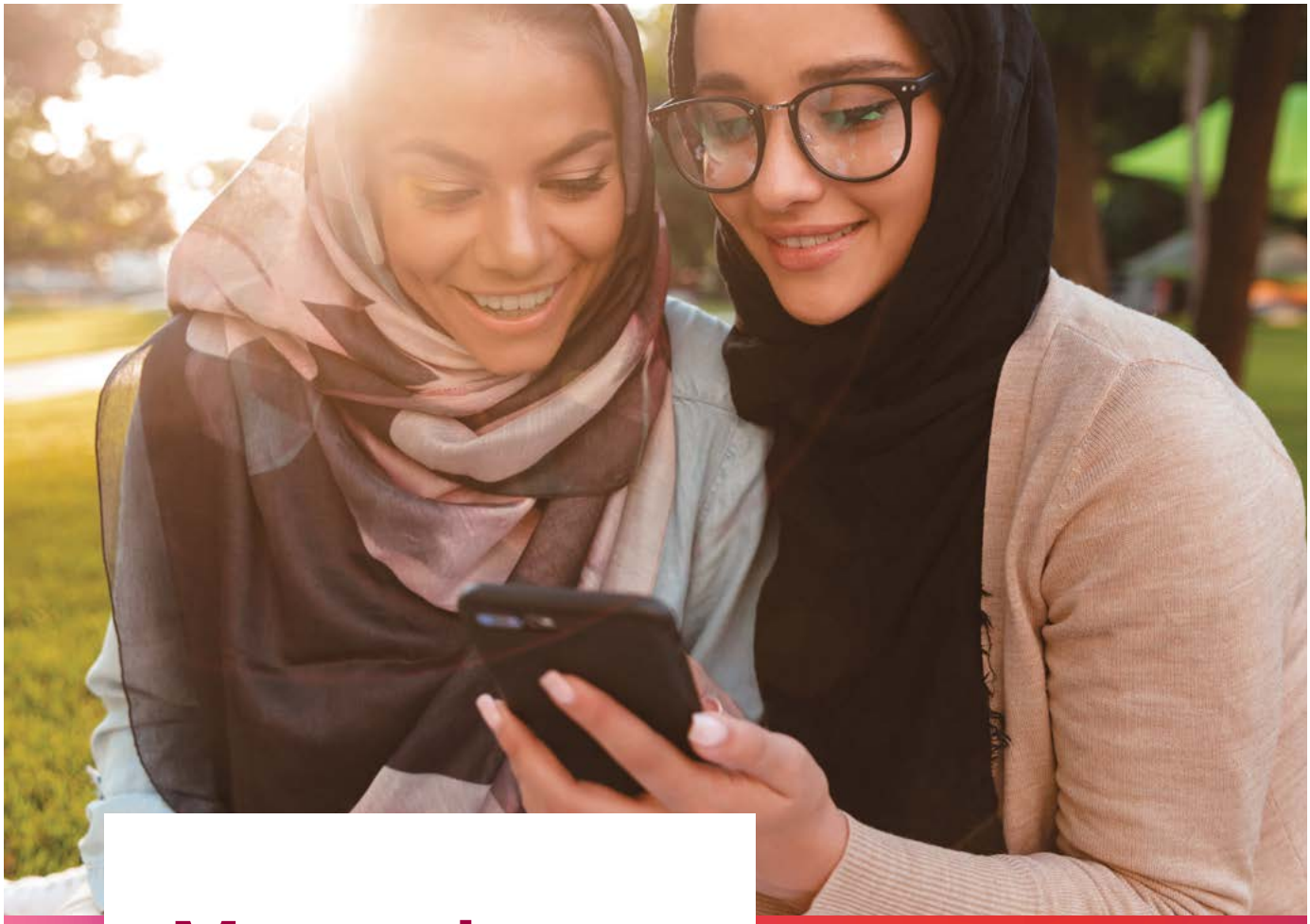

Measuring Australia's Digital Divide

The Australian Digital Inclusion Index 2019

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ROY MORGAN

CENTRE for SOCIAL IMPACT

SWINBURNE UNIVERSITY OF TECHNOLOGY

RMIT UNIVERSITY

Contents

About this report

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For more information about the ADII, and a full set of data tables, see **digitalinclusionindex.org.au**

Foreword

Australian Digital Inclusion Index 2019

Digital technologies play an increasingly central role in our lives and millions of Australians enjoy the many benefits they bring, whether it is running a business, accessing education and services, or connecting with family, friends and the world beyond. While this is exciting there remains a significant gap between those who are connected and those who are not. Across the nation the so-called “digital divide” follows some clear economic, social and geographic contours and broadly Australians with low levels of income, education, employment or in some regional areas are significantly less digitally included.

This report – the fourth Australian Digital Inclusion Index – brings a sharp focus to digital inclusion in Australia and while it is encouraging to see improvement year-on-year, and particularly in regional Australia, it is clear there is still a lot to be done.

Removing the digital divide sits at the heart of Telstra’s purpose which is to build a connected future so everyone can thrive. That purpose guides our ongoing commitment to programs across the country to build accessibility, affordability and digital skills.

We continue to warmly welcome the chance to work closely with RMIT University, the Centre for Social Impact (Swinburne University of Technology), and Roy Morgan on this important project. I am certain it continues to play a major role in deepening our understanding of the key issues, in measuring our shared progress and helping to drive informed action for greater digital inclusion across Australia.

Andrew Penn

CEO, Telstra

Acknowledgements

The research team would like to thank the many people and organisations that have made this fourth iteration of the Australian Digital Inclusion Index (ADII) possible. Understanding digital inclusion in Australia is an ongoing project. We look forward to exploring the full potential of the ADII in collaboration with our partners and the broader community.

We wish to acknowledge and thank our project partners. Telstra for supporting and enabling this research – in particular, Abigail Brydon, Michael Parks and Robert Morsillo, for sharing their knowledge, expertise, and good advice.

Many thanks to the Centre for Appropriate Technology and the Pormpuraaw community for their assistance in conducting and completing the ADII Supplementary Survey. Many thanks also to the CALD migrant community of Shepparton, where the recently-arrived migrant community ADII Supplementary Survey was conducted. In particular, we would like to thank FamilyCare, Uniting, the Ethnic Council of Shepparton, Gouge Linen & Garment Services and District and Project Partnerships.

We also thank RMIT University and Swinburne University of Technology for their ongoing support, and our colleagues at Roy Morgan for their assistance in making the ADII a reality. Particular thanks to our colleagues at the Digital Ethnography Research Centre (RMIT University) and the Centre for Social Impact (Swinburne University of Technology) for their advice and valuable support.

The research team

The ADII research team was led by Professor Julian Thomas at RMIT University, working with:

Professor Jo Barraket, Swinburne University of Technology

Dr Chris K Wilson, Swinburne University of Technology

Associate Professor Ellie Rennie, RMIT University

Executive summary

The benefits of the digital economy cannot be shared when some members of the community are still facing real barriers to online participation

With a growing range of education, information, government, and community services moving online, internet access is increasingly regarded as an essential service. The benefits of the digital economy cannot be shared when some members of the community are still facing real barriers to online participation. Digital inclusion is based on the premise that everyone should be able to make full use of digital technologies – to manage their health and wellbeing, access education and services, organise their finances, and connect with friends, family, and the world beyond. Digital inclusion is likely also to be important for our national welfare: it is, for example, a necessary element in the environmental, social and economic transformations embodied in the United Nations Sustainable Development Goals.

The Australian Digital Inclusion Index (ADII) was first published in 2016, providing the most comprehensive picture of Australia's online participation to date. The ADII measures three vital dimensions of digital inclusion: Access, Affordability, and Digital Ability. It shows how these dimensions change over time, according to people's social and economic circumstances, as well as across geographic locations. Scores are allocated to particular geographic regions and sociodemographic groups, over a six-year period from 2014 to 2019. Higher scores mean greater digital inclusion. This 2019 ADII report incorporates data collected up to March 2019, and revises earlier editions.

Digital inclusion is improving in Australia

Australians are connecting more devices to the internet, consuming more data and participating in a greater range of social, cultural, and economic activities online. Since data was first collected in 2014, Australia's overall digital inclusion score has risen by 7.9 points, from 54.0 to 61.9 and improvements have been evident across all three dimensions of digital inclusion – Access, Affordability and Digital Ability. In the past year alone, Australia's digital inclusion score increased 1.7 points, from 60.2 to 61.9. Scores for every state and territory increased over this period. South Australia recorded the largest improvement (2.7 points). Although a number of groups continue to record low digital inclusion scores, each of the lowest scoring groups registered some improvement in the past year.

Table 1: Ranked scores for states and territories (ADII 2019)

Rank	State/Territory^	ADII Score	Points change since 2018
1	ACT	67.6	+1.3
2	Victoria	63.3	+1.9
3	New South Wales	61.8	+1.0
4	Western Australia	61.3	+1.5
5	Queensland	60.9	+2.1
6	South Australia	60.2	+2.7
7	Tasmania	58.1	+1.2
	Australia	**61.9**	**+1.7**

^ NT has been excluded based on sample size (<150)
Source: Roy Morgan Single Source, March 2019.

Table 2: Ranked scores for groups with low digital inclusion (ADII 2019)

Rank	Select Demographic	ADII Score	Points change since 2018
1	Household Income Q5 (Under $35k)	43.3	+2.1
2	Mobile Only	43.7	+1.1
3	Aged 65+	48.0	+2.1
4	Less than secondary education	49.4	+2.1
5	Disability	52.0	+2.4
6	Household Income Q4 ($35-60k)	53.1	+1.8
7	Not in labour force	53.8	+1.9
8	Indigenous Australians	55.1	+1.0
9	Completed Secondary	59.6	+1.1
10	Aged 50-64	60.4	+2.3
	Australia	**61.9**	**+1.7**

Source: Roy Morgan Single Source, March 2019.

The gaps between digitally included and excluded Australians are substantial and widening for some groups

Across the nation, digital inclusion follows some clear economic and social contours. In general, Australians with low levels of income, education, and employment are significantly less digitally included. There is consequently a substantial digital divide between richer and poorer Australians. In 2019, people in Q5 low-income households have a digital inclusion score of 43.3, which is 30.5 points lower than those in Q1 high-income households (73.8). Although this gap has narrowed by 0.4 points since 2018, it remains at the same level as recorded in 2014 (30.5). Since 2014 the gap between employed Australians and those not in the labour force (NILF) has widened from 12.6 points in 2014 to 13.1 points in 2019.

Rural Australia leads the way in NBN take-up and Access improvements

Nationally, Access has improved steadily over the five years since 2014, from 63.9 in 2014 to 75.7 in 2019. Australians are accessing the internet more often, using an increasingly diverse range of communication technologies and purchasing more data than ever before. The uptake of NBN fixed broadband services has been a key factor underpinning the nationwide improvement in Access – both directly, as an enhanced form of connectivity and indirectly by encouraging fixed broadband uptake and raising average fixed broadband data allowances. Furthermore, as a consequence of the prioritisation of rural areas in the NBN rollout schedule, rural Australians currently have a proportionately greater uptake of NBN fixed broadband services than their city counterparts. This has been a factor in reducing the gap in Access between Australians living in capital cities and Australians living in rural areas.

Building digital confidence is important for enhancing digital inclusion

Nationally, all three components of Digital Ability (Attitudes, Basic Skills and Activities) have improved in each year since 2014. Although an increasing proportion of Australians are engaging in a range of basic and more advanced internet activities and are keen to have continuous internet access, there remain significant attitudinal barriers to effective and rewarding internet participation. Indeed, under half of all Australians think computers and technology give them more control over their lives and less than 40% feel they can keep up with a changing technological landscape. This suggests addressing issues of Digital Ability should not simply target skill building but also seek to reduce anxieties about the use of digital technologies and build an appreciation of the value of being online.

Although value for money has improved, Affordability remains a key challenge

Affordability has improved only marginally since 2014. While the cost of internet data has gone down, households are now spending more money on internet services to account for more usage. Expenditure on these services has increased faster than increases in household income. Therefore, a growing share of household income is devoted to internet services (up from 1.00% in 2014 to 1.18% in 2019). This is reason for concern, particularly for people on low and fixed incomes.

Mobile-only users are less digitally included

More than four million Australians access the internet solely through a mobile connection – this means they have a mobile phone or mobile broadband device with a data allowance, but no fixed connection[1]. In 2019, mobile-only users have an ADII score of 43.7, some 18.2 points lower than the national average (61.9). Being mobile-only not only diminishes Access, but also impacts on the Affordability and Digital Ability aspects of digital inclusion. Mobile-only use is linked with socio-economic factors, with people in the lowest household income quintile (30.7%), those with low levels of education (28.0%), and the unemployed (25.3%) more likely to be mobile-only.

The Age Gap is substantial but narrowed in 2019

People aged 65+ are Australia's least digitally included age group. The ADII score for this age group is 48.0, some 19.5 points lower than the most digitally included age group (people aged 25-34 years). For the first time since 2014, this Age Gap narrowed slightly, down from 20.5 points in 2018.

The digital inclusion gap between Australians with disability and other Australians is substantial but narrowed in 2019

Australians with disability (classified in the ADII as receiving disability pensions) have a low level of digital inclusion compared to other Australians. In 2019, they have an ADII score of 52.0, 9.9 points lower than the national average. The ADII score gap between Australians with disability and the national average narrowed slightly in the past year (from 10.6 points to 9.9 points), reversing the trend from the previous year (2017-2018) when the gap widened from 10.0 to 10.6 points. While this is positive news, the gap remains large and is underpinned by a significant gap in Affordability.

Indigenous digital inclusion is low, but improving

Indigenous Australians living in urban and regional areas have low digital inclusion (55.1, or 6.8 points below the national average). Although their digital inclusion score rose by 1.0 point in the past year, this was less than the rise in the national average (up 1.7 points).

While Indigenous Australians score below the national average on each of the three ADII sub-indices, Affordability remains the key issue for this group. The prevalence of mobile-only connectivity, which carries higher costs per gigabyte than fixed connections, contributes to poor levels of Affordability amongst Indigenous Australians.

ADII Supplementary survey research conducted in the far north Queensland remote Indigenous community of Pormpuraaw and the central Australian remote Indigenous community of Ali Curung suggest digital inclusion for Indigenous Australians further diminishes with remoteness, particularly with regards to Access and Affordability.

Culturally and Linguistically Diverse migrants

Cultural and Linguistically Diverse (CALD) migrants, defined as people born in non-main English speaking countries who speak a language other than English at home[2], have a relatively high level of digital inclusion. In 2019, the ADII score for CALD migrants is 64.7, 2.8 points above the national average (61.9), with above average levels of Access, Affordability and Digital Ability.

ADII Supplementary survey research conducted with recently-arrived CALD migrants who tend to have arrived under the humanitarian immigration program revealed a distinct pattern of digital inclusion. The level of digital inclusion recorded by this group was lower than the national average, largely as a result of very low levels of affordability.

Geography plays a critical role

The ADII reveals substantial differences between Australians living in rural and urban areas. In 2019, digital inclusion is 8.1 points higher in capital cities (63.8) than in country areas (55.7). Nationally, the general trend has been a narrowing of the Capital–Country Gap since 2015, (from 9.6 points in 2015 to 8.1 points in 2019). However, there has been substantial fluctuation in the Capital–Country Gap across the states and territories since 2014. Over the past 12 months, the gap has narrowed in New South Wales (NSW), Victoria (VIC), South Australia (SA) and Queensland (QLD), but widened in Tasmania (TAS) and Western Australia (WA).

Some Australians are particularly digitally excluded

The ADII points to several socio-demographic groups that are Australia's most digitally excluded in 2019, with scores 10.0 or more points below the national average (61.9). These groups in ascending order include: people in Q5 low-income households (43.3), mobile-only users (43.7) people aged 65+ (48.0), and people who did not complete secondary school (49.4).

Collaboration across all levels of government is needed

If the benefits of digital technology are to be shared by all Australians, digital inclusion should form an integral part of the state and national economic policy making and strategic planning. With the NBN nearing completion, Digital Ability and Affordability remain critical areas for attention. Collaboration across all three levels of government (which are rapidly moving their services online) is needed to improve the digital skills of excluded communities and people 50+ in the workforce. Consideration should also be given to digital inclusion as a key commitment in the Closing the Gap agenda[3], with a program of research to measure and monitor digital inclusion in remote Indigenous communities.

Introduction

What is digital inclusion?

As the internet has become the default medium for everyday exchanges, information-sharing, and access to essential services, being connected is now a necessity, rather than a luxury. However, some groups and individuals still face real barriers to participation. In recent years the overall digital divide has narrowed, but where gaps exist, it has also deepened. Latest ABS data shows that over two and a half million Australians are not online[4]. These Australians are at risk of missing out on the advantages and assistance that digital technologies can offer.

> Digital inclusion is whether a person can access, afford and have the digital ability to connect and use online technologies effectively

Digital inclusion is about bridging this digital divide. It is based on the premise that all Australians should be able to make full use of digital technologies: to manage their health and wellbeing, access education and services, organise their finances, and connect with friends, family, and the world beyond.

The goal of digital inclusion is to enable everyone to access and use digital technologies effectively. It goes beyond simply owning a computer or having access to a smartphone. Social and economic participation lies at the heart of digital inclusion: using online and mobile technologies to improve skills, enhance quality of life, educate, and promote wellbeing, civic engagement and sustainable development across the whole of society.

There are also larger national goals at stake. Digital inclusion is a necessary condition for the social, economic, and environmental transformations set out, for example, in the United Nations Sustainable Development Goals (SDGs). Innovation leading to improved outcomes in health and education, sustainable cities, labour markets, and the justice system are likely to rely on high levels of participation, skills, and engagement with digital technologies[5].

The Australian Digital Inclusion Index

The Australian Digital Inclusion Index (ADII) has been created to measure the level of digital inclusion across the Australian population, and to monitor this level over time. Using data collected by Roy Morgan, the ADII has been developed through a collaborative partnership between RMIT University, Swinburne University of Technology, and Telstra.

A growing body of Australian and international research has outlined the various barriers to digital inclusion, the benefits of digital technologies, and the role of digital engagement in social inclusion. Single studies have also measured how different social groups access and use the internet. However, the inaugural ADII report published in 2016 was the first substantive effort to combine these findings into a detailed measure of digital inclusion across Australia.

In our increasingly digitised world, it is vital that all Australians are able to share the advantages of being connected. By presenting an in-depth and ongoing overview, identifying gaps and barriers, and highlighting the social impact of digital engagement, the ADII aims to inform policy, community programs, and business efforts to boost digital inclusion in Australia.

Measuring digital inclusion

For affected groups and communities, researchers, practitioners, and policy-makers alike, digital inclusion poses a complex challenge. It has an important goal that calls for a coordinated effort from multiple organisations, across many sectors.

For the benefits of digital technology to be shared by everyone, barriers to inclusion must be identified and tackled from the outset. While access to technology was considered the primary driver of digital inequality in the early days of the internet, over time a more holistic and human-centred conceptualisation of digital inequality has emerged recognising the role digital skills, attitudes and affordability of access play in helping or hindering digital participation. A more complex appreciation of digital inclusion has generated demand for more complex measurement tools. Composite digital inclusion indices that systematically combine a set of distinct indicators first appeared at the international analytical level in the early 2000s. Such indices focus on quantifying digital inclusion at the national level to enable international comparison. The International Telecommunications Union (ITU) has been a pivotal player in the development of such indices, beginning with the Digital Access Index in 2003[6]. Its latest index, the ICT Development Index[7], combines data on communication service subscriptions, home computer and internet access, internet usage, and skills proxy indicators (mean years of schooling, gross secondary enrolment, and gross tertiary enrolment) for 176 countries to generate three sub-indices: access, use and skills. Since 2017, The Economist Intelligence Unit has collated an annual Inclusive Internet Index. The index combines personal, institutional and infrastructural indicators divided into four domains (availability, affordability, relevance and readiness) to generate a holistic view of a country's level of internet inclusion[8].

More focused and complex national digital inclusion indices have subsequently been developed. One of the first was South Korea's Digital Divide Index (DDI). First compiled in 2004, it incorporates indicators across three dimensions of digital divide – access, skills and utilisation – and measures relative digital inequality between a number of socio-economically disadvantaged groups and the general population over time[9]. A more recent development is the Lloyds Bank UK Consumer Digital Index, compiled annually since 2016. Reflecting an increasing use of data analytics, this index aggregates data from multiple surveys and bank transaction records to generate financial and digital capability scores[10] (Lloyds Bank, 2018). This data has been further used as an input into the Digital Exclusion Heatmap created by Tech Partnership, a UK digital skills development alliance[11]. (The Tech Partnership, 2017). The Digital Exclusion Heatmap is a predictive geographic digital inclusion index combining data on digital access, infrastructure and a range of social metrics.

In Australia, a range of data relating to digital inclusion has been captured by government, commercial and non-government organisations, although the range of source data is diminishing with the Australian Bureau of Statistics (ABS) reducing some collection activity[12]. The most important and current sources include the Australian Bureau of Statistics' (ABS) biennial Household Use of Information Technology (HUIT) survey[13]. Since 2001 the ABS Census of Population and Housing has also been utilised to capture data on internet access[14]. The Australian Communications and Media Authority (ACMA) publishes regular research on aspects of Australian digital access and activity[15], while the professional services group EY Sweeney has produced three iterations (2014, 2015-16, 2017) of their Digital Australia State of the Nation report[16]. While each of these sources identifies and examines particular aspects of digital inclusion in Australia, the ADII is able to combine multiple indicators across three dimensions (Access, Affordability and Ability) in a composite index generating a complex and comprehensive picture of digital inclusion in Australia.

Methodology in brief

Digital inclusion is a complex, multi-faceted issue with elements including access, affordability, usage, skills, and relevance. To inform the design of the ADII, a Discussion Paper was publicly released in September 2015, and responses sought[17].

