.

## → Use of Gestures

The community consultation revealed that not all people with vision and / or motor impairments use touchscreens in a similar way (for example when using a mobile phone or tablet. It should also be noted that some gestures that are available in a general application sense are proprietary to the underlying operating system (for example, gestures in an Apple device may differ to those on an Android device.)

Design considerations around gesture control should include:

- Allowing for people with limited use of their hands and fingers to enter their PIN.
- Gestures should not be complex or onerous to use.
- Having tolerance for variance in pressure of inputs (for example, some people may press much harder or softer than others).
- Where possible, using familiar or intuitive gestures rather than a bespoke set unique to that particular solution.
- The solution being developed and tested in consultation with people who live with vision and / or motor impairments.

## → Physical design

To support the wide range of people who will be using the payment terminals, it's important to consider accessibility in the physical design of the product. This includes:

- The material it is made from (for example, not being slippery to hold for somebody who has limited use of their hands, with grip assistance provided).
- Not being too heavy (for example, allowing a wheelchair user picking it up to rest it on their lap), while not being so light as to create difficulties for people with limited sensitivity in their hands.
- The ability to hold it with one hand and operate it with the other.
- The casing being robust in case it's dropped.
- Its physical placement within the retail environment is also important so that people can use it at different heights, or easily move it to where it can be used (using mobile / wireless connectivity).

## → User Support

Some of the groups and people with a disability who were consulted during the creation of the Guidelines have a preference for access to information about payment devices and how to use them, including practicing or familiarising themselves with the features (including, for example, through an app). Providing user information or training, should not, however, replace the accessible design of any touchscreen terminals.

Allowing people to opt-in to information, for example by providing it on the financial institution's website, should take into account the following:

- All guides, advice and training information should be drafted in plain English, free of technical or legal descriptions – the [Australian Inclusive Publishing Initiative \(AIPI\)](#) provides some useful guidance.
- Documentation should be provided in alternative formats, for example, not just as a PDF, but also as an accessibly-designed Word document, including consideration of font size, colour etc. as outlined by the [Australian Government's Accessibility & Inclusivity Digital Guide](#).
- Where videos are used, captioning and transcripts should be provided to allow people with different impairments to access the content.
- Web site content should meet [WCAG](#) requirements around accessibility.

A variety of ideas were discussed during the community consultation period regarding the use of alternative identification or personalisation methods. These will continue to be explored by the payments community as technologies become available and relevant for use when making and verifying payments.

### The challenges of living with disability:

“**Going out in the world is challenging enough without the added problems of simply purchasing food, clothing, entertainment, banking etc.”**

“**Keeping payments as accessible as possible is paramount to inclusion of all.”**

“**I deserve equal accessibility in life in-general as much as anyone else.”**

Source: AusPayNet Disability Community Survey August 2019.



# 4 Supporting material and background information

# 4. Supporting material and background information

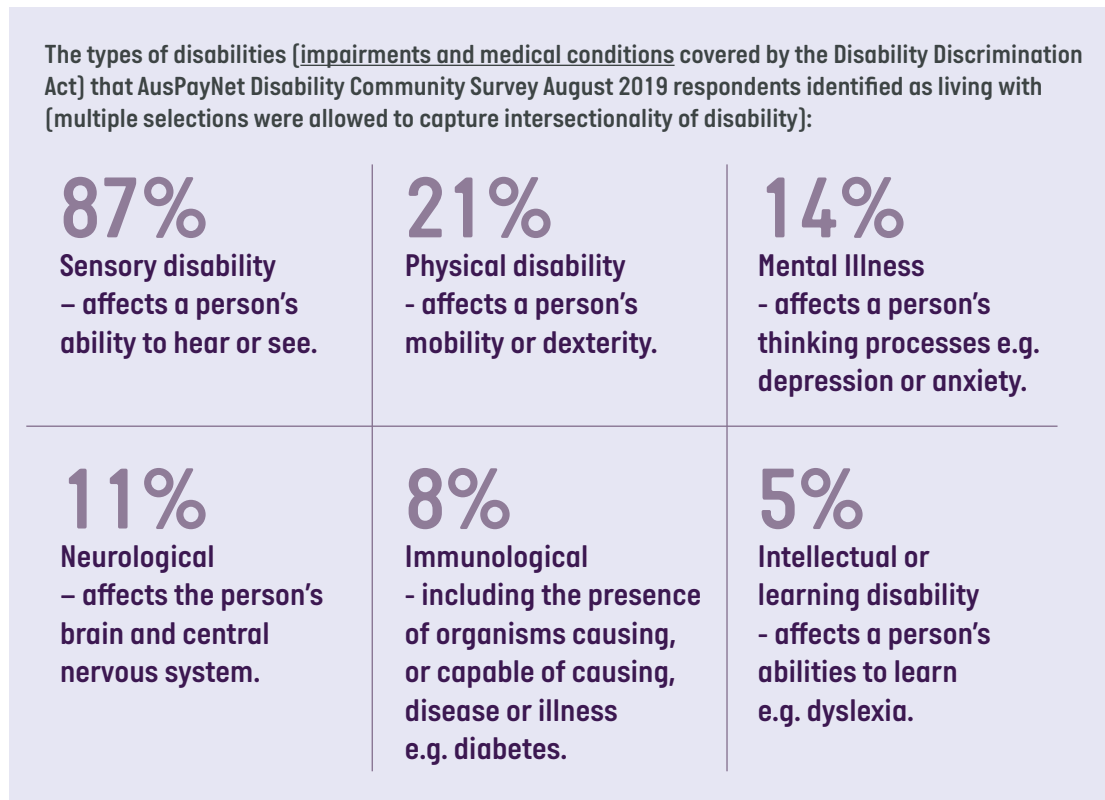
## Understanding Disability

### → Disability, impairments and barriers

There are over 4 million Australians living with disability - that's 20% of the population, excluding their social supporters or carers.

The likelihood of living with disability increases with age. Two in five people aged 65 years or older are living with disability. Disability is also 'intersectional', meaning that people may live with one or more impairments, for example, having both vision impairment and also hearing loss, which may increase in severity over time. People with disability are also more likely to experience financial abuse, and within the context of protecting vulnerable customers, this should be reflected in the design of banking products and services.

Disability is also intersectional with other dimensions of diversity. For example, Aboriginal and Torres Strait Islander people are 1.8 times more likely to live with disability than other Australians.



## What is disability?

The [definition of disability](#), according to the Disability Discrimination Act, is as follows:

- (a) total or partial loss of the person's bodily or mental functions; or
- (b) total or partial loss of a part of the body; or
- (c) the presence in the body of organisms causing disease or illness; or
- (d) the presence in the body of organisms capable of causing disease or illness; or
- (e) the malfunction, malformation or disfigurement of a part of the person's body; or
- (f) a disorder or malfunction that results in the person learning differently from a person without the disorder or malfunction; or
- (g) a disorder, illness or disease that affects a person's thought processes, perception of reality, emotions or judgment or that results in disturbed behaviour; and includes a disability that:
  - (h) presently exists; or
  - (i) previously existed but no longer exists; or
  - (j) may exist in the future (including because of a genetic predisposition to that disability); or
  - (k) is imputed to a person.

To avoid doubt, a disability that is otherwise covered by this definition includes behaviour that is a symptom or manifestation of the disability.

According to the [Australian Network on Disability](#), "disability is any condition that restricts a person's mental, sensory or mobility functions. It may be caused by accident, trauma, genetics or disease. A disability may be temporary or permanent, total or partial, lifelong or acquired, visible or invisible".

## What creates barriers for people with disability?

An alternate perspective on viewing the way people with disability interact with the world, is through the [social model of disability](#). Moving away from a focus on medical definitions, the social model views disability "as the result of the interaction between people living with impairments and an environment filled with physical, attitudinal, communication and social barriers".

As a practical example to illustrate this, when someone using a wheelchair wants to enter a building and there are only stairs, it's not their inability to walk that prevents them from entering the building - it's the physical barrier caused by not having an alternative method of entry, such as a ramp, that creates a disability in the sense that the entry is inaccessible.

The social model of disability carries the implication that the physical, attitudinal, communication and social environment must adapt so that people living with impairments can participate in society on an equal, barrier-free basis with others.