Feedback revealed a clear desire for highly detailed geographic and demographic data. In response, researchers worked with Roy Morgan to obtain a wide range of relevant data from their ongoing, weekly Single Source survey that interviews 50,000 Australians per year. Calculations for the ADII are based on a sub-sample of approximately 15,000 responses in each 12-month period. From these extensive face-to-face interviews and product poll surveys, Roy Morgan collects data on internet and technology products owned, internet services used, personal attitudes, and demographics.

This rich, ongoing data source allows the ADII to report a wide range of relevant social and demographic information, and enables comparisons over time. For more detail on the Single Source survey, please see Appendix: Methodology.

The digital inclusion score

The ADII is designed to measure three key aspects or dimensions of digital inclusion: Access, Affordability, and Digital Ability. These dimensions form the basis of three sub-indices, each of which is built from a range of variables (survey questions) relating to internet products, services, and activities. The sub-indices contribute equally and combine to form the overall ADII.

The ADII compiles numerous variables into a score ranging from 0 to 100. The higher the overall score, the higher the level of inclusion. Scores are benchmarked against a 'perfectly digitally included' individual – a hypothetical person who scores in the highest range for every variable. While rare in reality, this hypothetical person offers a useful basis for comparison. This individual:

- accesses the internet daily, both at home and away
- has multiple internet products (fixed and mobile)
- has a cable or NBN fixed broadband connection
- has a mobile and fixed internet data allowance greater than our benchmarks
- spends less money on the internet (as a proportion of household income) and receives more value (data allowance per dollar) than our benchmarks, and
- exhibits all the positive Attitudes, Basic Skills, and Activity involvement listed.

ADII scores are relative: they allow comparisons across sociodemographic groups and geographic areas, and over time. Score ranges indicate low, medium, or high levels of digital inclusion, as below:

Table 3: ADII and sub-index score ranges: low, medium, high

Index	Low	Medium	High
Access	< 65	65–75	> 80
Affordability	< 45	50–60	> 65
Digital Ability	< 40	45–55	> 60
DIGITAL INCLUSION INDEX	**< 50**	**55–65**	**> 70**

ADII time series data

The ADII time series data presented in each annual ADII report is derived from the most current Roy Morgan Single Source dataset. This data can differ slightly from that released in prior-year reports as the dataset is subject to slight weighting changes. In addition, minor refinements to some of the variables underlying the ADII are applied to the time series data released with each report.

Readers should note that the historical ADII results presented in this 2019 report (2014, 2015, 2016, 2017 and 2018) have been updated and will slightly differ from those published in previous reports. While the combination of weighting changes and minor variable refinements alter the actual ADII numbers for past years, the broader narrative regarding digital inclusion in Australia remains unchanged: there is little to no impact on the trends and relative results for different cohorts.

To conduct time-series analysis, readers should not compare data from each of the annual ADII published reports, but consult the revised historical data on the ADII website: **https://digitalinclusionindex.org.au**

The sub-indices

Each of the ADII's three sub-indices is made up of various components, which are in turn built up from underlying variables (survey questions).

The Access sub-index has three components:

- **Internet Access:** frequency, places, and number of access points
- **Internet Technology:** computers, mobile phones, mobile broadband, and fixed broadband
- **Internet Data Allowance:** mobile and fixed internet.

The Affordability sub-index has two components:

- **Relative Expenditure:** share of household income spent on internet access
- **Value of Expenditure:** total internet data allowance per dollar of expenditure.

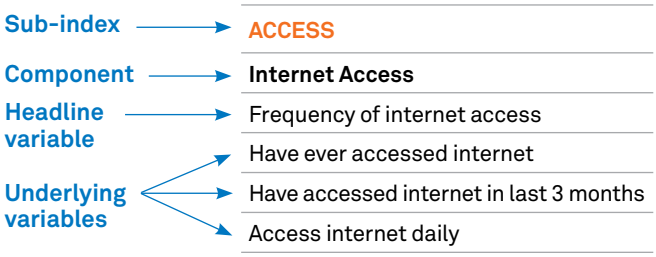
The Digital Ability sub-index has three components:

- **Attitudes:** including notions of control, enthusiasm, learning, and confidence
- **Basic Skills:** including mobile phone, banking, shopping, community, and information skills
- **Activities:** including accessing content, communication, transactions, commerce, media, and information.

Structure of the ADII

The following diagram illustrates how each sub-index is structured, with the various elements labelled.

Figure 1: Example of sub-index structure, ADII



The ADII research methodology (including an explanation of the underlying variables, the structure of the sub-indices, and the margins of error) is outlined in the Methodology section of the Appendix. More information about the ADII, along with a full set of data tables, is available at **www.digitalinclusionindex.org.au**

The ADII Supplementary Survey

In 2018, the ADII team developed the ADII Supplementary Survey. This digital survey tool can be used to derive digital inclusion index scores (including sub-index and component scores) comparable to the ADII. It was created to enable targeted data capture from population segments underrepresented in the ADII.

The ADII Supplementary Survey consists of specific questions from the Roy Morgan Single Source survey that are used to compile the Index. The vast majority of these questions are directly transposed. A few questions have minor modifications to ensure they work using a digital interface (computer, tablet or mobile phone) to produce comparable results to the Single Source method.

In-field testing confirms that the composition of the ADII Supplementary Survey does not bias results when compared to the ADII. Note that the sample selection will impact results.

Reading the data

- **Timeframe:** data has been collected for six years: 2013–2014, 2014–2015, 2015–2016, 2016–2017, 2017–2018 and 2018–2019. For each year, data was collected from April to March.
- **Sample sizes:** small sample sizes can render results less reliable. Where asterisks appear in the tables, these signify small sample sizes for that particular group, as follows: *Sample size <150, exercise caution in interpretation; **Sample size <75, exercise extreme caution in interpretation.
- **Regional breakdowns:** to aid comparison, data for each state is displayed alongside scores for Australia as a whole, and for the capital city and sub-regions, regional centres and rural areas within that state.
- **Relative expenditure:** this component of the Affordability sub-index is based on the share of household income spent on internet access. The current national average is 1.18% of household income. Affordability improves as this share decreases.
- **Value of expenditure:** this component of the Affordability sub-index is based on the amount of data allowance obtained per dollar of expenditure. The current national average is 4.9GB per dollar. Affordability improves as this amount in increases.
- **Age:** scores for each state are captured across five different age brackets, from people aged 14–24 years to people aged 65+. National data for people aged 65+ is further divided into four groups (65-69, 70-74, 75-79, and 80+).
- **Income:** this is presented in five household income ranges. Each range covers approximately 20% of the population (one quintile). The ranges from high to low income are: Q1: $150,000 or more | Q2: $100,000 to $149,999 | Q3: $60,000 to $99,999 | Q4: $35,000 to $59,999 | Q5: under $35,000.
- **Employment status:** this is divided into three groups in this report – people in full or part-time employment (Employed), those seeking employment (Unemployed), and those not in the labour force (NILF) as they are not employed or seeking employment. The latter group is composed of retirees (60%), students (20%), and home duties/other (20%).
- **Educational attainment:** this is divided into three levels of completion – Tertiary (degree or diploma), Secondary (completed secondary school), and Less (did not complete secondary school).
- **Disability:** people with disability are defined as those receiving either the disability support pension (DSP) from Centrelink, or the disability pension from the Department of Veterans' Affairs.
- **Indigenous Australians:** the term is used to define people that self-identify as being of Aboriginal or Torres Strait Islander origin. Note, the ADII does not capture data from Indigenous Australians in remote communities.
- **Culturally and Linguistically Diverse (CALD) migrants:** people born in non-main English speaking countries that speak a language other than English at home[18].
- **Capital-Country Gap:** the difference in ADII scores recorded by capital city residents and residents of rural Australia.
- **Age Gap:** the difference in ADII scores recorded by those aged 65+ and those in the age group reporting the highest ADII score.
- **Income Gap:** the difference in ADII scores recorded by members of Q5 low-income households and members of Q1 high-income households.
- **Employment Gap:** the difference in ADII scores recorded by those not in the labour force (NILF) and those in employment.
- **Education Gap:** the difference in ADII scores recorded by those who did not complete secondary school and those who have completed tertiary education.
- **Gender Gap:** the difference in ADII scores recorded by females and males.

Australia: the national picture

Findings

The 2019 ADII provides a great deal of new information about digital inclusion in Australia. At a national level, digital inclusion is steadily increasing. Over the five years since 2014, we have seen marked improvements in some dimensions of the ADII – for example, a steady rise in overall Access and Digital Ability.

In other areas, progress has fluctuated or stalled, and in some cases, the digital divide has widened. An ADII score of 100 represents a hypothetically perfect level of Access, Affordability, and Digital Ability. Australia's overall national score has increased from 54.0 in 2014, to 61.9 in 2019 (a 7.9-point increase over five years). Since 2018, the national score has risen by 1.7 points. Australia's overall performance indicates a medium level of digital inclusion, with mixed progress across different ADII dimensions, geographic areas, and sociodemographic groups.

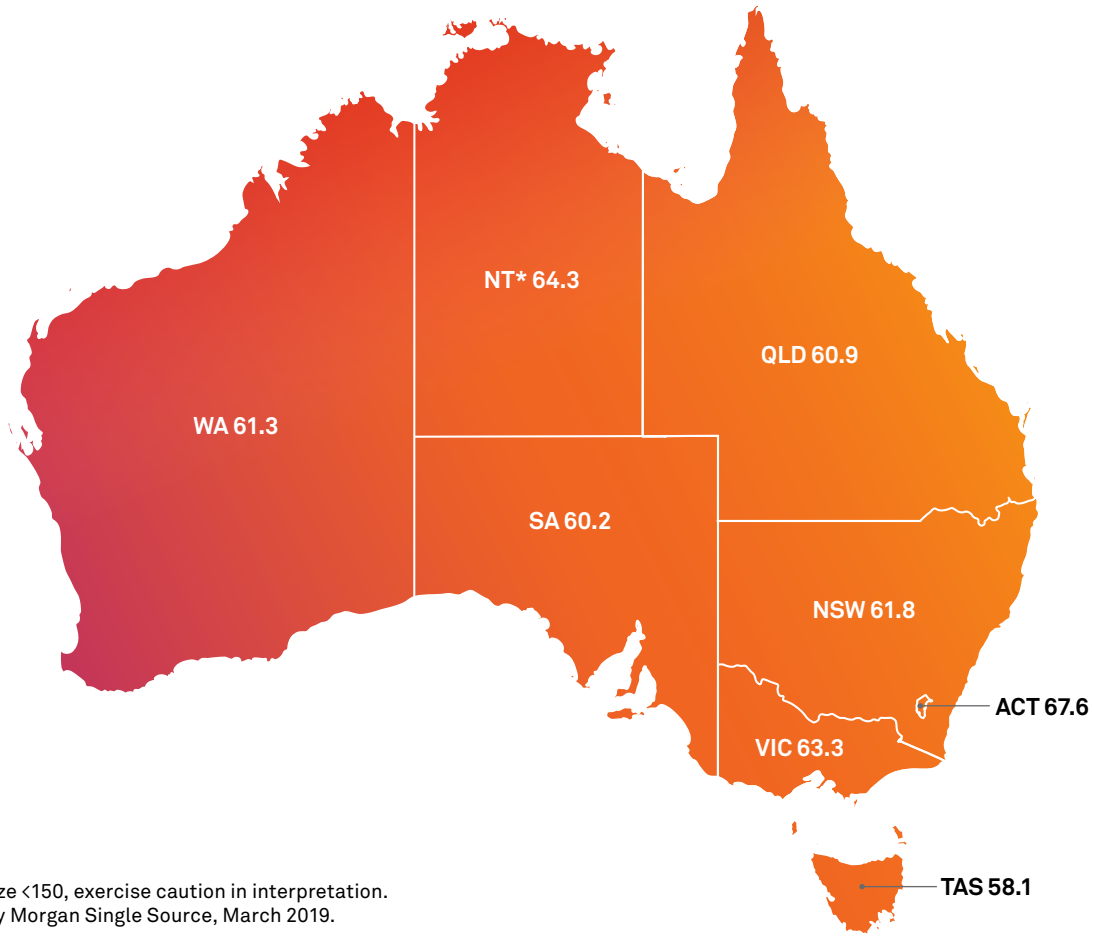
The ADII confirms that digital inclusion is unevenly distributed across Australia and is influenced by differences in income, age, education levels, and employment. In general, urban, wealthier, younger, more educated, and employed Australians enjoy much greater digital inclusion. Some Australian communities are falling further behind, while some are making little progress in closing the gap with others. The gap between employed Australians and those not in the labour force has widened since 2014, as has the gap between Australians aged 65+ and the most digitally included age group (those aged 25-34). The gap between people in low and high-income households has stalled at its 2014 level.

> Digital inclusion is influenced by differences in income, age, education levels, employment and geography

While people in capital cities record greater levels of digital inclusion than those residing in rural Australia, the gap between these groups has narrowed slightly in the last few years. In part, this is due to the priority rural Australia has been given in the NBN rollout schedule. A greater proportion of rural Australians have NBN fixed broadband services than their city counterparts.

There are some stark differences in digital inclusion at the state and territory level. In 2019, the Australian Capital Territory (ACT) has the highest level of digital inclusion (67.6). It has recorded the highest score of all states and territories in every year for which ADII data is available (2014-2019). The gap between the ACT and other states and territories has fluctuated over this period. The gap between the ACT and the

Australia: The national picture 2019
National ADII score: 61.9



*Sample size <150, exercise caution in interpretation.
Source: Roy Morgan Single Source, March 2019.

state with the lowest ADII score was widest in 2016 (13.6 points) and lowest in 2018 (9.4 points). This year the gap between the ACT and the lowest scoring state (Tasmania) is 9.5 points.

In the past 12 months, South Australia (SA) recorded a larger improvement in digital inclusion than all other states (2.7 points). This improvement has been underpinned by a rise in Access related to NBN fixed broadband uptake. SA is now the state with the second highest level of NBN fixed broadband uptake after Tasmania (TAS). Digital inclusion continued to improve in TAS in the past year (1.2 points), but the improvement was modest compared to that which the state recorded over 2017-2018 (6.8 points). NBN fixed broadband service access doubled between 2017 and 2018, but uptake seems to have peaked with essentially no further increase over 2018-2019.

Since 2014, two states outpaced the Australia-wide increase of 7.9 points: SA (up 9.9), and VIC (up 9.0). QLD (up 7.8), TAS (up 7.7) the ACT (up 7.3), NSW (up 6.9) and WA (up 6.3), did not keep pace with the national increase.

Dimensions of digital inclusion: the sub-indices over time

The ADII is made up of three sub-indices or dimensions tracking different aspects of digital inclusion: Access, Affordability, and Digital Ability.

Access is about how and where we access the internet, the kinds of devices we use to access it, and how much data we can use. Affordability is about how much data we get for our dollar, and how much we spend on internet services as a proportion of our income. Digital Ability is about our skill levels, what we do online, our attitudes towards technology, and our confidence in using it. Taken together, these measures give us a unique, multi-faceted picture of digital inclusion.

The rise in Australia's ADII score has mainly been driven by improvements in Access (from 63.9 in 2014 to 75.7 in 2019) and Digital Ability (from 42.2 in 2014 to 50.8 in 2019). The national Affordability score fell from 56.0 to 54.0 points between 2014 and 2016. The recovery since 2016 has been modest yet constant. The 2019 Affordability score is 59.2.

On a national scale, Access is relatively strong while Digital Ability is relatively weak. Affordability will cause particular concern in the case of digitally excluded groups. There is scope for further targeted interventions across all three dimensions of the ADII.

Access

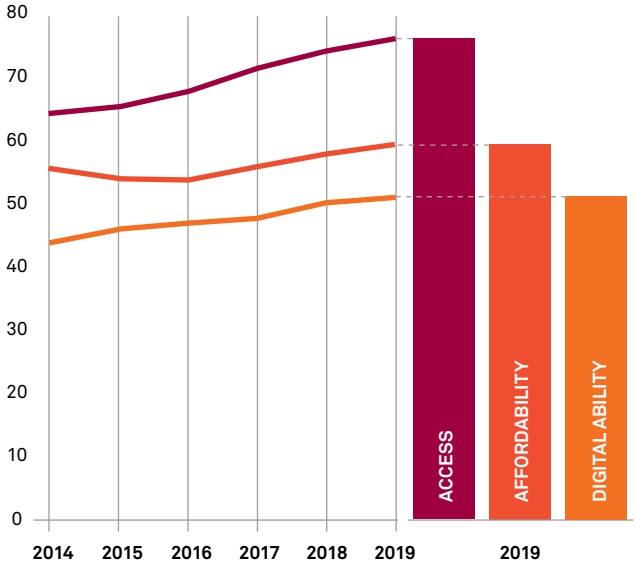
Each of the three components of the Access sub-index (Internet Access, Internet Technology and Internet Data Allowance) have improved year-on-year since 2014.
The Internet Access component was already relatively high at 82.7 in 2014 and has made marginal annual improvements since, rising to 87.9 in 2019. The Internet Technology and Internet Data Allowance scores both started from a lower base, but have risen substantially over the five years to 2019. The national Internet Technology score rose from 68.2 in 2014 to 80.4 in 2019, while the Internet Data Allowance score rose from 40.8 in 2014 to 58.7 in 2019. This reflects several developments over the past five years, including the proliferation of an ever-expanding array of connected consumer devices (from smart phones to smart fridges, digital personal assistants to digital fitness trackers)[19], and the growing demand for data as internet connectivity has become integral to the daily lives of Australians[20]. It also reflects improvements to mobile and fixed network infrastructure[21].

Table 4: Australia: sub-index scores over time (ADII 2014–2019)

Australia	2014	2015	2016	2017	2018	2019
ACCESS						
Internet Access	82.7	83.3	84.4	85.4	87.1	87.9
Internet Technology	68.2	69.1	73.0	75.7	78.6	80.4
Internet Data Allowance	40.8	41.5	45.7	51.2	54.5	58.7
	63.9	**64.6**	**67.7**	**70.8**	**73.4**	**75.7**
AFFORDABILITY						
Relative Expenditure	60.3	58.7	55.0	54.9	54.3	54.6
Value of Expenditure	51.6	49.8	52.9	56.9	61.0	63.9
	56.0	**54.3**	**54.0**	**55.9**	**57.6**	**59.2**
DIGITAL ABILITY						
Attitudes	45.9	47.3	49.2	50.1	50.9	51.2
Basic Skills	46.6	49.7	51.7	53.3	56.8	58.1
Activities	34.2	36.1	37.2	38.4	41.1	43.1
	42.2	**44.4**	**46.0**	**47.3**	**49.6**	**50.8**
DIGITAL INCLUSION INDEX	**54.0**	**54.4**	**55.9**	**58.0**	**60.2**	**61.9**

Source: Roy Morgan Single Source, March 2019.

Figure 2: Australia: sub-index trends over time (ADII 2014–2019)



Source: Roy Morgan Single Source, March 2019.

The NBN fixed network infrastructure project has a range of implications for digital inclusion as examined in detail in the NBN Case Study, pp. 26-27. In relation to the Access sub-index, the NBN rollout has generated discernable improvements in the Internet Technology and Data Allowance components. The impact on these components is multidimensional, and there are three reasons for this.

First, switching from other broadband technologies to the NBN generates a higher Internet Technology score. The Index rates NBN and cable connections as better fixed broadband technologies than their pre-NBN alternatives, given their capacity for higher speeds and improved reliability[22].

Second, detailed ADII data analysis suggests that the NBN rollout may encourage those previously without

fixed broadband to establish a connection[23]. There are a number of possible reasons for this, one being consumer awareness: in the 18-month switch-over window, households in areas with NBN access must make decisions about new telecommunications products. Since fixed broadband connectivity is considered to enhance digital inclusion, taking up such a service generates a higher Internet Technology score.

Third, the average data allowance for those with NBN connections is 12% higher than those on other types of fixed broadband[24]. One reason for this may be that NBN subscribers tend to have newer plans with higher data allowances than those with older 'legacy' ADSL and other fixed broadband plans[25]. Regardless, increasing levels of NBN connectivity translates into larger average fixed broadband data allowances and therefore higher Internet Data Allowances scores.

Notably, plans with higher data allowances tend to incur lower charges per gigabyte and so a rise in NBN connections may be a factor driving higher Value of Expenditure scores (see Table 4).

Affordability

In 2019 the national Affordability sub-index score is 59.2. The sub-index has risen only 3.2 points since 2014. It was in decline through 2014 to 2016 before a modest recovery over the past three years (2017-2019).

The limited improvement in Affordability does not reflect a rise in internet costs, in fact internet data is becoming less expensive. Nationally, Value of Expenditure (a measure of gigabytes of access acquired per dollar spent) has increased over the past five years (from 51.6 in 2014 to 63.9 in 2019). However, while cost per gigabyte of data continues to fall, Australians are spending more time online and connecting an increasing number of data-using devices to the internet. This has led to an increase in household expenditure on internet services at a rate faster than the growth of household income. As such, the Relative Expenditure component which measures the share of household income spent on internet services declined between 2014 and 2018 (from 60.3 in 2014 to 54.3 in 2018) and has remained essentially unchanged over the past year. In 2019 it is 54.6. The proportion of household income devoted to internet services has risen from 1.0% in 2014 to 1.18% in 2019.

Internet affordability has a particularly negative effect on the digital inclusion of Australians on lower incomes because they have less discretionary income to spend. For those with low household incomes, Affordability not only remains a critical issue, but the gap has widened over the period 2014-2019. In 2014 the difference in Affordability score between those in the lowest household income quintile and the national average was 22.9 points. It has steadily grown in the five years since to 27.0 points in 2019. A widening of the gap in Affordability between 2014 and 2019 has also been experienced by people not in the labour force, Australians aged 65+, people with disability and people who did not complete secondary school.

Digital Ability

Since 2014 the overall Digital Ability score has risen by 8.6 points (from 42.2 in 2014 to 50.8 in 2019). All three components of Digital Ability have improved steadily over time. In 2019, the Attitudes score is 51.2 (up from 45.9 in 2014), the Basic Skills score is 58.1 (up from 46.6 in 2014), and the Activities score is 43.1 (up from 34.2 in 2014).

Although an increasing proportion of Australians are engaging in a range of basic and more advanced internet activities and are keen to have continuous internet access, there remain significant attitudinal barriers to effective and rewarding internet participation. Indeed, less than half of all Australians think that computers and technology give them more control over their lives and less than 40% indicated that they feel they can keep up with a changing technological landscape. For Australians aged 65+ this is an even greater issue. Just over a quarter of this age group feel empowered by computers and technology and just one in eight feel they can keep up with technological changes. This data suggests that efforts to improve digital abilities should not simply target skill building but seek to address anxieties about the use of digital technologies and build an appreciation of the value of being online.

Geography

Geography plays a critical role in digital inclusion in Australia. Our data reveals significant differences between rural and urban areas. This Capital–Country Gap is evident across all three sub-indices – Access, Affordability, and Digital Ability.

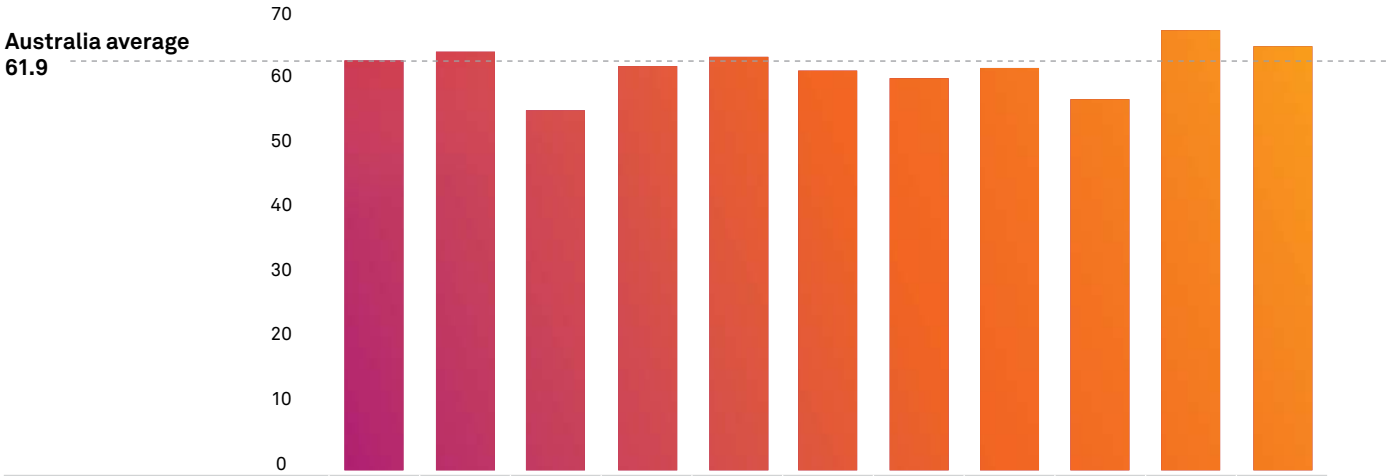
> Geography plays a critical role in digital inclusion in Australia

The digital inclusion score for capital city residents is 8.1 points higher than for those in rural areas. The overall Capital–Country Gap has narrowed slightly from 8.6 points in 2014 to 8.1 points in 2019. This trend is not consistent across the three sub-indices. The Access gap for Capital–Country areas has narrowed each year (from 8.8 in 2014 to 5.6 in 2019). The rollout schedule of the NBN, which prioritised rural Australia, has had a discernible impact on narrowing the Access gap. NBN fixed broadband uptake is currently proportionately higher in rural Australia than in the capital cities. Since 2014 the uptake of the NBN by rural households seems to have driven up fixed broadband connectivity generally, reducing the gap in fixed-broadband penetration rates between rural and capital city households – although a gap remains. The Affordability gap for Capital–Country areas widened between 2014 and 2016, peaking in 2016 at 11.7 points. It has since narrowed to 8.4 points as rural consumers report improvements in value for expenditure – particularly in relation to the amount of fixed broadband data received per dollar. The Digital Ability gap for Capital–Country areas has fluctuated since 2014. It widened from 7.7 points in 2014 to 10.0 points in 2015 before narrowing to 7.9 points in 2016. Since then it has widened to 10.2 points in 2019.

While the ADII average across rural Australia in 2019 is 55.7 there is significant variability in the results recorded by different rural areas. Australia's least digitally included rural areas (in ascending order) are: Southern TAS** (45), North West QLD* (48.8), South East SA* (53.1), Murray & Murrumbidgee (53.2), North East NSW (53.9) and North VIC (53.9). It should be noted that small sample sizes in the regions leads to some volatility and results should be treated with caution.

There are some stark differences in digital inclusion at the state and territory level. In 2019, the ACT has the highest level of digital inclusion (67.6). It has recorded the highest score of all states and territories in every year for which ADII data is available (2014-2019). This year the gap between the ACT and the lowest scoring state (TAS) is 9.5 points. The 2019 ADII dataset reveals that there were no changes to the relative

Table 5: Australia: digital inclusion by geography (ADII 2019)



2019	Australia	Capitals	Rural	New South Wales	Victoria	Queensland	South Australia	Western Australia	Tasmania	Australian Capital Territory	Northern Territory*
ACCESS											
Internet Access	87.9	89.3	83.9	87.5	88.9	87.5	87.8	88.2	83.9	91.8	85.6
Internet Technology	80.4	81.2	77.3	80.1	81.0	79.7	80.6	80.3	79.9	82.5	80.6
Internet Data Allowance	58.7	60.5	53.1	57.8	60.9	59.3	56.9	57.1	52.9	62.4	56.5
	75.7	**77.0**	**71.4**	**75.1**	**76.9**	**75.5**	**75.1**	**75.2**	**72.2**	**78.9**	**74.3**
AFFORDABILITY											
Relative Expenditure	54.6	56.7	47.1	56.5	54.5	51.4	52.5	54.7	49.2	67.1	62.0
Value of Expenditure	63.9	65.5	58.3	63.3	66.1	64.4	61.7	60.8	62.6	66.5	63.9
	59.2	**61.1**	**52.7**	**59.9**	**60.3**	**57.9**	**57.1**	**57.8**	**55.9**	**66.8**	**62.9**
DIGITAL ABILITY											
Attitudes	51.2	53.3	44.2	51.1	52.4	50.8	48.7	50.1	46.4	59.3	55.0
Basic Skills	58.1	60.9	50.1	57.5	60.5	56.1	56.6	58.8	52.8	62.6	60.8
Activities	43.1	45.7	35.1	42.6	45.1	41.4	40.3	43.6	39.6	49.8	51.1
	50.8	**53.3**	**43.1**	**50.4**	**52.7**	**49.4**	**48.5**	**50.8**	**46.3**	**57.2**	**55.6**
DIGITAL INCLUSION INDEX	**61.9**	**63.8**	**55.7**	**61.8**	**63.3**	**60.9**	**60.2**	**61.3**	**58.1**	**67.6**	**64.3**

*Sample size <150, exercise caution in interpretation. **Source:** Roy Morgan Single Source, March 2019.

ranking of states and territories between 2018 and 2019. In the past 12 months, SA recorded a larger improvement in digital inclusion than all other states (2.7 points)[26].

Given the small sample of data collected for the NT across all years of the ADII, results for the territory should be treated with caution. Substantial fluctuations in a number of variables underlying the Affordability and Digital Ability results for 2019 indicate that the NT's overall index score of 64.3 may be overstated.

Digital inclusion in regional centres

The ADII provides data for a number of regional centres. Table 6 shows the ADII scores for some of these communities[27]. Every regional centre has a lower digital inclusion score than the average for capital cities (63.8), although the Gold Coast records a digital inclusion score that matches that of its state capital (Brisbane) at 63.3.

The Gold Coast has the highest level of digital inclusion of all regional centres with a score of 63.3. It experienced an increase in digital inclusion of 3.4 points over 2018, with improvements across all three sub-indices. The Sunshine Coast has an ADII score of 59.5 in 2019, a 1.0 point increase on its 2018 score of 58.5.

Both Townsville* and Cairns* have relatively small sample sizes and results should be treated with some caution.

In 2019, Townsville* recorded an ADII score of 62.1, continuing the trend of annual improvements in digital inclusion since 2015. The ADII score for Cairns* in 2019 is 54.3 which represented a 4.0 point fall from its 2018 result of 58.3.

Table 6: Scores for select regional centres (ADII 2019)

Regional centre^	ADII Score	Points change since 2018
Gold Coast	63.3	3.4
Wollongong	62.4	-0.2
Newcastle	62.1	4.2
Townsville*	62.1	3.4
Gosford	61.2	1.8
Sunshine Coast	59.5	1.0
Cairns*	54.3	-4.0
Capital Cities	**63.8**	**1.3**
Rural	**55.7**	**2.0**
Australia	**61.9**	**1.7**

^ Geelong has been excluded due to sampling inconsistencies.
*Sample size <150, exercise caution in interpretation.
Source: Roy Morgan Single Source, March 2019.

Demography: digital inclusion and socioeconomic groups

Income, employment, and education

The ADII illuminates the social and economic aspects of digital inclusion in Australia. There is clearly a digital divide, or Income Gap between richer and poorer Australians. In 2019, individuals from Q5 low-income households with an annual household income of less than $35,000 recorded an ADII score of 43.3. This is 30.5 points lower than those living in Q1 high-income households that have a household income over $150,000 and 18.6 points lower than the national average.

Looking at the Affordability sub-index in the context of household income, people in Q5 low-income households spent a substantial proportion of income on network access (approximately 4%), which translated into a Relative Expenditure score of 11.3. This lies in sharp contrast with those in Q1 high-income households, who spent less than 1% of household income on network access for a Relative Expenditure score of 84.9. There was also a significant gap in Digital Ability between those in Q5 low-income households (35.8) and those in Q1 high-income households (61.4).

In the five-years since 2014, those in Q1 high-income households recorded an ADII gain of 7.6 points. Those in Q5 low-income households recorded the same increase (7.6) indicating that the Income Gap is not closing.

There is also a clear Employment Gap in digital inclusion. In 2019, the ADII score for people not in the labour force (NILF) is 53.8 (8.1 points below the national average), while those that are employed have an ADII score of 66.9 (5.0 points above the national average). The Employment Gap has widened since 2015, largely a result of differences in the Affordability sub-index score.

In 2019, people who are unemployed have an ADII score of 61.1. This is 0.8 points lower than the national average. Unemployed Australians have a Digital Ability sub-index score higher than the national average, but do not score as well on the Affordability sub-index. This result reflects the younger age profile of the unemployed compared to the overall population.

In 2019, people who did not complete secondary school scored 49.4 (12.5 points below the national average). Those with a secondary education scored 59.6 (2.3 points below the national average), while tertiary-educated people scored 66.6 (4.7 points above the national average). The Education Gap, between those who did not complete secondary school and tertiary education graduates, is 17.2 points.

Gender

Women have an ADII score 1.8 points below that of men in Australia, with similar differences across the Access and Affordability sub-indices (2.0 and 2.7 points) and a slightly narrower gap in relation to Digital Ability (0.7 points). Women aged 14-24 recorded a higher digital inclusion score than their male counterparts (+0.9 points), but this is the only age bracket in where this is the case. The Gender Gap is widest in the 65+ bracket (4.0 points). The gap between men and women in the 65+ age category is similar across all three sub-indices.

Gender impacts inclusion for Australians aged 65+. Australian women aged 65+ have lower levels of overall digital inclusion than their male counterparts and record lower scores on all three sub-indices. The digital inclusion gap between older women and men is widest for the group aged 75–79 (6.2 points).

Older Australians

Digital inclusion tends to decline as age increases, particularly for older Australians. People aged 14–49 years all have similar ADII scores, ranging from 65.4 to 67.5 (roughly 4 points above the national average). In 2019, those aged 50-64 recorded an ADII score of 60.4. This is 7.0 points lower than those aged 35-49 years. The largest difference is in Digital Ability.

Those aged 65+ are the least digitally included age group in Australia, with a score of 48.0 (13.9 points below the national average). The Age Gap in digital inclusion between people aged

Table 7: Gender and age (ADII 2019)

	Gender and Age: Years											
2019	Men	Women	Men 14-24	Women 14-24	Men 25-34	Women 25-34	Men 35-49	Women 35-49	Men 50-64	Women 50-64	Men 65+	Women 65+
ACCESS												
Internet Access	88.2	87.7	92.6	92.2	92.5	92.1	93.2	93.8	86.4	87.9	75.0	72.6
Internet Technology	81.0	79.8	81.9	82.1	85.2	83.7	85.2	84.5	79.6	79.7	71.8	69.0
Internet Data Allowance	61.0	56.5	63.0	60.1	72.0	66.9	68.2	64.3	57.3	54.1	43.2	37.3
	76.7	**74.7**	**79.1**	**78.1**	**83.2**	**80.9**	**82.2**	**80.9**	**74.4**	**73.9**	**63.3**	**59.6**
AFFORDABILITY												
Relative Expenditure	56.5	52.7	59.0	58.5	52.4	50.2	60.0	56.7	60.5	53.9	48.5	43.3
Value of Expenditure	64.7	63.1	68.3	65.7	68.7	65.4	66.6	68.4	63.3	62.3	55.4	52.3
	60.6	**57.9**	**63.6**	**62.1**	**60.6**	**57.8**	**63.3**	**62.6**	**61.9**	**58.1**	**52.0**	**47.8**
DIGITAL ABILITY												
Attitudes	54.9	47.6	66.5	60.6	66.3	56.1	58.4	50.6	46.3	42.5	37.6	31.1
Basic Skills	56.6	59.6	49.6	62.9	67.8	69.8	66.3	69.2	55.8	58.9	40.3	37.1
Activities	42.0	44.1	40.8	48.8	53.0	54.8	48.7	52.4	38.6	40.5	27.3	24.4
	51.1	**50.4**	**52.3**	**57.4**	**62.4**	**60.2**	**57.8**	**57.4**	**46.9**	**47.3**	**35.1**	**30.9**
DIGITAL INCLUSION INDEX	**62.8**	**61.0**	**65.0**	**65.9**	**68.7**	**66.3**	**67.8**	**67.0**	**61.1**	**59.8**	**50.1**	**46.1**

Source: Roy Morgan Single Source, March 2019.

Table 8: Older Australians gender and age (ADII 2019)

2019	Gender and Age: Years											
	65-69	70-74	75-79	80+	Men 65-69	Women 65-69	Men 70-74	Women 70-74	Men 75-79	Women 75-79	Men 80+	Women 80+
ACCESS												
Internet Access	80.9	77.1	68.2	56.0	81.2	80.6	78.0	76.3	71.2	65.6	60.3	51.4
Internet Technology	76.5	73.0	65.5	55.7	77.6	75.6	74.4	71.7	67.9	63.4	59.2	51.9
Internet Data Allowance	48.8	42.0	32.9	24.2	52.6	45.7	45.0	39.4	36.9	29.2	27.6	20.6
	68.7	**64.0**	**55.5**	**45.3**	**70.5**	**67.3**	**65.8**	**62.5**	**58.6**	**52.7**	**49.0**	**41.3**
AFFORDABILITY												
Relative Expenditure	47.9	43.3	45.1	47.0	51.1	45.4	45.4	41.5	49.3	41.3	48.6	45.1
Value of Expenditure	56.2	54.8	50.5	48.2	58.7	54.3	56.4	53.3	52.8	48.3	48.3	48.1
	52.1	**49.0**	**47.8**	**47.6**	**54.9**	**49.8**	**50.9**	**47.4**	**51.1**	**44.8**	**48.4**	**46.6**
DIGITAL ABILITY												
Attitudes	38.7	35.8	30.9	24.1	42.9	35.2	38.5	33.4	35.4	26.8	27.7	20.2
Basic Skills	48.3	41.3	30.3	20.3	50.0	46.8	43.1	39.6	33.3	27.7	22.7	17.7
Activities	31.5	27.7	21.1	13.8	33.3	30.1	29.3	26.3	23.5	18.9	15.4	12.1
	39.5	**34.9**	**27.4**	**19.4**	**42.1**	**37.4**	**37.0**	**33.1**	**30.7**	**24.5**	**21.9**	**16.7**
DIGITAL INCLUSION INDEX	**53.4**	**49.3**	**43.6**	**37.4**	**55.8**	**51.5**	**51.2**	**47.7**	**46.8**	**40.6**	**39.8**	**34.9**

Source: Roy Morgan Single Source, March 2019.

65+ and the most digitally included age group (those aged 25-34) widened until 2018 (from 17.9 points in 2014 to 20.5 points in 2018) before narrowing slightly in the year to 2019 (19.5 points).

A closer look at the 65+ category reveals a pattern of diminishing digital inclusion as age increases. The largest gaps between this age group and younger people is in the Access and Digital Ability sub-indices. This is despite scores for both Access and Digital Ability increasing across all age brackets in the 65+ category since 2014. The cohort aged 75–79 years has made the largest proportional progress on these sub-indices (up 17.6 points on Access and 12.7 points on Digital Ability). The key issue faced by those 65+, as with other groups reporting relatively low and fixed incomes, is the rising proportion of income spent on network access. As a result, Affordability was in decline for each of the age cohorts aged 65+ between 2014 and 2018. In 2019 this decline plateaued.

Indigenous Australians

Indigenous Australians living in urban and regional areas have a relatively low level of digital inclusion, with an ADII score of 55.1 (6.8 points below the national score). The digital inclusion gap between Indigenous Australians and other Australians is evident across all three sub-indices.

Indigenous Australians record an Affordability score of 52.4, some 6.8 points below the national average (59.2). Indigenous Australians spend a greater portion of their household income on internet connectivity than other Australians, as indicated by their Relative Expenditure component score of 49.7 (4.9 points below the national average of 54.6). They also receive less data for each dollar of expenditure, as indicated by their Value of Expenditure component score (55.1), which is 8.8 points lower than the national average (63.9). In part, these Affordability results reflect the prevalence of mobile-only use amongst the Indigenous Australians population (36.8% compared to the national average of 21.1%). Mobile data costs substantially more per gigabyte than fixed broadband.

In 2019, Indigenous Australians record an Access score of 68.4, some 7.3 points below the national average (75.7). In part, the greater prevalence of mobile-only connectivity depresses Access scores for Indigenous Australians. Fixed broadband carries a direct advantage within the Index and an indirect advantage in relation to the size of the data allowances delivered through fixed rather than mobile broadband subscriptions. Furthermore, being mobile-only locks people out of the Access advantages that accrue to NBN subscribers as a better type of fixed broadband technology. Given the increasing transition of fixed broadband users onto the NBN network it is not surprising that the Access gap between Indigenous Australians and the national average has widened in the past year (from 5.2 points in 2018 to 7.3 points in 2019).

The Digital Ability score recorded by Indigenous Australians in 2019 is 44.4. This is 6.4 points lower than the national average (50.8).

Overall, through the period 2014-2019, the digital inclusion gap between Indigenous Australians and the national average has fluctuated. The gap peaked in 2015 at 10.1 points and was at its lowest in 2018 at 6.1 points. In the past year the gap has widened slightly from 6.1 points to 6.8 points. Overall, the 2019 digital inclusion gap between Indigenous Australians and the national average (6.8 points) is narrower than it was in 2014 (8.8 points).

Significantly, the ADII data collection does not extend to remote Indigenous communities, where high levels of geographic isolation and socioeconomic disadvantage pose distinct challenges for digital inclusion. Case Study 2 (pp.23-25) reports on survey research conducted by the ADII team in the remote indigenous community of Pormpuraaw in far north QLD, which builds on previous survey research conducted in Ali Curung in the NT for the 2018 ADII report. Findings from the Pormpuraaw and Ali Curung surveys suggest digital inclusion for Indigenous Australians further diminishes with remoteness, particularly in terms of Access and Affordability. The ADII score for Pormpuraaw is 36.7 and for Ali Curung it is 42.9.

Australians with disability

In 2019, Australians with disability (defined in the ADII as receiving either the disability support pension or disability pension) have relatively low digital inclusion. In 2019, the ADII score for this group is 52.0. The gap in ADII scores recorded by people with disability and the national average narrowed in 2019 to 9.9 points. Since 2014, the gap has narrowed (from 11.2 points in 2014 to 9.9 points in 2019), largely due to gains by this group in Access and Digital Ability. However, the gap in Affordability has widened over this period (from 8.7 points in 2014 to 10.8 points in 2019). This is primarily due to the proportion of household income spent on internet access by Australians with disability grew at a faster rate than the national average.

Culturally and Linguistically Diverse migrants

Culturally and Linguistically Diverse (CALD) migrants, defined as people born in non-main English speaking countries who speak a language other than English at home[28], have a relatively high level of digital inclusion. In 2019, the ADII score for this group is 64.7. This is 2.8 points above the national average (61.9). CALD migrants recorded above average levels of Access, Affordability and Digital Ability. In each year since 2014, CALD migrants recorded a higher level of digital inclusion than the national average, although the gap between CALD migrants and the national average has fluctuated – peaking at 4.2 points in 2014 and falling as low as 1.5 points in 2017.

Given Australia's long-established commitment to multiculturalism and the multifaceted nature of immigration policies that have facilitated skilled, family, humanitarian and other forms of migration, it is not surprising that the CALD migrant group is both sizeable and diverse. As such, the aggregate data for CALD migrants may obscure some of the digital inclusion outcomes for distinct groups in that population. The ADII supplementary survey study conducted with recently-arrived CALD migrants in the regional Victorian city of Shepparton revealed a distinct pattern of digital inclusion for this CALD migrant group as outlined in Case Study 1 (pp.20-22).