### Key disability statistics

- **Over 4 million** people in Australia have some form of disability.
- **1.8 million** or **50.7%** of Australians aged 65 and over have a disability, compared to 1 in 8 (12.5%) aged under 65. That's 1 in 5 people.
- Vision Australia estimates there are currently **357,000** people in Australia who are blind or have low vision. They project that the number of Australians who are blind or have low vision will grow to **564,000** by 2030.
- The likelihood of living with disability increases with age. **2 in 5** people with disability are **65 years or older**.
- **35.9%** of Australia's 8.9 million households include a person with disability.
- **639,000** people with disability use mobility aids (14.9% of those with disability).
- **Disability discrimination** accounts for the highest volume of complaints made to the Australian Human Rights Commission.

## What is discrimination?

The [definition of disability discrimination](#) as outlined in the Disability Discrimination Act: “When a person with a disability is treated less favourably than a person without the disability in the same or similar circumstances.” For example, it would be ‘direct disability discrimination’ if a nightclub or restaurant refused a person entry because they are blind and have a guide dog. There is also indirect discrimination, “when there is a rule or policy that is the same for everyone but has an unfair effect on people with a particular disability.”

For those involved in creating the infrastructure for making payments, it’s important to understand the interaction between disability barriers, and work to avoid discrimination by enhancing accessibility through inclusive design for people who may experience and access the world in different ways.

## → People with disability as customers

The disability community is much broader than the 4 million plus Australians who live with a wide range of visible and invisible impairments. It also includes their family, carers, friends, co-workers and the community organisations who support them. Under the Australian Government’s National Disability Insurance Scheme, which provides care and support to people with disability, more people are able to access social and recreational activities such as going to the movies or visiting a local coffee shop.

Designing for inclusion is critical in ensuring that people with vision and / or motor impairments have equal access to making payments. The principles of inclusion and accessibility don’t just impact those living with disability – they lead to better outcomes for all users.

**Independent and equitable access to financial services and making payments in retail environments is highly important to the community that was surveyed by AusPayNet. Survey respondents ranked the following as being of high significance:**

- Not relying on other people to make or complete the payment, so they retain control of their financial decisions.
- Having their security protected when making a payment and not having to disclose personal information to strangers.
- Meeting their contractual obligation with their bank regarding not sharing their card PIN at any time.
- Having the same level of equality as people who don’t have disability in making payments.
- Not being personally impacted by lack of accessibility e.g. maintaining their self-worth, dignity, pride and independence.

**“ One in three customers from diverse backgrounds stopped making a purchase in the past 12 months because they were not treated fairly or respectfully.”**

[Australian Human Rights Commission and Deloitte: [‘Missing out: The business case for customer diversity’](#), 2017].

## → The growing prevalence of touchscreens

The first touchscreen was believed to be developed in the 1960s and the technology continued evolving rapidly as screens became more receptive to touch and gestures. Today, this market is continuing to grow and offers opportunities for innovation as the touchscreens increase in quality and decrease in cost.

To this end, touchscreen displays are becoming increasingly ubiquitous in daily life and can be found in a wide range of use from shopping mall directories, to the control of home appliances such as washing machines and fridges. Feedback received from the disability community during the consultation process was that accessible touchscreen technology, for many people, has given them a multitude of new ways through which to access the world. For example, some mobile phone and tablet manufacturers have built accessibility features such as text to speech or the ability to magnify the screen size into their operating systems, enhancing the ability of people with disability to use apps on their smart phones or tablets.

Designing payment systems using touchscreens for accessibility and inclusion is critical, so as not to exclude a large portion of users from being able to access the world and live their lives independently. This is an important consideration for banking and payments organisations – to realise the innovation benefits offered through new technology while creating solutions that allow equality and access for everyone.

### Types of purchases that people with disability or those in carer roles are making using payment terminals (multiple selections allowed):

- 94% - Groceries and food or beverage purchases
- 85% - Merchandise e.g. clothing, electronics
- 72% - Health services
- 67% - Services e.g. getting a haircut
- 58% - Entertainment e.g. shows
- 56% - Leisure including accommodation, flight bookings etc
- 51% - Utilities e.g. paying bills

Source: AusPayNet Disability Community Survey August 2019

## → Key legislation, standards and other frameworks

### The legal rights of people with disability

The rights of people with disability are governed by law in Australia. Organisations that provide goods or services that are accessed by the public, such as payments, are required to take into account access for people with disability.