Mobile-only users

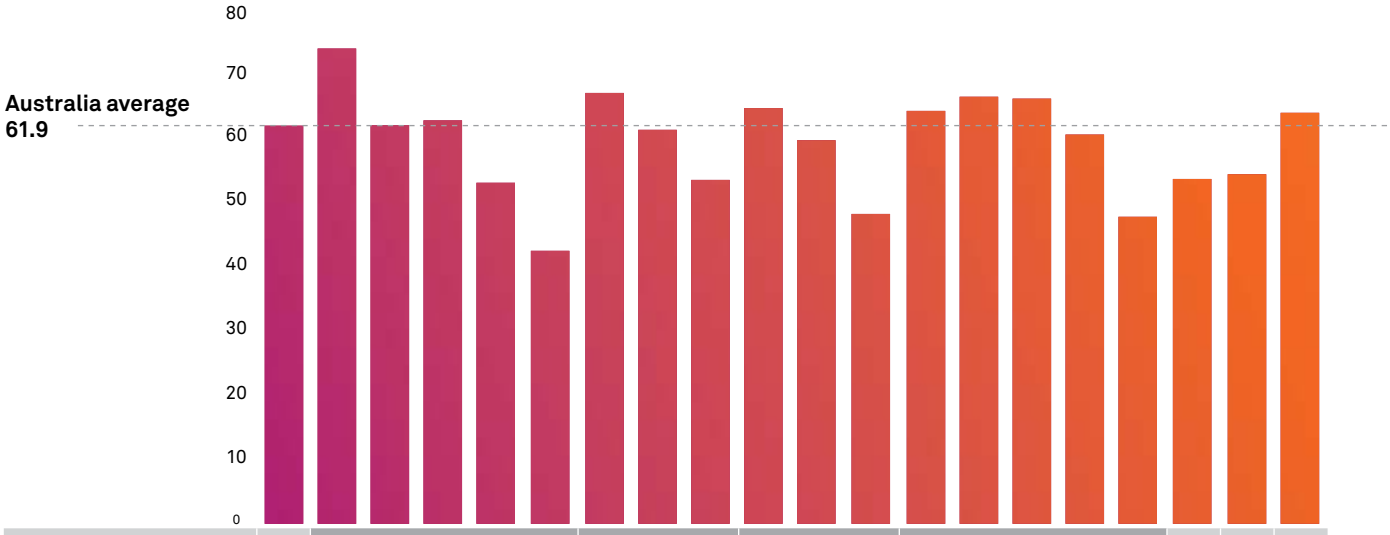
More than four million Australians access the internet solely through a mobile connection: they have a mobile phone or mobile broadband device with a data allowance, but no fixed connection[29]. In 2019, mobile-only users have an ADII score of 43.7, some 18.2 points below the national average (61.9). Being mobile-only not only diminishes the Access dimension of digital inclusion. Mobile-only users report low Affordability as mobile data costs substantially more per gigabyte than fixed broadband and, given their restricted data allowances, are less likely to be engaged in advanced heavy data-use activities such as streaming which diminishes their Digital Ability sub-index result. Mobile-only use is linked with socio-economic factors, with people in Q5 low-income households (30.7%), those with low levels of education (28.0%), and the unemployed (25.3%) more likely to be mobile-only. In addition, Indigenous Australians (36.8%), Australians with disability (28.2%) and single parents with school aged children (30.8%) are more likely to be mobile-only.

Table 9: Mobile-only users (ADII 2019)

2019	Australia	Mobile-Only
ACCESS		
Internet Access	87.9	74.7
Internet Technology	80.4	59.5
Internet Data Allowance	58.7	33.2
	75.7	**55.8**
AFFORDABILITY		
Relative Expenditure	54.6	54.5
Value of Expenditure	63.9	13.1
	59.2	**33.8**
DIGITAL ABILITY		
Attitudes	51.2	42.9
Basic Skills	58.1	47.7
Activities	43.1	33.6
	50.8	**41.4**
DIGITAL INCLUSION INDEX	**61.9**	**43.7**

Source: Roy Morgan Single Source, March 2019.

Table 10: Australia: digital inclusion by demography (ADII 2019)



2019	Australia	Income Quintiles					Employment			Education			Age					Disability	Indigenous	CALD
		Q1	Q2	Q3	Q4	Q5	Employed	Unemployed	NILF	Tertiary	Secondary	Less	14-24	25-34	35-49	50-64	65+			
ACCESS																				
Internet Access	87.9	94.4	92.7	90.5	83.1	74.4	92.9	88.1	79.8	92.3	86.5	74.9	92.4	92.3	93.5	87.2	73.7	78.3	81.9	89.2
Internet Technology	80.4	86.4	84.7	82.5	76.4	68.7	84.0	78.5	74.9	83.9	79.5	70.7	82.0	84.4	84.9	79.6	70.3	73.5	69.9	81.1
Internet Data Allowance	58.7	68.5	65.3	61.6	52.8	42.8	65.2	58.3	48.2	63.0	58.5	45.9	61.6	69.4	66.2	55.6	40.1	50.2	53.4	63.5
	75.7	**83.1**	**80.9**	**78.2**	**70.8**	**61.9**	**80.7**	**74.9**	**67.6**	**79.7**	**74.8**	**63.8**	**78.7**	**82.1**	**81.5**	**74.2**	**61.4**	**67.3**	**68.4**	**77.9**
AFFORDABILITY																				
Relative Expenditure	54.6	84.9	65.1	46.0	30.1	11.3	59.4	46.5	47.7	58.7	50.9	46.1	58.8	51.3	58.4	57.1	45.8	38.8	49.7	54.9
Value of Expenditure	63.9	69.0	67.8	64.0	60.9	53.2	66.1	64.5	59.9	66.5	62.9	55.9	67.0	67.1	67.5	62.8	53.8	58.0	55.1	64.1
	59.2	**77.0**	**66.5**	**55.0**	**45.5**	**32.2**	**62.8**	**55.5**	**53.8**	**62.6**	**56.9**	**51.0**	**62.9**	**59.2**	**62.9**	**59.9**	**49.8**	**48.4**	**52.4**	**59.5**
DIGITAL ABILITY																				
Attitudes	51.2	59.2	54.7	52.5	43.7	37.1	56.1	54.5	42.5	55.5	45.8	34.8	63.6	61.2	54.4	44.3	34.2	43.3	50.4	61.2
Basic Skills	58.1	70.9	65.9	61.3	50.4	40.7	66.0	58.3	45.2	66.8	55.9	39.3	56.1	68.8	67.8	57.4	38.6	45.5	46.9	60.4
Activities	43.1	53.9	49.3	44.8	34.7	29.6	49.5	45.6	32.1	50.1	39.3	26.4	44.7	53.9	50.6	39.6	25.8	32.1	35.8	48.8
	50.8	**61.4**	**56.6**	**52.9**	**42.9**	**35.8**	**57.2**	**52.8**	**40.0**	**57.5**	**47.0**	**33.5**	**54.8**	**61.3**	**57.6**	**47.1**	**32.8**	**40.3**	**44.4**	**56.8**
DIGITAL INCLUSION INDEX	**61.9**	**73.8**	**68.0**	**62.0**	**53.1**	**43.3**	**66.9**	**61.1**	**53.8**	**66.6**	**59.6**	**49.4**	**65.4**	**67.5**	**67.4**	**60.4**	**48.0**	**52.0**	**55.1**	**64.7**

Source: Roy Morgan Single Source, March 2019.

Further information

More information about the ADII, along with a full set of data tables, is available at **www.digitalinclusionindex.org.au**

Case study 1

Recently-arrived Culturally and Linguistically Diverse migrants

Overall, Australia's Culturally and Linguistically Diverse (CALD) migrant population records a relatively high level of digital inclusion, with above average levels of Access, Affordability and Digital Ability. However, recent research indicates that recently-arrived CALD migrants are faring less well, particularly with regards to Affordability.

The ADII provides an insight into the nature and extent of the digital inclusion of CALD migrants, defined as people born in non-main English speaking countries who speak a language other than English at home. Given Australia's long-established commitment to migrant intake and the multifaceted nature of policies that have facilitated skilled, family, humanitarian and other forms of migration, it is not surprising that the CALD migrant group is both sizeable and diverse. In 2019 CALD migrants have an ADII score of 64.7, 2.8 points higher than the national average (61.9), underpinned by better than average Access, Affordability and Digital Ability scores. However, this aggregate data may obscure important differences within the highly varied CALD migrant population. In 2019, we sought to extend our understanding of digital inclusion for a subset of this population about which little is known in relation to digital inclusion - recently-arrived CALD migrants (those arriving in Australia after 2005)[30].

To extend our knowledge of the digital inclusion of CALD migrants, the ADII Supplementary Survey[31] was conducted with 146 recently-arrived CALD migrants living in Shepparton[32], Victoria. Located 180km north of Melbourne, Shepparton is a regional city with a population of 64,000 that has a rich history in settling migrants[33]. Most recently, Shepparton has been a key settlement location for migrants arriving from the Middle East, Central Asia and Africa under the humanitarian immigration program[34].

The research found that recently-arrived CALD migrants in Shepparton have an ADII score of 61.2, 0.7 points below the national average (61.9) and 3.5 points lower than that reported by the broader CALD migrant population (64.7). This below-average ADII score is underpinned by a low level of Affordability. Indeed, a very low Affordability sub-index score offsets the above-average scores recorded by CALD migrants in Shepparton on the Access and Digital Ability sub-indices.

Recently-arrived CALD migrants in Shepparton have an Access score of 82.6, some 6.9 points above the national average (75.7). More than 9 in 10 respondents indicated that they maintained multiple internet access plans across both fixed and mobile networks. Respondents also had access to higher than average fixed and mobile data allowances under these plans. The prevalence of family households in the recently-arrived CALD migrant community may be a factor generating this high level of Access. Evidence from the ABS indicates that family households are more likely to maintain internet connections than other household types[35]. This is unsurprising given the increasing array of personal electronic devices requiring network connections and varying digital content demands of adults and children.

Affordability and literacy are key obstacles to enhancing digital inclusion for recently-arrived CALD migrants

The maintenance of high levels of connectivity may also be a consequence of the very positive attitude recently-arrived CALD migrants in Shepparton have towards the role that digital technologies play in enhancing their day-to-day life. Around nine in ten respondents (87%) feel that computers and technology gave them more control over their lives and a similar proportion (86%) are committed to learning about new technologies. The comparable national averages for these indicators is 48% and 35% respectively. Overall, the positive attitude respondents had towards digital technologies was the key factor underpinning the above average Digital Ability score recorded by recently-arrived CALD migrants in Shepparton. Their score of 57.6 was 6.8 points above the national average (50.8). Other factors at play in driving up the Digital Ability score for respondents were the prevalent use of the internet

Table 11: Digital inclusion: Shepparton recently-arrived CALD migrant survey (2019)

2019	Shepparton survey respondents (n = 146)	ADII national	Gap between Shepparton survey respondents and ADII national	ADII CALD	Gap between Shepparton survey respondents and ADII CALD
ACCESS					
Internet Access	87.8	87.9	-0.1	89.2	-1.4
Internet Technology	83.1	80.4	2.7	81.1	2.0
Internet Data Allowance	76.8	58.7	18.1	63.5	13.3
	82.6	**75.7**	**6.9**	**77.9**	**4.7**
AFFORDABILITY					
Relative Expenditure	21.7	54.6	-32.9	54.9	-33.2
Value of Expenditure	64.9	63.9	1.0	64.1	0.8
	43.3	**59.2**	**-15.9**	**59.5**	**-16.2**
DIGITAL ABILITY					
Attitudes	70.8	51.2	19.6	61.2	9.6
Basic Skills	54.7	58.1	-3.4	60.4	-5.7
Activities	47.3	43.1	4.2	48.8	-1.5
	57.6	**50.8**	**6.8**	**56.8**	**0.8**
DIGITAL INCLUSION INDEX	**61.2**	**61.9**	**-0.7**	**64.7**	**-3.5**

Source: ADII Supplementary Survey – Shepparton recently-arrived CALD migrant community, 2019; Roy Morgan Single Source, March 2019.

Table 12: Literacy: Shepparton recently-arrived CALD migrant survey (2019)

	Reading a Language Other Than English		
Reading English	**Well /very well**	**Not well /not at all**	**Total**
Well/very well	56%	5%	61%
Not well/not at all	12%	27%	39%
TOTAL	**68%**	**32%**	**100%**

Source: ADII Supplementary Survey – Shepparton recently-arrived CALD migrant community, 2019.

for personal audio-visual communication and social media. It is important to note that the level of engagement in some functional activities, such as email, internet banking and online commerce and transactions was substantially below the national average. Use of the internet for searching for information related to education, employment, health and other essential government and technical services and activities was above the national average. With regards to the latter, recently-arrived migrants tend to have regular contact with a range of government and other service agencies and this is increasingly occurring online as a consequence of digital transformation.

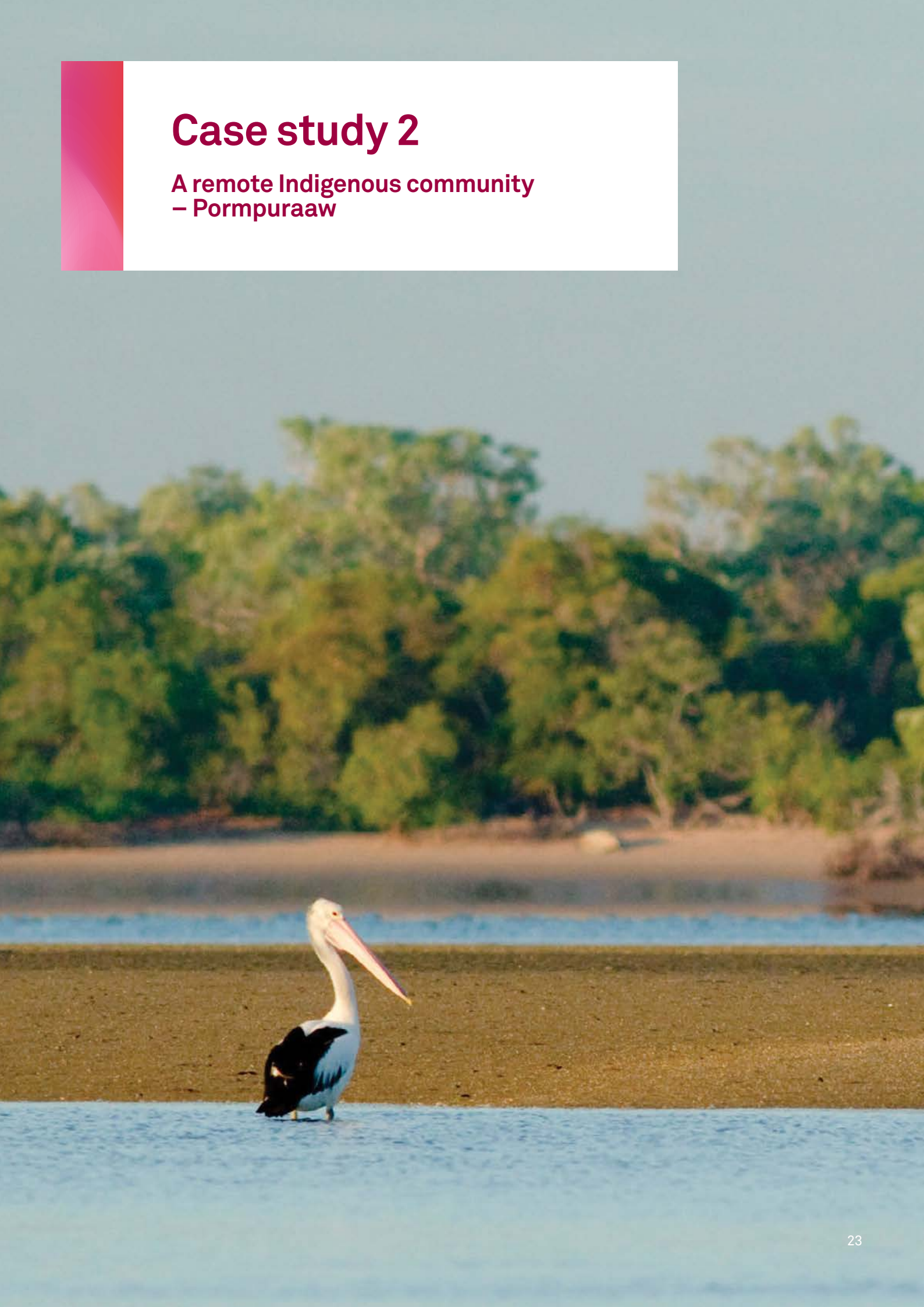
Although online government, community and commercial service systems may generate some transactional benefits, they can be difficult to navigate, particularly for those for whom English is not their first language[36]. Foreseeing that language and literacy may be an inhibitor to digital inclusion for recently-arrived CALD migrants in Shepparton, additional questions focussing on this issue were incorporated into the ADII Supplementary Survey. The results show that four in ten respondents did not read English well or at all (39%). This level of English literacy will clearly impact on the efficacy of online service engagement. The results also revealed that translating online text would alone not be an adequate solution since two-thirds of those that lacked English literacy could also not read in a language other than English – overall 27% of respondents did not read English or a language other than English.

While literacy is an obstacle to enhancing digital inclusion for recently-arrived CALD migrants in Shepparton, Affordability is the key barrier. The Affordability sub-index score recorded by recently-arrived CALD migrants in Shepparton (43.3) is 15.9 points lower than the national average. Although respondents tended to achieve good value for money, as registered by a Value of Expenditure close to the national average, it is the impact of internet access expenditure on household budgets that distinguishes them from the national average. Recently-arrived CALD migrants in Shepparton spend 3.83% of their household income compared to the national average of 1.18%. The result is a Relative Expenditure score of 21.7, some 32.9 points lower than the national average (54.6).

Research into the recently-arrived CALD migrant community in Shepparton extends our understanding of digital inclusion for an important subset of the CALD migrant population. While Affordability is identified as a key barrier for digital inclusion, the research also sheds light on the impact of low literacy levels in an increasingly digital world. Addressing this issue is important, not simply for recently-arrived CALD migrants, but the 2.36 million Australians who identify as having low levels of English language literacy[37].

Case study 2

A remote Indigenous community – Pormpuraaw



In 2019, Indigenous Australians living in urban and regional Australia report a lower level of digital inclusion than the Australian average. Research conducted in the remote community of Pormpuraaw in far north QLD indicates that digital inclusion for Indigenous Australians further diminishes with remoteness, particularly in relation to Access and Affordability.

The ADII is one of few quantitative data sources that provides insights into the digital inclusion of Indigenous Australians[38], although its coverage does not extend to remote communities. The 2019 ADII results show that despite a continuous annual rise in digital inclusion since 2015, the ADII score for Indigenous Australians in urban and regional Australia (55.1) remains 6.8 points lower than the national average (61.9). Indigenous Australians based in these areas trailed the national average on all three of ADII digital inclusion dimensions: Access, Affordability and Digital Ability.

> Digital inclusion for Indigenous Australians further diminishes with remoteness, particularly in relation to Access and Affordability

To extend our knowledge of the nature and extent of digital inclusion for Indigenous Australians beyond those living in urban and regional settings, an ADII Supplementary Survey[39] was conducted with 145 Indigenous Australians from the remote community of Pormpuraaw in November 2018. Pormpuraaw is a community of approximately 750 people located in QLD on the west coast of Cape York, about 480 kilometres below the northern most point of Australia. This research built upon similar survey research conducted for the 2018 ADII report in Ali Curung, a remote Indigenous community of approximately 500 people located 380 kilometres north of Alice Springs[40] in the NT. Given the diversity of remote Indigenous communities, we caution that the Pormpuraaw and Ali Curung results should not be viewed as representative of all remote-living Indigenous Australians. However, the Pormpuraaw results do present a similar picture of digital inclusion to that of Ali Curung.

The digital inclusion score for Indigenous Australians in Pormpuraaw is 36.7, some 25.2 points lower than the Australian average (61.9) and 18.4 points lower than that recorded by Indigenous Australians in urban and regional areas. As is the case in Ali Curung, the very low level of digital inclusion recorded in Pormpuraaw reflects poor Access and Affordability.

The low Access score recorded in Pormpuraaw (50.1) is underpinned by a reliance on mobile connectivity. Although nine in ten respondents maintained an internet connection, only two of the 145 people surveyed had fixed broadband. Furthermore, almost all respondents relied solely on pre-paid services. This reliance on mobile pre-paid connectivity mirrors that of Ali Curung and the results of other studies in remote Indigenous communities[41]. It carries a range of direct and indirect consequences relating to Access. For instance, mobile plans provide smaller data allowances than fixed services and this, along with the greater opportunity for pre-paid users to drift in and out of connectivity[42], may be a factor in curtailing the regularity of internet use – 57% of Indigenous Australians in Pormpuraaw access the internet daily compared to the national figure of 87%.

Echoing patterns in the Ali Curung data, Indigenous Australians in Pormpuraaw return a very low Affordability score (9.0). Again, this is linked to the prevalence of mobile-only pre-paid use. Although mobile data charges have fallen in recent years, a gigabyte of data remains considerably more expensive on mobile networks than via fixed broadband. In Pormpuraaw this translates into a Value of Expenditure score of 3.0, some 60.9 points below the national average. Like in Ali Curung, Indigenous Australians in Pormpuraaw also fared poorly in relation to Relative Expenditure. With expenditure on internet

Table 13: Pormpuraaw remote Indigenous community digital inclusion survey (2019)

2019	Pormp. survey respondents (n = 145)	Ali Curung survey respondents (n = 112)	ADII national	Gap between Pormp. survey respondents and ADII national	ADII Indigenous Australians	Gap between Pormp. survey respondents and ADII Indigenous Australians	ADII mobile-only	Gap between Pormp. survey respondents and ADII mobile-only
ACCESS								
Internet Access	67.8	64.3	87.9	-20.1	81.9	-14.1	74.7	-6.9
Internet Technology	43.5	40.5	80.4	-36.9	69.9	-26.4	59.5	-16.0
Internet Data Allowance	38.8	37.2	58.7	-19.9	53.4	-14.6	33.2	5.6
	50.1	**47.3**	**75.7**	**-25.6**	**68.4**	**-18.3**	**55.8**	**-5.7**
AFFORDABILITY								
Relative Expenditure	15.1	39.6	54.6	-39.5	49.7	-34.6	54.5	-39.4
Value of Expenditure	3.0	12.1	63.9	-60.9	55.1	-52.1	13.1	-10.1
	9.0	**25.8**	**59.2**	**-50.2**	**52.4**	**-43.4**	**33.8**	**-24.8**
DIGITAL ABILITY								
Attitudes	42.1	47.7	51.2	-9.1	50.4	-8.3	42.9	-0.8
Basic Skills	63.7	64.5	58.1	5.6	46.9	16.8	47.7	16.0
Activities	48.4	44.8	43.1	5.3	35.8	12.6	33.6	14.8
	51.4	**52.3**	**50.8**	**0.6**	**44.4**	**7.0**	**41.4**	**10.0**
DIGITAL INCLUSION INDEX	**36.7**	**42.9**	**61.9**	**-25.2**	**55.1**	**-18.4**	**43.7**	**-7.0**

Source: ADII Supplementary Survey – Pormpuraaw remote Indigenous community, 2019; ADII Supplementary Survey – Ali Curung remote Indigenous community 2018 (note: results are as recorded in 2018); Roy Morgan Single Source, March 2019.

access accounting for 3.3% of household income, Indigenous Australians in Pormpuraaw record a Relative Expenditure score of 15.1. National average expenditure on internet access is 1.18% of household income which translates into a Relative Expenditure score of 54.6.

Higher costs, lower data allowances, and device limitations associated with mobile broadband access have tended to diminish Digital Ability scores for those that rely solely on this form of access. But, as was found to be the case in Ali Curung, Indigenous Australians in Pormpuraaw have a higher level of digital ability than the average Australian, recording a Digital Ability score of 51.4 compared to the national average of 50.8. Existing qualitative research finds that for those living in remote areas the internet is an important point of social connection and vital conduit for accessing information and services[43].

This is reflected in the breadth and intensity of digital activities undertaken by Indigenous Australians in Pormpuraaw. They are more likely than the average Australian to use the internet to engage in general web surfing, undertake shopping and banking, access government services and stream or download media content purchasing and selling goods online and using online audio or audio/video calling and messaging services.

The Pormpuraaw and Ali Curung findings reveal some of the complexities of digital inclusion in remote Indigenous communities. Local patterns of use suggest the internet is an important lifeline for those in remote communities, but accessing it comes at a higher cost than it does for those in the cities and towns. There is some evidence that the preference for prepaid mobile-only access by Indigenous Australians in remote communities is a response to affordability concerns. While pre-paid plans may reduce financially vulnerabilities by enabling more direct expenditure management than post-paid contracts[44], they exacerbate other aspects of affordability related to value for expenditure (particularly as pre-paid access is currently limited to mobile network access). A more comprehensive approach is needed to address the issue of internet affordability for Indigenous Australians in remote communities. The Digital Inclusion Plan outlined by delegates of the 2019 Shaping Our Digital Futures Indigenous Focus Day calls for such an approach. The plan points to the need for more affordable pre-paid options, as well as an expansion of community Wi-Fi networks and unmetered access to key online services[45].

Case study 3

The NBN and digital inclusion

A rapidly growing number of Australians are connecting to the internet through the NBN. As the new network nears completion, the NBN is redrawing the national map of digital inclusion. In recent years, Index results show a significant impact where the network has been completed or nearly completed.

In TAS especially, where the NBN rollout was finished earlier than any other State, the Index reported substantial improvements between 2017 and 2018. In SA, WA and the ACT, where NBN take-up has been substantial in the past year, we have also seen notable improvements in digital inclusion. Furthermore, the priority given to rolling out the NBN in rural areas is reducing some of the digital inclusion disparities between city and country Australians. The charts below show the rapid uptake of the NBN since 2014.

What explains this impact? What difference does the NBN make to digital inclusion? Two features of the NBN rollout are important: the infrastructure and the switchover. The obvious change NBN brings is a new network infrastructure. NBN's current technology mix does not match the original promise of fibre to the home for almost everyone, and recent media reports have highlighted problems with the performance of some services, especially fixed wireless[46]. However, for most Australians, the NBN represents an improvement on the previous infrastructure available. Faster networks and more connectivity will translate into improved internet services for consumers.

The second critical element is the NBN switchover. NBN does not augment existing fixed broadband services: it replaces them. When the network is built in any given area, users must move to a new plan, even if they continue with their existing provider. Retail service providers want to compete for customers at this switchover point, and a period of active marketing typically occurs, with local advertising, social media, and letterboxing campaigns, and offers on bundled services, such as phone calls and streaming TV. Such campaigns may well attract new or former users, and mobile-only internet users, to fixed services.

We can expect the NBN to improve our measures of Access, because this directly reflects the quality of network infrastructure. However, when the NBN was completed in TAS, we saw results improve across all three dimensions of the Index. This is likely to occur for several reasons. More users combined with more generous data allowances will increase Access scores. More generous data plans means users get more gigabytes for their dollar, improving Affordability scores, even where costs may be the same or higher than a previous plan. If people are using the internet more, including expanding the range of things they do online, this is also likely to increase their scores for Digital Ability.

In TAS, with a relatively small population switching over at around the same time, the across-the-board effects of the NBN were highlighted by a sharp increase in Index results in 2018. Similar effects are appearing elsewhere in Australia, but with a slower rollout they are not as clearly visible in the data.

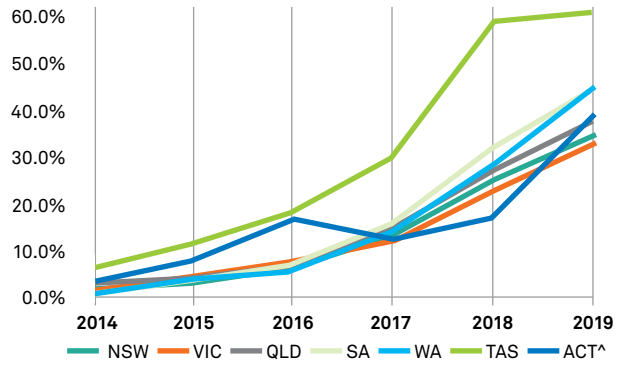
> The NBN is reducing some of the digital inclusion disparities between city and country Australians, but the long-term effects are likely to be complex and depend on further investment

All this is good news — especially for people who did not previously have an internet connection, and for people who until now have relied entirely on mobile services. But we cannot be sure whether the NBN — at least in its current form —will lead to an ongoing improvement in Australia's level of digital inclusion, and the larger social and economic benefits that are associated with that. Results in TAS were flat between 2018 and 2019, suggesting that the beneficial impact of the NBN may be mainly a one-off. Significant improvements in Affordability appear unlikely in the absence of any low-cost NBN broadband pricing. Despite the NBN, the Affordability gap between high and low-income households has not significantly changed. Improvements in Digital Ability are likely to depend on additional interventions, such as programs targeted at the needs of particular communities.

The NBN was designed to reduce the digital disadvantage of regional and remote Australia. The Index shows that it has made a positive difference. But the NBN's long term effects on Australia's digital inclusion performance are likely to be complex, and its capacity to meet the future data and network requirements will depend on further investment. Under NBN's technology mix some households received a fibre connection, while others received fixed wireless or copper. We do not yet know how the distribution of the different NBN access technologies maps onto Australia's existing economic geography, although some early analyses suggest that unequal NBN outcomes may reinforce existing social inequalities[47].

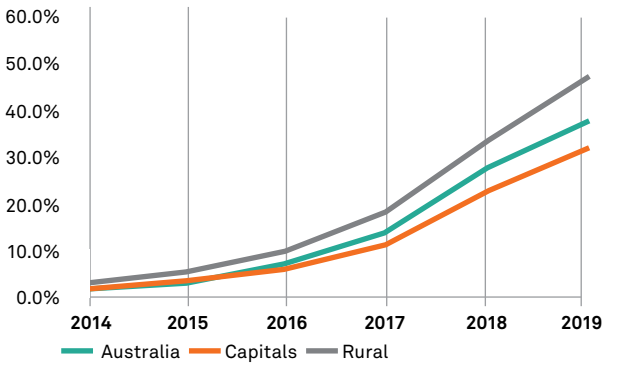
Upon completion, the future development of the Australia's national broadband network is likely to be a major issue for the NBN Co, governments and the communications sector for many years. Policy decisions in this area will have substantial impact on digital inclusion for all Australians.

Figure 3: NBN fixed broadband uptake: selected states and territories (% of population)



^The small sample for the ACT has generated some volatility in annual results. **Source:** Roy Morgan Single Source, March 2019.

Figure 4: NBN fixed broadband uptake: Australia, rural and capital cities (% of population)



Source: Roy Morgan Single Source, March 2019.

New South Wales

Findings

The 2019 ADII score for New South Wales (NSW) is 61.8. NSW is 0.1 points below the national average (61.9) and ranks third out of Australia's eight states and territories. NSW's score has increased steadily since 2015, rising 6.9 points.

Access scores in NSW have increased steadily since 2014, rising a total of 11.3 points. The NSW Access score had risen in line with the national average until this year. In 2019 the NSW Access score rose 1.7 points to 75.1, while the national Access score grew by 2.3 points to 75.7 generating a gap of 0.6 points.

Since 2014 the Digital Ability score has increased by 8.2 points (from 42.2 in 2014 to 50.4 in 2019). However, the 2019 Digital Ability score (50.4) is 0.4 points below the national average (50.8).

Mirroring the national trend, NSW has made limited gains in relation to Affordability between 2014 and 2019. Following an annual decline in Affordability through the years 2014 to 2016, NSW's score on this sub-index has recovered slightly as a result of improvements in the Value of Expenditure component score. The Affordability score for NSW in 2019 is 59.9. This is 1.2 points higher than its 2014 score for this sub-index (58.7). It is also 0.7 points higher than the national Affordability score (59.2).

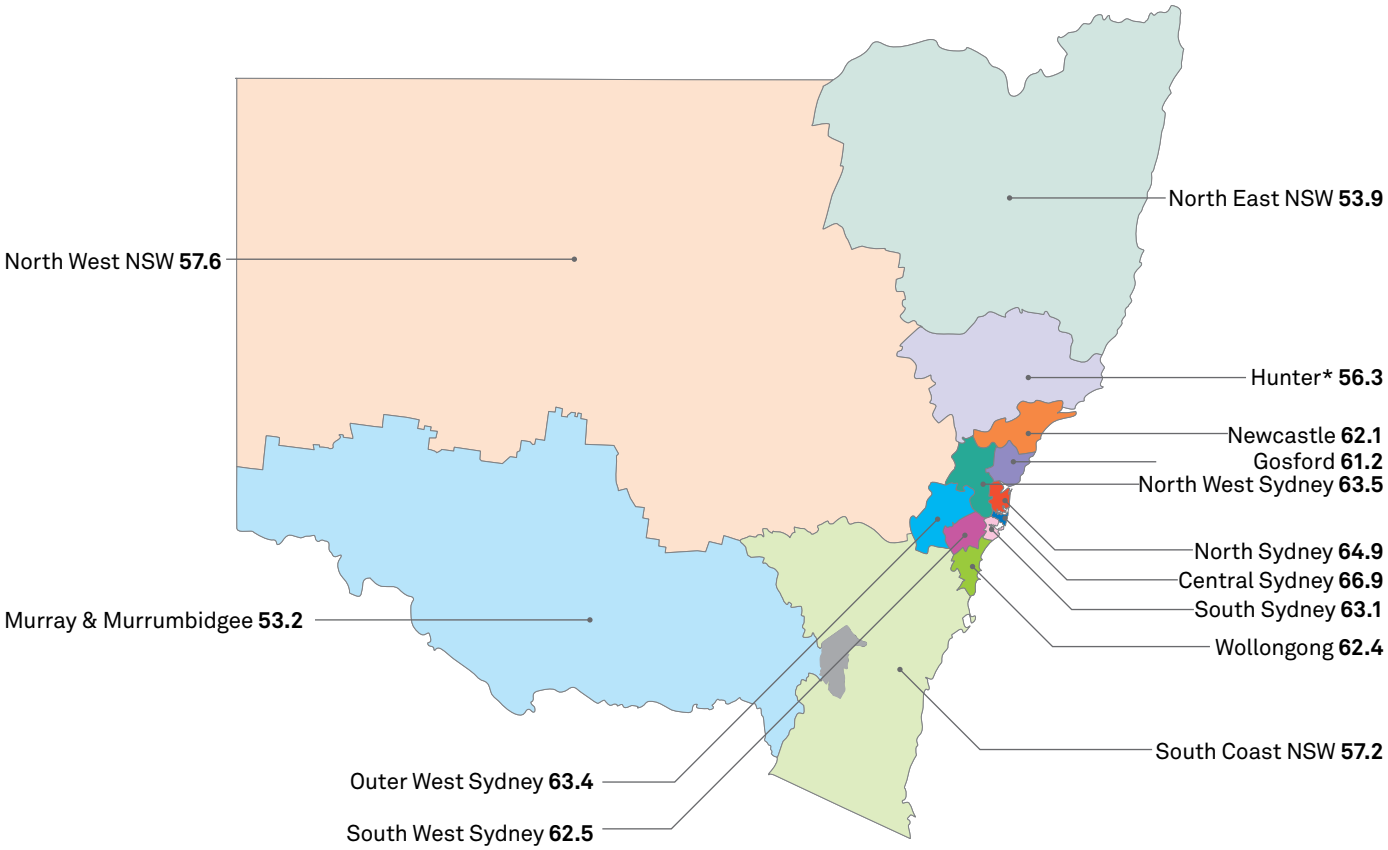
Geography

In 2018, the ADII score for Sydney is 64.2, the second highest of the capital cities after Melbourne (64.9). A substantially lower score of 55.3 was recorded for rural NSW (outside Sydney and the regional cities). The Capital–Country Gap in NSW is 8.9 points and has narrowed each year since 2016 when it had been 10.5 points.

Wollongong recorded an ADII score of 62.4 in 2019, making it the most digitally included regional city in NSW. Between 2017 and 2018 Wollongong had made a substantial gain of 6.3 points due to increases in the Affordability and Digital Ability sub-indices. This has not been repeated in 2019. Both Access and Affordability grew modestly and there was a decline in the Digital Ability score. Overall, Wollongong's ADII score fell by 0.2 points in the past year.

Newcastle, the second largest city in NSW, recorded an ADII score of 62.1 in 2019. Since 2014 Newcastle's score has increased by 8.3 points, with improvements across all three sub-indices. A substantial improvement in digital inclusion in Newcastle over the past year (up 4.2 points) is partly underpinned by the take-up of NBN services which have a direct positive impact on Access and flow-on effects on Affordability.

NSW Regions ADII scores
NSW ADII score: 61.8



*Sample size <100, exercise caution in interpretation.
Source: Roy Morgan Single Source, March 2019.

Table 14: NSW: digital inclusion by geography (ADII 2019)

2019	Australia	NSW	Sydney	Rural NSW	Sydney Regions						Gosford & Wyong	Newcastle	Wollongong	North East NSW	South Coast NSW	North West NSW	Murray & Murrum.	Hunter*
					North	North West	South	Central	South West	Outer West								
ACCESS																		
Internet Access	87.9	87.5	89.2	83.4	90.6	88.4	87.6	91.9	86.7	89.3	87.2	86.0	88.5	82.2	85.8	86.7	79.8	82.9
Internet Technology	80.4	80.1	80.6	76.3	81.0	80.7	77.0	82.9	81.2	80.8	84.1	83.5	85.2	73.1	80.3	79.7	75.4	75.6
Internet Data Allowance	58.7	57.8	60.0	51.5	53.8	61.9	59.6	60.8	64.1	61.2	58.3	57.1	60.9	49.9	54.1	55.2	48.7	49.8
	75.7	**75.1**	**76.6**	**70.4**	**75.1**	**77.0**	**74.7**	**78.5**	**77.3**	**77.1**	**76.5**	**75.5**	**78.2**	**68.4**	**73.4**	**73.8**	**67.9**	**69.4**
AFFORDABILITY																		
Relative Expenditure	54.6	56.5	60.1	48.7	65.4	58.1	61.0	61.6	54.3	56.1	50.3	55.2	54.8	48.7	51.9	48.0	41.7	56.3
Value of Expenditure	63.9	63.3	63.7	59.1	62.1	63.0	63.8	63.6	65.6	66.4	67.4	69.2	66.2	54.8	62.9	60.7	62.6	60.3
	59.2	**59.9**	**61.9**	**53.9**	**63.7**	**60.6**	**62.4**	**62.6**	**60.0**	**61.2**	**58.9**	**62.2**	**60.5**	**51.8**	**57.4**	**54.4**	**52.1**	**58.3**
DIGITAL ABILITY																		
Attitudes	51.2	51.1	55.1	43.2	54.6	54.3	55.7	57.6	54.5	51.6	43.8	47.5	49.1	41.9	44.2	47.7	41.2	39.8
Basic Skills	58.1	57.5	61.1	48.6	63.1	58.8	58.0	67.7	56.2	61.2	59.2	56.6	55.1	49.7	45.9	50.8	45.9	50.3
Activities	43.1	42.6	46.5	33.0	50.0	45.5	42.4	53.7	40.3	42.7	41.4	41.8	40.9	32.7	32.4	35.0	31.8	33.9
	50.8	**50.4**	**54.3**	**41.6**	**55.9**	**52.9**	**52.0**	**59.7**	**50.4**	**51.8**	**48.1**	**48.6**	**48.4**	**41.5**	**40.8**	**44.5**	**39.6**	**41.3**
DIGITAL INCLUSION INDEX	**61.9**	**61.8**	**64.2**	**55.3**	**64.9**	**63.5**	**63.1**	**66.9**	**62.5**	**63.4**	**61.2**	**62.1**	**62.4**	**53.9**	**57.2**	**57.6**	**53.2**	**56.3**

*Sample size <150, exercise caution in interpretation. **Source:** Roy Morgan Single Source, March 2019.

The regional centre of Gosford has an ADII score of 61.2 in 2019. Gosford has made continuous improvements in digital inclusion since 2016. In particular, there has been a substantial increase in the Access sub-index of 14.1 points.

In the past year digital inclusion has increased in four of the five country areas of NSW. Only the South Coast, which had recorded strong improvements in digital inclusion between 2016 and 2018 (up 8.7 points), fell slightly in the past year (down 1.1 points).

Demographics

Reflecting the national figures, in NSW digital inclusion increases in line with income. In 2019 people in Q1 high-income households have an ADII score of 73.1. This is 11.3 points above the NSW state average (61.8) and 11.2 points above the national average (61.9), although it is 0.7 points below the national average for Q1 high-income households (73.8). Since 2014 the ADII score for NSW residents in Q1 high-income households has increased 6.4 points with gains across all three sub-indices.

People in Q5 low-income households in NSW recorded an ADII score of 43.3. This matches the national score for this income group. In the past year the ADII score for people in Q5 low-income households rose 3.3 points, the largest increase of the five income brackets in NSW. This improvement was based on a rise in the Access and the Value of Expenditure component of the Affordability sub-index linked in part to the uptake of NBN services and rising data allowances. As a result of the strong improvement over the past year, the ADII score for people living in Q5 low-income households increased 8.7 points between 2014 and 2019. This increase was greater than that recorded by those from Q1 high-income households, indicating that the Income Gap between those in high and low-income households in NSW had narrowed slightly from 32.1 points in 2014 to 29.8 points in 2019.

Reflecting national patterns, digital inclusion in NSW is linked to employment, education, and age. Employed people in NSW had steadily increasing ADII scores across each of the five years since 2014, with a total increase of 6.6 points over that period to reach 66.6 in 2019. In 2019, people not in the labour force registered an ADII score of 54.4. Since 2014 the ADII score for those not in the labour force rose 6.8 points. This improvement was based on large gains in Access.

In 2019, tertiary educated people in NSW scored 66.1, which is 16.5 points higher than those who did not complete secondary school (49.6). Since 2014, residents of NSW who did not complete secondary school recorded a substantial improvement in Access (up 15.8 points) and moderate improvement in Digital Ability (up 8.3 points). However, these gains were offset somewhat by a decline in Affordability (down 2.7 points). Those not completing secondary school recorded an overall ADII score increase of 7.2 points since 2014. This was larger than that recorded by tertiary educated people in NSW (up 5.5 points), indicating a narrowing of the Education Gap from 18.2 points in 2014 to 16.5 points in 2019.

People in NSW aged below 50 recorded higher ADII scores (in the range of 65.5 to 66.3) than people aged over 50 (ranging from 48.8 to 61.7). In 2019, NSW residents aged 25-34 years are most digitally included, with an ADII score of 66.3, Those aged 35-49 years were only marginally less digitally included with a score of 66.2. In 2019, the ADII score for those aged 14-24 years fell slightly (down 1.6 points), largely as a consequence of a rise in the percentage of household income expended by this group on internet access.

The 50–64 age group in NSW has an ADII score of 61.7 in 2019. This is a 2.2 point increase over 2018 and a 5.2 point increase over 2017. This rate of improvement was greater than those in younger age cohorts and for the first time during the ADII data collection period (2014-2019) the gap between 50–64 year olds and younger cohorts fell below 5 points.