The Disability Discrimination Act 1992 (DDA) makes disability discrimination unlawful and promotes equal rights, equal opportunity and equal access for people with disabilities. The objects of the DDA include eliminating, as far as possible, discrimination against people with disability, and promoting recognition and acceptance that people with disability have the same fundamental rights as the broader community.

As such, the DDA requires businesses to make reasonable adjustments to enable a person with disability to access goods, services or facilities.

Along with the Federal DDA, there is equivalent state legislation in eight Australian jurisdictions. Other national Acts, legal instruments and strategies covering accessibility include:

- [National Disability Insurance Scheme Act 2013 \[Cth\]](#).
- [Disability \[Access to Premises – Buildings\] Standards 2010 \[Cth\]](#).
- [National Disability Strategy 2010-2020](#).

## Accessibility and the procurement of services

The Australian Standard [AS EN 301.549:2016 'Accessibility requirements suitable for public procurement of technology products and services'](#) specifies a broad range of accessibility requirements applicable to technology products and services in the provision of government services [such as software, hardware and other form of technology which people may interact with]. It is identical with, and has been reproduced from, the European standard EN 301 549 V1.1.2. Its recommended practices may be referenced for the sourcing of touchscreen payment technology [outside of government services] as a documented approach for embedding accessibility within procurement.

## International frameworks

Internationally, Australia is a signatory to the [UN Convention on the Rights of Persons with Disabilities](#), designed to protect the rights and dignity of people with disabilities. Parties to the Convention are required to promote, protect, and ensure the full enjoyment of human rights by people with disabilities and ensure that they enjoy full equality under the law.

A number of banks and financial institutions worldwide, including in Australia, have signed up to the United Nations' [Principles for Responsible Banking](#), which champion sustainability at a holistic level through their commitments to the integration of environmental and social considerations into all aspects of their operations, including for clients and customers and by inference, including people with disability.

A number of Australian banks are also signatories to the United Nations [Sustainable Development Goals](#) for business which includes supporting ten goals including the protection of internationally proclaimed human rights, including those of people with disability.

## Other standards relating to accessibility

The [Web Content Accessibility Guidelines \(WCAG\)](#) has been developed through the [World Wide Web Consortium \(W3C\)](#) with the goal of providing a single shared standard for web content accessibility. WCAG includes useful information to reference relating to [keyboard design](#). Additionally, organisations providing content on web sites, not limited to but including information about the accessibility of their payment and other financial services, should be mindful of the WCAG Guidelines and how they relate to making web and mobile content accessible.



## Related Accessibility Frameworks

The Guidelines have been developed through reference to and alignment with existing principles around accessible and inclusive design, as outlined below.

### → Principles of Universal Design

The Guidelines draw on the objectives of the [Principles of Universal Design](#). The Principles were developed by a working group of architects, product designers, engineers and environmental design researchers with the North Carolina State University to aid the inclusive design of products and services to meet a wide range of access needs.

They are based on the philosophy that designing for accessibility benefits everyone. Think about the example of a ramp going into a building – it doesn't just support the wheelchair user with being able to access the premises. It is also used by people pushing prams, those using mobility aids or those pushing shopping trollies. Designing for the inclusion of people with a wide range of needs is good for customers, the community and for business.

#### The 7 Principles of Universal Design include:

- Equitable Use
- Flexibility in Use
- Simple and Intuitive Use
- Perceptible Information
- Tolerance for Error
- Low Physical Effort
- Size and Space for Approach and Use

### → The Australian Banking Association's Accessibility Principles

The Guidelines have a correlative relationship with the ABA's ['Every Customer Counts – Accessibility Principles for Banking Services'](#).

Specifically, section 2.4 of the ABA Principles covers 'Banking terminals, ATMs, EFTPOS and other devices'. It includes best-practice recommendations around the broader design and production, as well as user interface and functionality design to inform the accessible design of banking products.

# Accessibility In Practice

There are a number of additional practices that organisations involved in the procurement and design of touchscreen payment terminals can follow to create enhanced accessibility outcomes for people living with motor and / or vision impairments. They're based on the input from the disability community consultation sessions, feedback from AusPayNet members and documented global recommendations.

## → Commitment to accessibility

### Strategic approach to embedding accessibility in business practices

Organisations are encouraged to create Accessibility / Disability and Inclusion Action Plans, outlining their strategic approach around supporting customers, the community and employees with disability. Those doing this well are making new commitments every few years, which are then reported on and refreshed in regular update cycles. The Australian Human Rights Commission holds a [register of action plans](#) and development resources.

### Sponsorship and champions

Appointing a senior leader[s] as the 'Sponsor of Accessibility' within an organisation is also viewed as a best-practice way to drive the embedding of inclusion practices for people with disability. Coupled with an employee action group or champions, this creates a network of advocates who grow the capability and confidence of teams in designing accessible products and services.

### Industry advocacy

Organisations wanting to increase their confidence and capability in this space may consider becoming a member of a peak body such as the Australian Network on Disability, which supports organisations with advancing the inclusion of people with disability in all aspects of business.

## → Inclusive project design and implementation

### Accessibility embedded from the start

Building accessibility in as a key project requirement from the outset is viewed as more effective than bolting it on afterwards, as it reduces re-work, financial cost and allows for a multitude of needs to be scoped in from the start.

Best-practice requires that the business case for any new touchscreen payment technology requires accessibility to be embedded as a key decisioning point at all project phases from initiation to closure, with a 'no go' approach to inaccessible solutions.

During design, and prior to implementation, it is strongly recommended that users living with a range of impairments be engaged to trial the touchscreen payment solution and provide feedback.

## Accessibility is a funded priority

Specific funding for accessibility design, testing and review has to be factored into the project scope and business case, at an equal priority level as all other critical implementation factors such as security testing. Also, in general, retrofitting accessibility is more expensive than incorporating it into the design from the outset.

### Consulting with people with disability

By consulting with people living with a range of impairments from initial project planning and through key stages of the project, feedback can be incorporated into the business/user requirements to positively influence the accessibility outcomes of the solution.

#### Consultation outcomes

- Invite feedback from a representative cross-section of the community who can share their experiences of living with a range of disabilities.
- Be clear on the specific outcomes you're seeking feedback on so they can channel their input strategically.

#### Attendance

- When issuing invitations in an accessible format, be sure to ask for people to identify their accessibility requirements to be able to attend any forums.
- Ensure the venue is accessible and appropriate for the group and their required adjustments e.g. bringing carers or being wheelchair accessible.
- Limit group size and hold more sessions if necessary, to allow for everyone's input to be heard.
- Budget for potential assistive requirements such as having an Auslan sign language interpreter in the room or providing technology such as hearing loops for people with hearing impairments.

#### Materials

- All materials to be created in accessible and alternative formats and shared with the attendees ahead of the session.
- Send a follow-up thank you note highlighting key themes discussed with an attendance register.

#### Facilitation

- Ensure the facilitator is experienced in running consultation sessions and able to navigate and value multiple perspectives.
- Actively listen to accurately capture feedback and take notes for future reference.
- Structure the agenda to allow sufficient time for input, particularly if there are people with more complex communication needs represented in the session.

The UK's National Disability Authority provides best-practice ideas in its [\*Ask Me' Guidelines for Effective Consultation with People with Disabilities\*](#).

### → Accessible sourcing

Diversity, inclusion and accessibility objectives should ideally be built into organisational supply chain policies, particularly around the sourcing of payment terminal hardware or software, as general best-practice.

For payment projects, it is beneficial to:

- Ensure the business sponsor and the entire project team understands the critical importance of accessibility and are able to brief suppliers on the organisation's position relating to its significance, equal to other factors e.g. security.
- Include accessibility as a must-have in all scoping and tender requirements.
- Ask suppliers to demonstrate evidence of the solution being accessible across a wide range of impairments and meeting the practices outlined in the Guidelines.
- Consider the sourcing of touchscreen payment technology against Australian Standard *AS EN 301 549:2016* '*Accessibility requirements suitable for public procurement of ICT products and services*'.



## Supporting resources

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# Supporting resources

The following resources may be helpful references to support inclusive and accessible design and procurement of touchscreen payment terminal projects.