NSW residents aged 65+ recorded an ADII score of 48.8 in 2019. In 2019 the ADII score for those aged 65+ increased by 2.4 points. This is the largest annual improvement recorded by those aged 65+ during the ADII data collection period (2014-2019). The Age Gap between NSW residents aged 65+ and the population average increased between from 13.0 points in 2014 to 14.4 points in 2018 but returned to its 2014 level in

Table 15: NSW: digital inclusion by demography (ADII 2019)

2019	NSW	Income Quintiles					Employment			Education			Age					Disability	Indigenous Australians**	CALD
		Q1	Q2	Q3	Q4	Q5	Employed	Unemployed	NILF	Tertiary	Secondary	Less	14-24	25-34	35-49	50-64	65+			
ACCESS																				
Internet Access	87.5	93.3	92.3	90.2	82.9	71.9	92.7	88.6	79.4	92.0	86.2	73.5	91.8	90.9	93.0	87.4	74.0	75.6	78.0	88.9
Internet Technology	80.1	86.3	83.9	82.0	75.5	68.1	83.7	79.7	74.8	83.4	78.7	70.9	81.9	83.5	83.8	79.9	71.3	70.4	69.3	81.3
Internet Data Allowance	57.8	67.1	66.1	59.4	50.2	42.4	64.6	58.7	47.1	62.3	56.8	46.8	59.1	67.4	64.2	56.6	41.1	48.0	50.6	63.6
	75.1	**82.3**	**80.8**	**77.2**	**69.6**	**60.8**	**80.3**	**75.6**	**67.1**	**79.2**	**73.9**	**63.7**	**77.6**	**80.6**	**80.4**	**74.6**	**62.1**	**64.7**	**66.0**	**77.9**
AFFORDABILITY																				
Relative Expenditure	56.5	84.3	64.2	47.6	32.6	13.1	60.6	49.6	51.1	60.4	53.4	46.6	59.6	54.5	59.3	60.3	47.3	39.3	50.3	56.3
Value of Expenditure	63.3	67.2	67.3	62.9	59.4	56.1	63.9	66.8	61.5	65.8	62.6	57.5	65.4	64.4	65.4	64.7	55.6	55.8	55.0	62.9
	59.9	**75.8**	**65.8**	**55.3**	**46.0**	**34.6**	**62.3**	**58.2**	**56.3**	**63.1**	**58.0**	**52.1**	**62.5**	**59.5**	**62.4**	**62.5**	**51.5**	**47.5**	**52.6**	**59.6**
DIGITAL ABILITY																				
Attitudes	51.1	60.4	55.8	49.6	42.5	35.5	56.8	50.8	42.3	54.3	44.8	34.4	65.5	59.7	53.4	45.5	33.9	37.9	42.3	61.4
Basic Skills	57.5	69.9	64.3	58.5	50.4	39.0	65.5	60.7	44.9	65.4	54.4	38.1	57.2	66.2	66.3	58.2	38.4	39.7	43.3	60.3
Activities	42.6	53.4	48.5	41.6	35.2	28.9	49.2	46.6	31.8	48.5	37.7	26.2	46.8	51.1	48.3	40.4	26.5	28.8	31.8	48.3
	50.4	**61.2**	**56.2**	**49.9**	**42.7**	**34.5**	**57.2**	**52.7**	**39.7**	**56.1**	**45.6**	**32.9**	**56.5**	**59.0**	**56.0**	**48.0**	**32.9**	**35.5**	**39.1**	**56.7**
DIGITAL INCLUSION INDEX	**61.8**	**73.1**	**67.6**	**60.8**	**52.8**	**43.3**	**66.6**	**62.2**	**54.4**	**66.1**	**59.2**	**49.6**	**65.5**	**66.3**	**66.2**	**61.7**	**48.8**	**49.2**	**52.6**	**64.7**

Sample size <75, exercise extreme caution in interpretation. **Source: Roy Morgan Single Source, March 2019.

2019 (13.0 points). NSW residents aged 65+ recorded annual improvements in Access and Digital Ability between 2014 and 2019. The Access score for this age group rose 16.8 points and Digital Ability rose 11.4 points over this period. The Affordability score for this group fell by 7.3 points across the period 2014-2019, a consequence of a continuous decline in the Relative Expenditure component.

In 2019, people with disability in NSW recorded an ADII score of 49.2, down 0.7 points from 2018. Increasing expenditure on internet access relative to household income over the past year was the primary cause of this decline. While people with disability in NSW had recorded a level of digitally inclusion 0.3 points higher than the national average for people with disability in 2018 (49.6), the declining score over the past year means they now have a digital inclusion score 2.8 points lower than this national average (52.0).

In 2019, CALD migrants in NSW recorded an ADII score of 64.7. This is above both the NSW score (61.8) and overall Australian score (61.9), and matches the national CALD migrant score (64.7). It should be noted that the CALD migrant population is large and highly diverse and aggregate data may obscure some of the digital inclusion outcomes for distinct groups within that population.

Several sociodemographic groups in NSW are digitally excluded, with ADII scores substantially below the state average (61.8 points). These groups are in ascending order: people in Q5 low-income households (43.3), those aged 65+ (48.8), people with a disability (49.2), people who did not complete secondary school (49.6), and people not in the labour force (54.4).

Victoria

Findings

The 2019 ADII score for Victoria (VIC) is 63.3. VIC is 1.4 points above the national average (61.9) and ranks second out of Australia's eight states and territories. Since 2014 digital inclusion in VIC has improved each year, and each year has seen VIC score above the national average. Overall, VIC's ADII score rose 9.0 points since 2014 (from 54.3 in 2014 to 63.3 in 2019), outpacing the national average, rising 7.9 points.

Since 2014 VIC's Access and Digital Ability scores rose steadily, exceeding the national scores for these indices each year. The Access score increased 11.8 points, (from 65.1 in 2014 to 76.9 in 2019) largely due to a steady growth in NBN service access and rising fixed and mobile data allowances. VIC's Digital Ability sub-index score increased 10.1 points (from 42.6 points in 2014 to 52.7 in 2019).

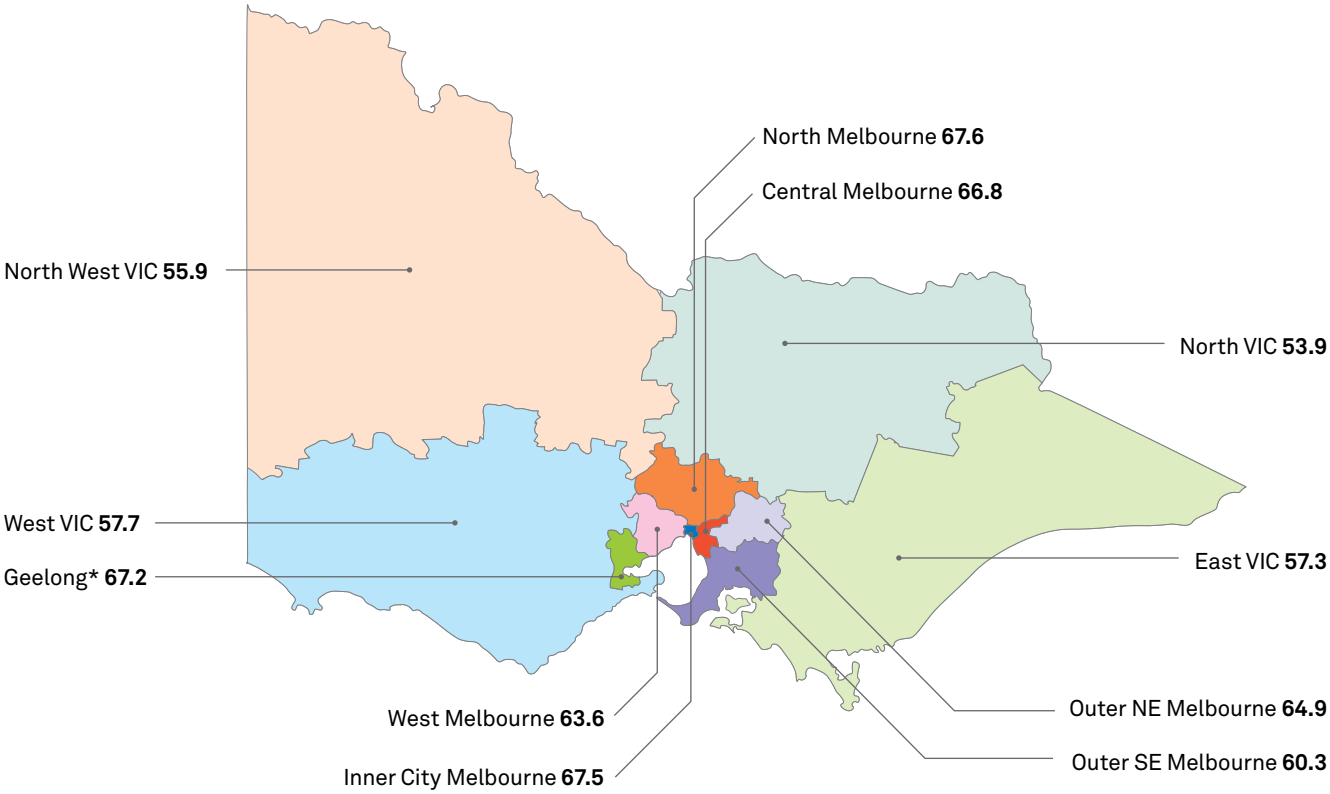
In 2019 VIC's Affordability score (60.3) is slightly above the national average (59.2). Mirroring the national trend, VIC has made limited gains in relation to Affordability since 2014. Since 2014, VIC's Affordability score rose 5.2 points (from 55.1 in 2014 to 60.3 in 2019). After recording a fall in Affordability between 2014 and 2015, VIC recorded modest year-on-year growth to 2019. This improvement is based on a rising Value of Expenditure component score (up 13.2 points between 2014 and 2019), which indicates that Victorians are getting more data allowance per dollar of expenditure.

Geography

Melbourne has the highest ADII score at 64.9. This is 3.0 points above the national average (61.9) and 1.1 points above the average for capital cities (63.8). Melbourne has the highest digital inclusion score of all state capitals. Since 2014, Melbourne's ADII score has increased by 8.2 points (from 56.7 in 2014 to 64.9 in 2019).

The sample size for Geelong has declined during the ADII reporting period (2014-2019) and this has generated increasing volatility in this city's ADII score. The ADII score derived from the 2019 data for Geelong is 67.2 however we suggest treating this result with caution. Geelong's 2019 result is 6.9 points higher than that recorded for 2018 (60.3). Certainly, data indicates that Geelong's rate of NBN uptake has been accelerating and this tends to generate an increase in fixed

VIC Regions ADII scores
VIC ADII score: 63.3



*Sample size <150, exercise caution in interpretation.
Source: Roy Morgan Single Source, March 2019.

Table 16: VIC: digital inclusion by geography (ADII 2019)

2019	Australia	VIC	Melbourne	Rural VIC	Melbourne Regions						Geelong*	West VIC	North West VIC	North VIC	East VIC
					West	North	Inner City	Central	Outer NE	Outer SE					
ACCESS															
Internet Access	87.9	88.9	89.8	85.0	88.7	91.0	95.1	91.4	89.2	85.8	91.0	87.0	85.9	81.3	85.0
Internet Technology	80.4	81.0	81.4	79.0	79.9	83.8	82.2	82.4	81.8	78.8	84.0	81.1	78.8	75.2	80.6
Internet Data Allowance	58.7	60.9	62.3	54.0	60.8	66.0	63.7	62.7	64.1	57.8	69.0	55.8	53.6	51.0	55.1
	75.7	**76.9**	**77.8**	**72.6**	**76.5**	**80.3**	**80.3**	**78.8**	**78.4**	**74.1**	**81.3**	**74.6**	**72.8**	**69.1**	**73.6**
AFFORDABILITY															
Relative Expenditure	54.6	54.5	56.5	46.2	54.1	60.1	54.7	60.1	54.2	53.4	57.4	47.4	43.8	45.4	47.9
Value of Expenditure	63.9	66.1	67.8	58.3	66.6	72.8	63.4	70.7	67.3	62.8	73.8	57.6	57.2	58.0	60.8
	59.2	**60.3**	**62.1**	**52.2**	**60.3**	**66.5**	**59.0**	**65.4**	**60.7**	**58.1**	**65.6**	**52.5**	**50.5**	**51.7**	**54.4**
DIGITAL ABILITY															
Attitudes	51.2	52.4	54.4	44.9	53.0	54.5	58.7	56.4	56.4	50.5	51.0	46.5	48.0	42.5	41.8
Basic Skills	58.1	60.5	62.7	51.5	62.6	64.3	74.0	63.1	62.9	55.1	64.7	53.9	49.9	48.0	53.6
Activities	43.1	45.1	47.5	35.5	46.1	49.6	56.8	48.9	47.1	40.8	47.9	37.6	35.1	32.5	36.4
	50.8	**52.7**	**54.8**	**44.0**	**53.9**	**56.1**	**63.2**	**56.1**	**55.5**	**48.8**	**54.6**	**46.0**	**44.3**	**41.0**	**43.9**
DIGITAL INCLUSION INDEX	**61.9**	**63.3**	**64.9**	**56.3**	**63.6**	**67.6**	**67.5**	**66.8**	**64.9**	**60.3**	**67.2**	**57.7**	**55.9**	**53.9**	**57.3**

*Sample size <150, exercise caution in interpretation. **Source:** Roy Morgan, April 2018–March 2019.

broadband data allowances which would improve digital inclusion. However, some volatility in other variables underlying all three sub-indices suggest the 2019 result may be overstated.

In 2019, country VIC has an overall digital inclusion score of 56.3. The ADII score for rural VIC increased 2.9 points in the past year, (from 53.4 in 2018 to 56.3 in 2019). As a result of this increase, rural VIC has a higher ADII score than the average for rural areas nationally for the first time. Digital inclusion rose in all four country areas in the past year. West VIC recorded the largest rise (4.4 points) with improvements across all three sub-indices. It is now the most digitally included region in VIC. Despite consistent annual improvements in digital inclusion since 2017, North VIC remains VIC's lowest ranked rural area on the basis of digital inclusion. In 2019, North VIC has an ADII score of 53.9.

Overall, VIC's Capital–Country Gap has fallen from 10.1 in 2018 to 8.6 points in 2019. In 2018 VIC's Capital–Country Gap was the largest of all states. In 2019, TAS (9.2 points) and NSW (8.9 points) have larger Capital–Country Gaps.

Demographics

Reflecting the national pattern, digital inclusion in VIC increases as income rises. The ADII score for Victorians in Q1 high-income households increased from 67.6 in 2014 to 75.8 in 2019. Every year, this group's score has remained more than 10 points above the Victorian and Australian averages. In 2018, the ADII score for Victorians in Q1 high-income households (75.8) is 2.0 points higher than the national Q1 score (73.8). As is the case nationwide, Victorians in Q1 high-income households had very high scores on all three sub-indices.

In 2019, Victorians in Q5 low-income households recorded an ADII score of 44.4. This is 17.5 points below the national average, but slightly higher (1.1 points) than the national score for this household income group (43.3). While the score for Victorians in Q5 low-income households rose 6.1 points between 2014 and 2019, this group fell further behind both the state average (up 9 points) and those living in Q1 high-income households (up 8.2 points). The Income Gap between Victorians in Q5 low-income households and Q1 high-income households is now 31.4 points, slightly wider than the national Income Gap (30.5).

Mirroring the national pattern, digital inclusion in VIC is linked to employment, education, and age. In 2019, employed Victorians have an ADII score of 67.9. This is 3.1 points higher than the unemployed (64.8). Victorians not in the labour force have an ADII score of 54.4, some 13.5 points lower than employed Victorians. Since 2014, Victorians not in the labour force recorded improvements in Access (up 14.8) and Digital Ability (up 9.3), but these were offset by a fall in Affordability (down 2.3 points). Overall, the Employment Gap between those not in the labour force and employed Victorians has widened slightly in the past year (up 1.0 point).

In 2019, there is an Education Gap of 18.6 points. Victorians with a tertiary education have an ADII score of 68.1, while those who did not complete secondary school scored 49.5. Mirroring the national picture, tertiary educated Victorians had higher scores on all three sub-indices than those who did not complete secondary school, with the largest gap evident in Digital Ability (26.3 points). Since 2014, those who did not complete secondary school recorded gains in Access (up 13.2 points) and Digital Ability (up 9.8 points). Although partly offset by a limited gain in Affordability (up 1.5 points), the overall ADII increase for Victorians who did not complete secondary school (up 8.2) was greater than that recorded by those that with a tertiary education (up 7.6 points).

Reflecting the national pattern, people in VIC aged below 50 recorded significantly higher ADII scores in 2019 (ranging from 65.8 to 70.8) than older groups (ranging from 48.7 to 61.2). The most digitally included age group in 2019 were 25–34 year olds (70.8 points). This group also recorded the largest gain of any age group since 2014 (up 12.1 points).

Table 17: VIC: digital inclusion by demography (ADII 2019)

2019	VIC	Income Quintiles					Employment			Education			Age					Disability	Indigenous Australians**	CALD
		Q1	Q2	Q3	Q4	Q5	Employed	Unemployed*	NILF	Tertiary	Secondary	Less	14-24	25-34	35-49	50-64	65+			
ACCESS																				
Internet Access	88.9	95.4	93.7	89.6	83.9	76.6	92.9	89.6	81.3	92.9	87.3	75.2	93.5	93.2	93.3	88.2	75.1	84.7	86.6	89.3
Internet Technology	81.0	85.7	85.5	82.1	78.3	70.4	83.8	83.4	75.5	84.4	81.5	70.1	82.2	85.3	85.1	80.4	70.8	79.3	87.6	80.6
Internet Data Allowance	60.9	72.9	65.3	64.5	52.9	43.7	66.9	63.5	49.2	66.0	63.6	44.3	61.4	74.7	68.2	57.2	40.4	55.7	59.1	64.1
	76.9	**84.6**	**81.5**	**78.7**	**71.7**	**63.6**	**81.2**	**78.9**	**68.7**	**81.1**	**77.5**	**63.2**	**79.0**	**84.4**	**82.2**	**75.3**	**62.1**	**73.2**	**77.7**	**78.0**
AFFORDABILITY																				
Relative Expenditure	54.5	85.0	66.7	43.8	29.7	10.8	58.5	45.6	48.3	57.1	50.5	48.4	58.3	51.9	57.0	57.5	46.5	35.0	44.3	53.6
Value of Expenditure	66.1	73.6	71.1	66.1	58.2	52.9	69.0	70.8	59.4	69.2	67.0	54.8	67.7	73.3	69.6	64.1	53.3	64.0	66.1	64.6
	60.3	**79.3**	**68.9**	**54.9**	**44.0**	**31.9**	**63.7**	**58.2**	**53.8**	**63.1**	**58.8**	**51.6**	**63.0**	**62.6**	**63.3**	**60.8**	**49.9**	**49.5**	**55.2**	**59.1**
DIGITAL ABILITY																				
Attitudes	52.4	59.3	55.9	52.8	44.4	38.2	56.3	61.0	43.7	58.0	45.7	34.2	62.9	64.6	55.1	44.2	35.7	48.8	67.3	61.0
Basic Skills	60.5	74.2	68.8	62.2	52.7	43.4	68.3	61.1	46.1	69.4	58.6	40.0	57.8	72.3	70.5	58.5	39.9	56.4	63.0	62.8
Activities	45.1	56.9	52.3	43.8	35.5	31.4	51.5	50.1	32.4	52.5	40.8	26.9	45.2	59.6	52.5	39.7	26.3	40.1	46.5	51.0
	52.7	**63.5**	**59.0**	**52.9**	**44.2**	**37.7**	**58.7**	**57.4**	**40.7**	**60.0**	**48.4**	**33.7**	**55.3**	**65.5**	**59.4**	**47.5**	**34.0**	**48.4**	**58.9**	**58.2**
DIGITAL INCLUSION INDEX	**63.3**	**75.8**	**69.8**	**62.2**	**53.3**	**44.4**	**67.9**	**64.8**	**54.4**	**68.1**	**61.5**	**49.5**	**65.8**	**70.8**	**68.3**	**61.2**	**48.7**	**57.1**	**63.9**	**65.1**

*Sample size <150, exercise caution in interpretation. **Sample size <75, exercise extreme caution in interpretation.
Source: Roy Morgan Single Source, March 2019.

The ADII score for VIC's 50–64 age cohort is 61.2. This group recorded the second largest improvement in digital inclusion of any Victorian age group since 2014 (up 10.1 points), with substantial gains in Access (up 14.3 points) and Digital Ability (up 12.2 points). While the Age Gap was closing for this age group, it was widening for those aged 65+. In 2019, Victorian residents aged 65+ recorded an ADII score of 48.7. Despite improvements in Access (up 13.9 points) and Digital Ability (up 9.1 points) since 2014, a marked decline in Affordability (down 7.7 points) during this period limited overall digital inclusion gains made by Victorians aged 65+ to 5.2 points. This was lower than the state average gain of 9.0 points.

In 2019, Victorians with disability recorded an ADII score of 57.1, a higher level of digital inclusion than their counterparts in other states. Since 2014, the ADII score for Victorians with disability has risen 13.4 points. This improvement is underpinned by a substantial increase in Access (up 19.7 points) and Digital Ability (up 17.6 points). Victorians with disability made limited gains in Affordability (up 2.6 points).

The ADII score for CALD migrants in Victorian has steadily increased since 2014. In 2019, the score for this group is 65.1, which is 1.8 points higher than the Victorian state average (63.3) and slightly above the national CALD migrant score (64.7). Care should be taken in interpreting these findings as the CALD migrant population is large and highly diverse and aggregate data may obscure some of the digital inclusion outcomes for distinct groups within that population.

Several sociodemographic groups in VIC are digitally excluded, with ADII scores substantially below the state average (63.3). In ascending order, they are: people in Q5 low-income households (44.4), people aged 65+ (48.7), people who did not complete secondary school (49.5), and people not in the labour force (54.4).