Resource theme	Source	Content
Accessible banking practices	Australian Banking Association	<a href="#"><i>'Every Customer Counts – Accessibility Principles for Banking Services'</i></a>
Accessible design	North Carolina State University.	<a href="#"><i>The 7 Principles of Universal Design</i></a>
	Government of South Australia	<a href="#">Online Accessibility Toolkit</a>
	Material Design	<a href="#">Resources for building accessibility into the User Interface</a>
	World Wide Web Consortium	<a href="#">Guidance on Applying WCAG 2.0 to Non-Web Information and Communications Technologies</a>
Security	Standards Australia	<a href="#">Electronic funds transfer - Requirements for interfaces PIN management and security - General</a>
Touchscreen design	University of Wisconsin-Madison	<a href="#"><i>Touchscreen performance by individuals with and without motor disabilities</i></a>
	Journal on Technology and Persons with Disabilities Santiago	<a href="#"><i>Touchscreen accessibility in self-service terminals</i></a>
Content e.g. web sites, written material	World Wide Web Consortium	<a href="#">Web Content Accessibility Guidelines</a>
	Australian Inclusive Publishing Initiative	<a href="#">Guides for Inclusive Publishing and Making Content Accessible</a>
	Australian Government	<a href="#">Accessibility &amp; Inclusivity Digital Guide</a>
	PDF Association	<a href="#">Creating accessible PDF documents</a>
Community consultation	National Disability Authority	<a href="#"><i>'Ask Me' Guidelines for Effective Consultation with People with Disabilities.</i></a>



## Glossary and definitions

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# Glossary and definitions

This glossary provides some generally used definitions of terms that are used in this document.

Term	Definition
<b>Accessibility mode</b>	Switching on various technology on demand to suit a user, such as text to speech, audio signals and intuitive gestures.
<b>Acquirer</b>	The bank or financial institution that processes credit or debit card payments on behalf of a merchant.
<b>ATM</b>	Automatic teller machine, an electronic communications terminal for financial transactions.
<b>Audio</b>	Sound, especially when recorded, transmitted or reproduced.
<b>Australian Human Rights Commission</b>	An independent third party which investigates complaints about discrimination.
<b>COTS</b>	Commercial off-the-shelf.
<b>Customer</b>	A person who buys goods or services from a shop or business.
<b>Disability Discrimination Act</b>	The Australian law which makes it illegal to discriminate against a person because of their disability.
<b>Haptic feedback</b>	A mode of communication that changes by simulating the sense of touch.
<b>Issuer</b>	Provider of payment cards to consumers on behalf of the card networks.
<b>Merchant</b>	A business such as a retailer or wholesaler who on-sells to customers.
<b>National Disability Insurance Scheme</b>	An Australian government scheme that provides funding to support Australians with significant and permanent disabilities, and their families and carers.
<b>PCI Security Standards</b>	Standards covering the development, enhancement, storage, dissemination and implementation of security for account data protection.
<b>PIN</b>	Personal identification number, a numeric or alpha-numeric password for authenticating a user.
<b>POS</b>	Point of sale, the time and place where a retail transaction is completed.
<b>Reasonable adjustments</b>	Changes to the environment that allow people with a disability to interact safely and securely.
<b>Retailer</b>	A person or business selling goods to the public for use or consumption rather than resale.



<b>Stylus</b>	A writing utensil or small tool, in this context for interacting with touchscreen panels.
<b>Tactile</b>	Designed to be perceived by touch; connected with the sense of touch.
<b>Tactile Keypad / Tactile PIN pad</b>	A means of entering information, particularly a PIN, into a system. In this context, a twelve-key layout with the rows consisting of 1,2,3/4,5,6/7,8,9/Cancel,0,OK and a raised dot on the '5' key.
<b>Touchscreen terminal</b>	A device that allows a user to interact directly without equipment like a mouse or keyboard via the screen.
<b>User</b>	A person who utilises a device or service.
<b>Virtual Keypad</b>	A method of entering numerical information by using a touchscreen or other representation of a keypad, where there are no physical buttons that are able to be discerned by touch.
<b>WCAG</b>	Web Content Accessibility Guidelines, an international standard for web content accessibility.
<b>W3C</b>	World Wide Web Consortium, an international community that works to develop Web standards.



#### **Contact us**

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