Queensland

Findings

Queensland's (QLD) ADII score in 2019 is 60.9. QLD is 1.0 points above the national average (61.9) and ranks fifth out of Australia's eight states and territories. Since 2014 QLD's ADII score has risen by 7.8 points, just less than the rise in the national average (7.9 points).

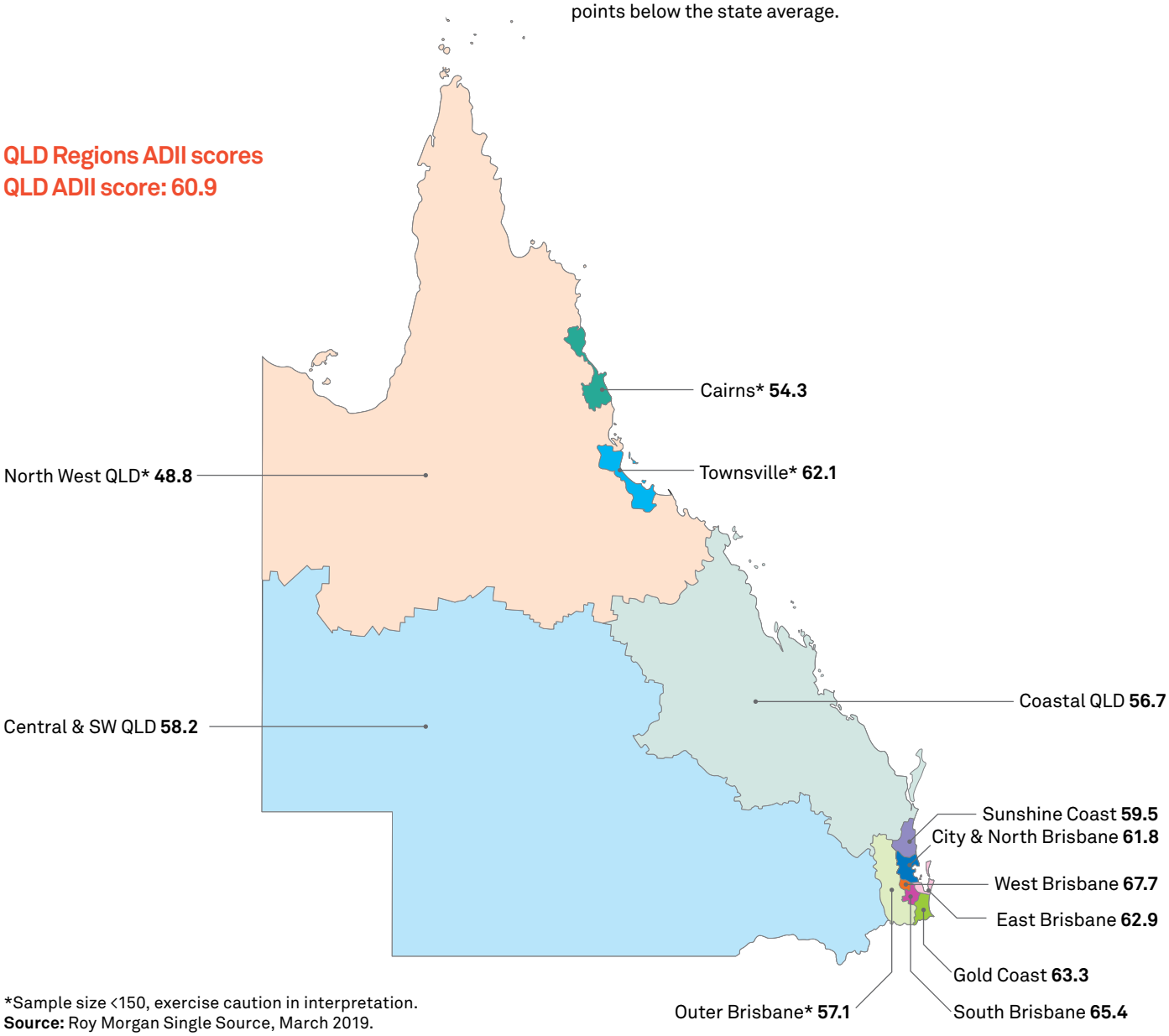
Looking at the three sub-indices, QLD's gains are underpinned by the population's uptake of new mobile and fixed broadband services (including NBN) and an increase in data allowances. From 2014 to 2019, Access increased from 64.0 to 75.5, while Digital Ability increased from 42.6 to 49.4. Mirroring the national picture, Affordability fell between 2014 and 2016, but has recovered since, rising to 57.9 in 2019. This is a 5.2 point gain on the 2014 score of 52.7. This recovery is a result of an improvement in Value of Expenditure (up 13.1 points since 2016) offsetting a decline in Relative Expenditure (down 0.6 points since 2016).

Geography

In 2019, Brisbane's ADII score is 63.3. Compared with the larger east coast cities, Brisbane scores less than both Melbourne (64.9) and Sydney (64.2).

In 2019 the Gold Coast recorded an ADII score of 63.3, placing it on par with Brisbane (63.3). The Gold Coast has made substantial improvements in digital inclusion since 2014 (up 14.2 points from 49.1 in 2014 to 63.3 in 2019). While the rate of improvement had slowed in the year to 2018 (up 1.2 points), improvements across all three sub-indices in 2019 resulted in a 3.4 point ADII score increase over the past year. The Sunshine Coast has an ADII score of 59.5 in 2019. The Sunshine Coast's ADII improvement since 2014 has been modest compared to the Gold Coast (up 6.4 points from 53.1 in 2014 to 59.5 in 2019). The Sunshine Coast has made some gains since 2014 in relation to Access (up 9.1 points) and Digital Ability (up 9.6 points), but Affordability remains an issue. Affordability increased just 0.6 points over this period and the 2019 score of 54.8 is 3.1 points below the state average.

QLD Regions ADII scores
QLD ADII score: 60.9



*Sample size <150, exercise caution in interpretation.
Source: Roy Morgan Single Source, March 2019.

Table 18: QLD: digital inclusion by geography (ADII 2019)

2019	Australia	QLD	Brisbane	Rural QLD	Brisbane Regions					Gold Coast	Sunshine Coast	Cairns*	Townsville*	Central & SW QLD	Coastal QLD	North West QLD*
					City & North	West	South	East	Outer*							
ACCESS																
Internet Access	87.9	87.5	89.3	83.5	88.0	91.8	91.3	89.6	83.7	89.5	87.9	81.8	87.3	85.4	83.8	78.3
Internet Technology	80.4	79.7	81.8	76.1	81.5	84.1	83.8	79.6	78.2	80.7	77.8	74.5	80.8	80.5	76.2	67.5
Internet Data Allowance	58.7	59.3	61.7	55.7	59.3	67.9	63.4	63.7	52.4	62.7	53.9	48.9	60.6	58.4	57.3	43.9
	75.7	**75.5**	**77.6**	**71.8**	**76.2**	**81.2**	**79.5**	**77.6**	**71.4**	**77.6**	**73.2**	**68.4**	**76.2**	**74.8**	**72.4**	**63.2**
AFFORDABILITY																
Relative Expenditure	54.6	51.4	53.4	45.0	51.6	62.2	51.4	55.4	48.5	56.0	52.6	47.9	52.1	50.6	43.9	38.9
Value of Expenditure	63.9	64.4	68.1	59.5	67.6	71.8	69.4	65.9	65.4	65.6	57.1	59.9	60.5	65.6	59.5	47.6
	59.2	**57.9**	**60.7**	**52.2**	**59.6**	**67.0**	**60.4**	**60.7**	**57.0**	**60.8**	**54.8**	**53.9**	**56.3**	**58.1**	**51.7**	**43.2**
DIGITAL ABILITY																
Attitudes	51.2	50.8	52.5	45.1	50.6	55.7	55.1	53.9	44.6	53.4	49.0	47.0	61.2	45.5	46.0	40.9
Basic Skills	58.1	56.1	59.0	50.0	57.2	62.9	63.8	56.9	49.8	59.1	58.6	43.5	56.5	47.5	52.3	44.2
Activities	43.1	41.4	43.4	36.9	41.3	45.9	50.0	40.6	34.2	42.2	44.2	31.7	43.8	32.1	39.4	34.9
	50.8	**49.4**	**51.7**	**44.0**	**49.7**	**54.9**	**56.3**	**50.4**	**42.9**	**51.5**	**50.6**	**40.7**	**53.9**	**41.7**	**45.9**	**40.0**
DIGITAL INCLUSION INDEX	**61.9**	**60.9**	**63.3**	**56.0**	**61.8**	**67.7**	**65.4**	**62.9**	**57.1**	**63.3**	**59.5**	**54.3**	**62.1**	**58.2**	**56.7**	**48.8**

*Sample size <150, exercise caution in interpretation. **Source:** Roy Morgan Single Source, March 2019.

Both Townsville* and Cairns* have low annual sample sizes and this can generate some volatility in ADII results which should be treated with some caution. In 2019, Townsville* recorded an ADII score of 62.1 in 2019. Since 2015 Townsville* has recorded annual increases in its ADII score. In the past year its ADII score rose 3.4 points largely as a result of improvements in Digital Ability. Digital inclusion in Cairns* rose steadily from 2015 to 2018 but has declined in the past year. The ADII score for Cairns* in 2019 is 54.3.

Both Central & South West QLD and Coastal QLD recorded steady annual improvements in digital inclusion between 2015 and 2017. In 2018 both regions recorded a slight ADII score decline, Central & South West QLD (down 0.2 points) as a result of drop in Digital Ability and Coastal QLD (down 0.9 points) as a result of a drop in Access (down 1.5 points). But in 2019 both have returned to the positive trend with improvements across all three sub-indices with Central & South West QLD recording an ADII score of 58.2 (up 3.9 points on 2018) and Coastal QLD an ADII score of 56.7 (up 4.0 points on 2018). The sample size for North West QLD* is very small and this can generate volatility in ADII results which should be treated with some caution. Indeed, the digital inclusion score for North West QLD* has fluctuated significantly since 2014. Each year it has recorded the lowest ADII score of QLD's rural regions. In 2019 its ADII score is 48.8.

The Capital-Country Gap in QLD has narrowed over the past year, from 8.3 points to 7.3 points.

Demographics

Mirroring patterns in the national figures, digital inclusion in QLD tends to increase as income, employment participation, and education levels rise.

In 2019, Queenslanders in Q1 high-income households have an ADII score of 73.2. This is 12.3 points above the average QLD score (60.9), but 0.6 points below the national Q1 score (73.8). Queenslanders in Q5 low-income households record a 2019 ADII score of 42.9. This is 19.0 points below the national average and slightly lower than the national score for people in Q5 low-income households (43.3).

Queenslanders in the Q1 high-income households have recorded an improved ADII score since 2014 (up 8.5 points), while Queenslanders in Q5 low-income households registered a smaller gain (up 6.9 points). While the Income Gap between Queenslanders in the highest and lowest income households (30.3 points) is slightly narrower than the comparable national figure (30.5), it has been consistently widening since 2017.

In 2019, the ADII score for Queenslanders in employment is 66.8, 13.6 points higher than that of Queenslanders not in the labour force (53.2). This Employment Gap remains essentially unchanged from 2014 with those not in the labour force recording an 8.7 point ADII score increase since 2014, while those in employment recorded an 8.8 point increase. Those in employment recorded moderate improvement across all three sub-indices in this period, those not in the labour force made substantial gains in Access and Digital Ability but made no improvement in Affordability.

Queenslanders who did not complete secondary school recorded an ADII score of 49.6 in 2019, while those with a tertiary education scored 66.4 – a 16.8 point Education Gap. Both Queenslanders who did not complete secondary school and Queenslanders with a tertiary education experienced steadily rising ADII scores since 2014. Digital inclusion for tertiary-educated Queenslanders has risen by 8.4 points (from 58.0 in 2014 to 66.4 in 2019), and those who did not complete secondary school have gained 8.6 points (from 41.0 in 2014 to 49.6 in 2019).

Age is also a significant influence on digital inclusion in QLD. In 2019, people aged 35–49 years are the most digitally included age group, with a score of 68.6. They also recorded the largest gain of any age cohort since 2014 (up 12.4 points), recording almost uninterrupted annual improvements across all sub-indices.

The 65+ group recorded the lowest ADII score (46.6) of all QLD age cohorts in 2019. There is an Age Gap of 22.0 points between 65+ and the state's most digitally included cohort, 35–49 year olds. However, since 2014 Queenslanders aged 65+ have recorded an 8.3 point rise in digital inclusion

Table 19: QLD: digital inclusion by demography (ADII 2019)

2019	QLD	Income Quintiles					Employment			Education			Age					Disability	Indigenous Australians**	CALD*
		Q1	Q2	Q3	Q4	Q5	Employed	Unemployed	NILF	Tertiary	Secondary	Less	14-24	25-34	35-49	50-64	65+			
ACCESS																				
Internet Access	87.5	94.5	92.7	91.2	82.5	75.9	92.9	85.4	79.7	92.5	85.2	77.1	90.5	92.9	94.4	85.9	72.7	77.8	82.1	88.8
Internet Technology	79.7	86.6	85.1	82.8	74.9	68.4	84.2	71.6	74.9	83.9	78.3	71.0	79.1	83.5	86.3	78.9	69.4	73.2	62.7	80.8
Internet Data Allowance	59.3	67.8	67.7	64.2	56.3	43.7	66.5	51.5	50.3	63.5	57.7	48.3	62.9	68.1	68.9	55.5	39.9	49.9	55.1	60.5
	75.5	**83.0**	**81.8**	**79.4**	**71.2**	**62.7**	**81.2**	**69.5**	**68.3**	**80.0**	**73.7**	**65.5**	**77.5**	**81.5**	**83.2**	**73.4**	**60.7**	**67.0**	**66.6**	**76.7**
AFFORDABILITY																				
Relative Expenditure	51.4	85.5	62.8	44.5	28.8	10.2	58.4	40.1	42.8	57.6	47.4	43.9	55.8	47.5	57.5	51.5	42.3	41.8	49.8	54.4
Value of Expenditure	64.4	69.4	67.4	66.8	66.6	52.0	68.7	56.9	59.1	67.0	61.8	57.5	66.2	67.0	70.8	62.9	52.4	59.0	52.3	66.5
	57.9	**77.4**	**65.1**	**55.6**	**47.7**	**31.1**	**63.5**	**48.5**	**51.0**	**62.3**	**54.6**	**50.7**	**61.0**	**57.2**	**64.2**	**57.2**	**47.3**	**50.4**	**51.1**	**60.4**
DIGITAL ABILITY																				
Attitudes	50.8	58.9	55.1	54.5	43.8	37.2	56.1	51.5	42.6	55.1	48.8	34.7	62.4	60.2	55.6	43.7	33.5	46.0	50.6	61.8
Basic Skills	56.1	67.4	65.4	62.3	48.5	39.2	63.4	53.8	45.8	66.5	55.0	38.1	49.8	67.0	67.8	55.8	37.4	45.4	43.6	62.2
Activities	41.4	51.0	47.3	47.7	33.3	28.5	47.2	40.9	32.7	49.3	40.0	25.5	39.4	49.9	52.1	39.1	24.2	30.9	34.9	51.0
	49.4	**59.1**	**55.9**	**54.8**	**41.9**	**35.0**	**55.6**	**48.7**	**40.4**	**57.0**	**48.0**	**32.8**	**50.5**	**59.0**	**58.5**	**46.2**	**31.7**	**40.8**	**43.0**	**58.3**
DIGITAL INCLUSION INDEX	**60.9**	**73.2**	**67.6**	**63.3**	**53.6**	**42.9**	**66.8**	**55.6**	**53.2**	**66.4**	**58.8**	**49.6**	**63.0**	**65.9**	**68.6**	**58.9**	**46.6**	**52.7**	**53.6**	**65.2**

*Sample size <150, exercise caution in interpretation. **Sample size <75, exercise extreme caution in interpretation.
Source: Roy Morgan Single Source, March 2019.

(up from 38.3 in 2014 to 46.6 in 2019), outpacing the overall state-wide increase over that same period (up 7.8 points). QLD is one of only two states or territories in which the Age Gap has not widened since 2014 (the other being NSW). The strong gains made by Queenslanders aged 65+ on the Access (up 17.9 points) and Digital Ability (up 11.5 points) sub-indices has been tempered slightly by a decline in Affordability (down 4.6 points). The drop in Affordability is the result of a year on year decline in Relative Expenditure between 2014 and 2018. In 2019, the Relative Expenditure score recovered slightly as the proportion of household income spent on network access by those aged 65+ fell marginally.

Queenslanders with disability have a relatively low level of digital inclusion, recording a 2019 ADII score of 52.7, 8.2 points below the state average (60.9). This group's digital inclusion score has risen 8.8 points since 2014 based largely on strong gains in Access (up 11.9 points) and Digital Ability (up 11.6 points). Affordability for Queenslanders with disability has fluctuated since 2014. In the past year it rose 4.9 points.

The ADII score for CALD migrants in QLD is 65.2, 4.3 points higher than the state score (60.9) and slightly above the national CALD migrant score (64.7). ADII scores for CALD migrants in QLD fell between 2014 and 2016 but have risen in each year since. The CALD migrant population is large and highly diverse and it should be noted that aggregate data may obscure some of the digital inclusion outcomes for distinct groups within that population.

Several sociodemographic groups in QLD are more digitally excluded, with ADII scores substantially below the state average (60.9). In ascending order, these groups are: people in Q5 low-income households (42.9), people aged 65+ (46.6), people who did not complete secondary school (49.6), people with a disability (52.7), and people not in the labour force (53.2).

Western Australia

Findings

Western Australia's (WA) ADII score in 2019 is 61.3. WA is 0.6 points below the national average (61.9) and ranks fourth out of Australia's eight states and territories. Improvement in WA has not been consistent. The state's ADII score rose from 55.0 in 2014 to 56.4 in 2015, but fell to 55.8 in 2016. Since 2016, digital inclusion has improved in WA, with the ADII score for the state rising to 57.4 in 2017, 59.8 in 2018 before reaching its current level of 61.3.

Since 2014 WA has reported steady annual improvements in Access (up 11.7 points, from 63.5 in 2014 to 75.2 in 2019). This is underpinned by the take-up of NBN fixed broadband – more than 40% of West Australians now have NBN fixed broadband services. This has had an impact on the Internet Technology component of Access and is likely to have been a factor in lifting the average fixed broadband data allowances available to West Australians to improve the Internet Data Allowance score.

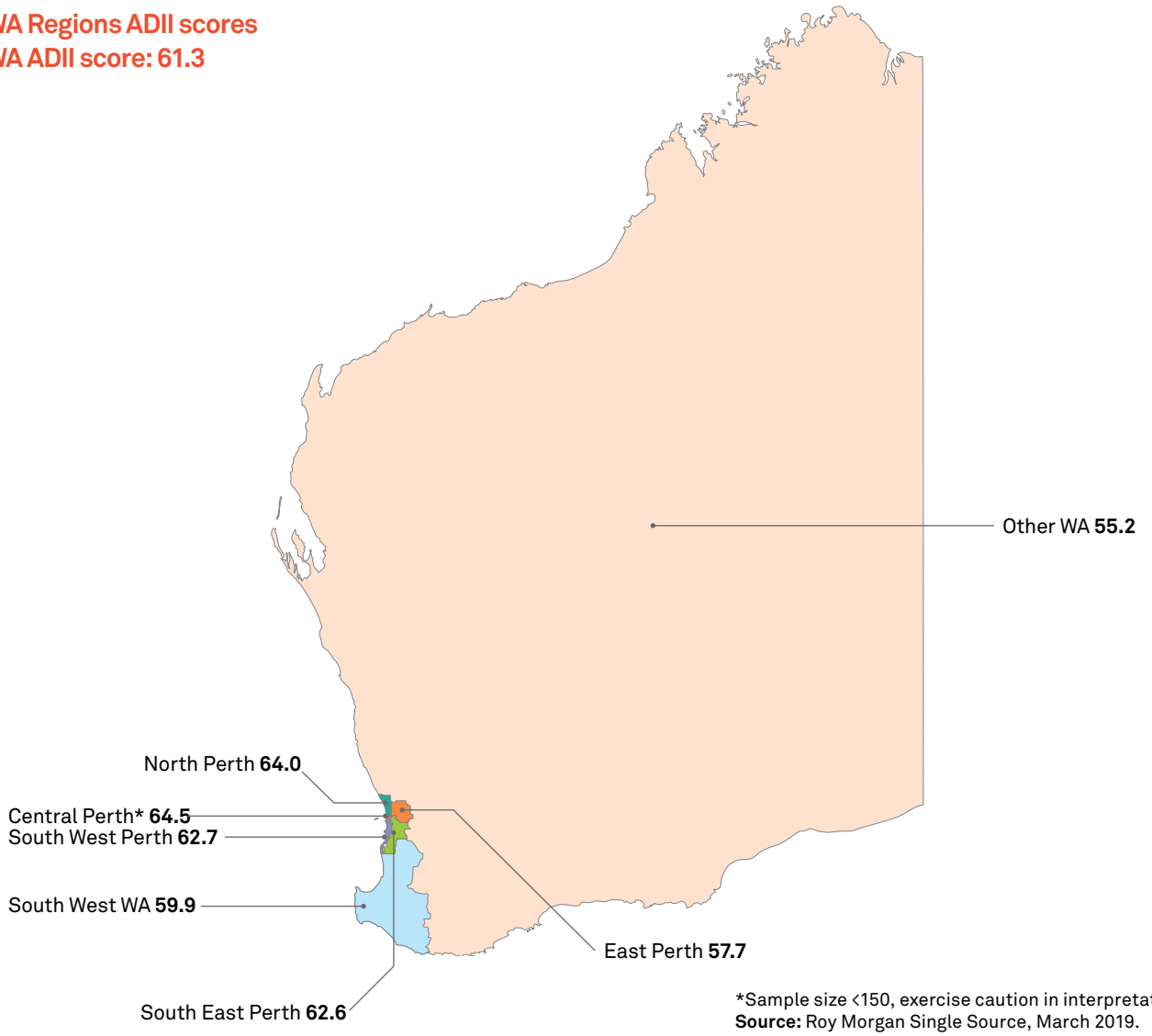
By contrast, Affordability declined in each year between 2014 and 2017 due to a combination of factors, including an increase in spending on internet access at the same time average household income was falling due to the end of the mining boom. Since 2017, WA's Affordability score has risen. However, the state's 2019 Affordability score (57.8) remains 0.6 points below its 2014 level (58.4).

WA's Digital Ability rose 7.8 points in the past five years, from 43.0 in 2014 to 50.8 in 2019.

Geography

In 2019, Perth's ADII score is 62.4, slightly above the state score (61.3) and national average (61.9), but below the capital cities average of 63.8. While Perth's score improved by 5.2 points since 2014, (from 57.2 in 2014 to 62.4 in 2019), this improvement was not aligned with the greater pace of Australia's other state capitals. Declining household income after the mining boom ended resulted in a sharp decline in Perth's Relative Expenditure score between 2014 and 2017. This reduced Perth's overall Affordability score and despite a recovery since (in part due to a return to household income growth) it remains 2.4 points lower than that recorded in 2014.

WA Regions ADII scores
WA ADII score: 61.3



*Sample size <150, exercise caution in interpretation.
Source: Roy Morgan Single Source, March 2019.

Table 20: WA: digital inclusion by geography (ADII 2019)

2019	Australia	WA	Perth	Rural WA	Perth Regions					South West WA	Other WA
					Central*	East	North	South West	South East		
ACCESS											
Internet Access	87.9	88.2	88.9	85.6	88.1	85.8	90.6	88.5	89.4	87.0	84.9
Internet Technology	80.4	80.3	80.6	79.0	79.8	77.3	80.4	81.9	82.0	81.5	77.8
Internet Data Allowance	58.7	57.1	58.2	52.9	57.7	55.5	58.6	58.9	58.8	57.8	50.4
	75.7	**75.2**	**75.9**	**72.5**	**75.2**	**72.9**	**76.5**	**76.5**	**76.7**	**75.4**	**71.0**
AFFORDABILITY											
Relative Expenditure	54.6	54.7	55.8	50.5	59.6	51.3	59.5	56.8	51.9	53.8	48.8
Value of Expenditure	63.9	60.8	62.3	54.7	64.0	56.0	60.1	66.1	64.4	60.2	52.1
	59.2	**57.8**	**59.0**	**52.6**	**61.8**	**53.6**	**59.8**	**61.4**	**58.2**	**57.0**	**50.5**
DIGITAL ABILITY											
Attitudes	51.2	50.1	51.3	45.0	53.7	48.7	55.7	45.5	53.3	52.1	41.4
Basic Skills	58.1	58.8	60.3	53.1	64.8	53.5	63.4	60.5	59.3	52.0	53.7
Activities	43.1	43.6	45.3	37.1	50.8	37.8	47.7	44.4	46.3	37.6	36.9
	50.8	**50.8**	**52.3**	**45.1**	**56.5**	**46.7**	**55.6**	**50.1**	**52.9**	**47.2**	**44.0**
DIGITAL INCLUSION INDEX	**61.9**	**61.3**	**62.4**	**56.7**	**64.5**	**57.7**	**64.0**	**62.7**	**62.6**	**59.9**	**55.2**

*Sample size <150, exercise caution in interpretation. **Source:** Roy Morgan Single Source, March 2019.

The 2019 ADII score recorded by South West WA (59.9) is well above the national rural average (55.7). The ADII score for Other WA (55.2), is slightly below. Both WA rural regions have experienced improvements in digital inclusion since 2014 despite some annual fluctuations. The ADII score for South West WA increased 9.2 points (from 50.7 in 2014 to 59.9 in 2019). The ADII score for Other WA rose 8.0 points (from 47.2 in 2014 to 55.2 in 2019). Both regions recorded substantial improvements in Access over this period as NBN connections and data allowances rose. The Access score for South West WA rose 16.0 points and the Access score for Other WA rose 11.8 points.

In 2019 the Capital–Country Gap in WA (5.7 points) is the smallest of all states.

Demographics

In line with national trends, Western Australians who have lower income, education, and employment levels tend to be less digitally included. In 2019, Western Australians in Q1 high-income households recorded an ADII score of 73.6. This is 12.3 points above the WA average (61.3) and 29.7 points above the score recorded by those in Q5 low-income households (43.9). Mirroring the statewide post-mining boom recovery, digital inclusion for those in Q1 high-income households has improved annually since 2016, rising 10.1 points (from 63.5 in 2016 to 73.6 in 2019). Again reflecting the national pattern, Western Australians in Q1 high-income households score highly across all three sub-indices of the ADII (Access, Affordability, and Digital Ability).

In 2019 West Australians in Q5 low-income households have an ADII score of 43.9. This is 18.0 points below the national average (61.9), and 17.4 points below the state average (61.3), but 0.6 points higher than the national score of people in Q5 low-income households (43.3). Western Australians living in Q5 low-income households recorded a substantial improvement in digital inclusion between 2014 and 2017 (up 10.2 points, from 32.6 in 2014 to 42.8 in 2017). A decline in Affordability in 2018 (down 1.7 points) led to drop in the overall ADII score for those in Q5 low-income households to 41.8 points. In 2019, improvements in Access (up 3.3 points) and Digital Ability (up 4.2 points) have offset the continued decline in Affordability (down 1.3 points) to arrest the downward trend in the overall ADII score for those in Q5 low-income households. Overall, the Income Gap in WA has narrowed slightly since 2014 but remains substantial at 29.7 points.

In 2019, Western Australians not in the labour force recorded an ADII score of 52.0, or 14.0 points below those in employment (66.0). Scores for both groups have fluctuated since 2014. Overall, the scores for employed Western Australians rose 7.5 points (from 58.5 in 2014 to 66.0 in 2019), and those not in the labour force registered a rise of 4.7 points (from 47.3 in 2014 to 52.0 in 2019), meaning the Employment Gap has widened slightly.

Tertiary-educated Western Australians recorded an ADII score of 65.7 in 2019, while those who did not complete secondary school scored 48.5 – an Education Gap of 17.2 points. The Education Gap narrowed each year between 2014 and 2017, recording a low of 13.1 points in 2017. But it has widened since this time, largely as a result of differential changes in Affordability sub-index scores – Affordability remained essentially unchanged for those not completing secondary school (down 0.1 points) while tertiary educated residents recorded a 4.6 point improvement.

Age is also a significant factor impacting digital inclusion in WA. In 2019, residents aged 35–49 years are most digitally included (67.8). This cohort recorded a 2.7 point ADII score increase in the past year and a 10.6 point increase since 2014, the most of any age group. Western Australians aged 14–25 recorded the second highest ADII score in 2019 (66.5).

Western Australians aged 65+ recorded the lowest ADII score (46.2) of all age cohorts in 2019. This is 21.6 points below WA's most digitally included age cohort for 2019 (35-49 year olds), and 15.1 points below the state average. Those aged 65+ have experienced only a very modest improvement in digital inclusion since 2014 (up 3.1 points, from a score of 43.1 in 2014). Their gain falls below the state average over

Table 21: WA: digital inclusion by demography (ADII 2019)

		Income Quintiles					Employment			Education			Age							
2019	WA	Q1	Q2	Q3	Q4	Q5	Employed	Unemployed*	NILF	Tertiary	Secondary	Less	14-24	25-34	35-49	50-64	65+	Disability*	Indigenous Australians**	CALD*
ACCESS																				
Internet Access	88.2	95.3	91.5	89.9	83.5	76.1	93.0	88.9	79.1	92.5	87.0	74.4	94.4	92.4	94.3	86.0	72.2	74.3	90.5	92.1
Internet Technology	80.3	86.8	83.5	81.4	76.1	69.0	84.0	78.6	73.7	83.9	79.1	70.4	83.8	85.5	84.8	77.8	68.3	71.8	80.3	84.7
Internet Data Allowance	57.1	67.1	60.9	58.2	51.4	42.5	63.3	60.4	44.8	60.6	57.3	42.7	63.0	67.1	65.9	50.9	36.4	45.8	56.7	68.0
	75.2	**83.1**	**78.6**	**76.5**	**70.3**	**62.6**	**80.1**	**75.9**	**65.8**	**79.0**	**74.4**	**62.5**	**80.4**	**81.7**	**81.6**	**71.6**	**59.0**	**64.0**	**75.8**	**81.6**
AFFORDABILITY																				
Relative Expenditure	54.7	86.2	64.9	45.1	30.4	9.7	59.1	54.0	46.3	57.7	52.3	46.9	60.4	50.5	61.2	55.2	43.3	47.5	69.8	49.4
Value of Expenditure	60.8	68.0	62.8	57.3	59.3	50.1	62.9	61.3	56.5	63.3	58.6	51.5	66.4	60.6	67.5	54.7	52.5	54.4	49.1	67.3
	57.8	**77.1**	**63.8**	**51.2**	**44.9**	**29.9**	**61.0**	**57.7**	**51.4**	**60.5**	**55.4**	**49.2**	**63.4**	**55.5**	**64.4**	**54.9**	**47.9**	**50.9**	**59.4**	**58.3**
DIGITAL ABILITY																				
Attitudes	50.1	55.5	50.4	54.5	44.3	39.0	54.7	56.9	39.8	55.1	43.3	34.6	62.6	60.8	53.5	42.1	32.2	45.0	56.7	66.4
Basic Skills	58.8	72.8	66.0	62.0	49.3	44.9	66.7	58.7	44.1	66.9	57.5	40.2	58.7	70.6	67.2	56.1	38.2	49.8	56.1	56.3
Activities	43.6	53.2	50.5	45.9	34.0	33.4	49.5	46.7	32.0	50.8	40.5	26.7	46.1	53.8	52.0	38.6	25.2	37.8	49.2	44.4
	50.8	**60.5**	**55.6**	**54.2**	**42.5**	**39.1**	**57.0**	**54.1**	**38.7**	**57.6**	**47.1**	**33.9**	**55.8**	**61.7**	**57.5**	**45.6**	**31.9**	**44.2**	**54.0**	**55.7**
DIGITAL INCLUSION INDEX	**61.3**	**73.6**	**66.0**	**60.6**	**52.6**	**43.9**	**66.0**	**62.6**	**52.0**	**65.7**	**59.0**	**48.5**	**66.5**	**66.3**	**67.8**	**57.4**	**46.2**	**53.0**	**63.1**	**65.2**

*Sample size <150, exercise caution in interpretation. **Sample size <75, exercise extreme caution in interpretation.
Source: Roy Morgan Single Source, March 2019.

this period (6.3 points), indicating that the Age Gap is greater in 2019 than it was in 2014. Following a nationwide pattern, Western Australians aged 65+ recorded improved scores on the Access and Digital Ability sub-indices (up 14.5 and 10.9 points respectively since 2014), but these gains were offset by a decline in the Affordability sub-index (down 15.9 points) reflecting both a substantial increase in the proportion of household income spent on network access and a reduction in Value of Expenditure. In the past 12 months the diminishing Affordability trend been arrested for those aged 65+.

In 2018, West Australians with disability have an ADII score of 53.0, which is 8.3 points below the state average. Since 2014 West Australians with disability have recorded fluctuating ADII scores. The annual sample size for this group is low and likely to generate some volatility in ADII results. The general trends suggest that the marginal improvements in overall digital inclusion recorded over this period have been based on an increase in Access and Digital Ability sub-index scores, with Affordability remaining a concern for this group given their reliance on low (and fixed) pensions.

In 2019 CALD migrants in WA recorded an ADII score of 65.2, above the state average (61.3) and the national average (61.9). Since 2014 the ADII score for CALD migrants in WA rose by 8.6 points, outpacing the average rise for the whole state over that period (up 6.3 points). The CALD migrant population is large and highly diverse and it should be noted that aggregate data may obscure some of the digital inclusion outcomes for distinct groups within that population. Furthermore, care should be exercised in interpreting WA CALD migrant data given the limited sample size from which it is drawn.

Several sociodemographic groups in WA are more digitally excluded, with ADII scores substantially below the state average (61.3). These groups in ascending order are: people in Q5 low-income households (43.9), people aged 65+ (46.2), people who did not complete secondary school (48.5), people not in the labour force (52.0) and people with disability* (53.0).

South Australia

Findings

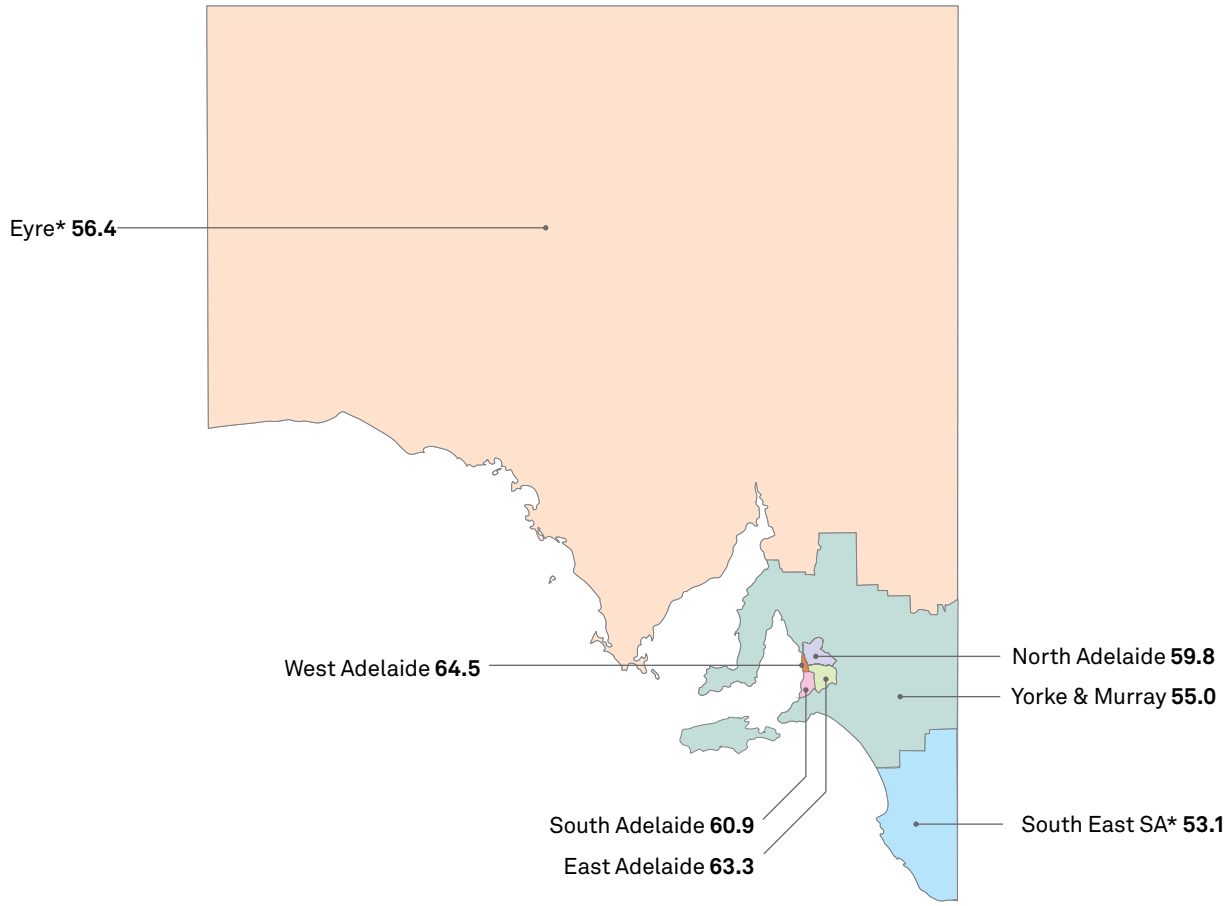
South Australia's (SA) ADII score in 2019 is 60.2. SA is 1.7 points below the national average (61.9) and ranks second lowest out of Australia's eight states and territories. SA recorded the largest improvement of all states in the past 12 months (up 2.7 points), and the largest since 2014 (up 9.9 points), narrowing the gap with the national average from 3.7 points to 1.7 points over this period.

Looking at the three sub-indices, SA's Access score has improved consistently since 2014, rising from 61.3 in 2014 to 75.1 in 2019. In 2018 we reported that there was some indication the rollout of the NBN in SA – which was then 60% complete – was generating improvements in Access. More than 40% of South Australians have now taken up NBN fixed broadband. Although the rate of uptake was not as rapid as it was in TAS over 2017-2018 (as reported in the 2018 ADII report), it has generated a substantial improvement in the Access score for SA in the past year (up 4.0 points). The uptake of NBN underpinned a 3.8 point increase in the Internet Technology component of the Access sub-index and is likely to have been a factor in lifting the average fixed broadband data allowances for the state to improve the Internet Data Allowance score by 5.9 points.

Mirroring the national picture, SA's Affordability score has fluctuated, dropping between 2014 and 2015 from 52.1 to 48.3, before recovering to reach 48.8 in 2016 and 51.6 in 2017. In 2018, SA's Affordability score (54.4) exceeded that recorded in 2014 (52.1). Further improvement in 2019 (up 2.7 points to 57.1) has generated an overall rise of 5.0 points since 2014. The gains over this period have been concentrated on the Value of Expenditure component (up 14.9 points), with the Relative Expenditure component score in 2019 (52.5) still trailing the level recorded in 2014 (57.3) by 4.8 points.

SA's Digital Ability score is 48.5 in 2019 (up 10.8 points since 2014). SA's scores on each of the three components of this sub-index (Attitudes, Basic Skills and Activities) have improved since 2014.

SA Regions ADII scores
SA ADII score: 60.2



*Sample size <150, exercise caution in interpretation.
Source: Roy Morgan Single Source, March 2019.

Table 22: SA: digital inclusion by geography (ADII 2019)

2019	Australia	SA	Adelaide	Rural SA	Adelaide Regions				Yorke & Murray	Eyre*	South East SA*
					North	West	East	South			
ACCESS											
Internet Access	87.9	87.8	88.9	84.1	86.4	89.5	92.3	88.8	84.0	83.9	84.8
Internet Technology	80.4	80.6	81.2	78.5	80.5	78.8	82.1	83.1	78.2	79.6	77.7
Internet Data Allowance	58.7	56.9	58.0	53.0	57.8	58.6	58.5	57.2	52.8	56.6	47.6
	75.7	**75.1**	**76.0**	**71.9**	**74.9**	**75.6**	**77.6**	**76.4**	**71.7**	**73.4**	**70.0**
AFFORDABILITY											
Relative Expenditure	54.6	52.5	54.6	45.2	52.7	61.0	54.3	52.9	45.9	40.9	50.4
Value of Expenditure	63.9	61.7	63.1	56.7	63.4	65.9	62.5	61.3	56.9	58.8	52.5
	59.2	**57.1**	**58.8**	**50.9**	**58.0**	**63.5**	**58.4**	**57.1**	**51.4**	**49.9**	**51.5**
DIGITAL ABILITY											
Attitudes	51.2	48.7	49.6	45.5	45.0	54.1	52.4	50.0	45.4	46.6	43.5
Basic Skills	58.1	56.6	59.0	48.6	56.1	62.1	63.9	56.4	47.5	54.9	41.1
Activities	43.1	40.3	42.3	33.3	38.3	46.9	45.5	41.6	33.1	36.1	28.8
	50.8	**48.5**	**50.3**	**42.4**	**46.5**	**54.3**	**53.9**	**49.3**	**42.0**	**45.9**	**37.8**
DIGITAL INCLUSION INDEX	**61.9**	**60.2**	**61.7**	**55.1**	**59.8**	**64.5**	**63.3**	**60.9**	**55.0**	**56.4**	**53.1**

*Sample size <150, exercise caution in interpretation. **Source:** Roy Morgan Single Source, March 2019.

Geography

In 2019 Adelaide's ADII score is 61.7. Since 2014 Adelaide's score has increased by 9.5 points (from 52.2 in 2014 to 61.7 in 2019) which outpaced the rise in the capital cities average over this time (up 7.2 points).

In 2019 rural SA recorded an ADII score of 55.1. In the past year the Rural SA ADII score increased by 4.4 points and since 2014 it has risen a total of 11.3 points. In comparison, the national rural average increased 2.0 points in the past year and 7.7 points since 2014. As such, the gap between the Rural SA score and the national rural average has narrowed from 4.2 to 0.6 points over the past five years.

Mirroring national rural results, SA's rural community has made substantial gains on the Access and Digital Ability sub-indices since 2014. Access improvements over the past year based on NBN uptake have driven up fixed broadband data allowances in Rural SA resulting in some improvement to the value of expenditure score (up from 47.7 in 2018 to 56.7 in 2019). However, mirroring the national rural trend, the Relative Expenditure score for Rural SA has declined since 2014.

In 2019 the Capital-Country Gap in SA is 6.6 points, down from 8.8 points in 2018.

Since 2015 the ADII score in Yorke & Murray has steadily increased (from 40.8 in 2015 to 55.0 in 2019). The sample sizes for the other regional SA areas, Eyre and South East SA, are low and generate some volatility in ADII results. Since 2014 both regions recorded fluctuating ADII scores, however the general trend indicates improvement in digital inclusion based on Access, with a large take-up of NBN services, and Affordability, based on an increase in value for expenditure component scores associated with the rise in fixed broadband data allowances associated with the transition to NBN services.

Demographics

Mirroring patterns in the national figures, digital inclusion in SA increases as income, education, and employment levels rise. In 2019 South Australians in Q1 high-income households have an ADII score of 71.2, 11.0 points above the SA average (60.2), but 2.6 points below the national Q1 score (73.8). South Australians in Q5 low-income households recorded an ADII score of 41.5. This is 20.4 points below the national average (61.9), 18.7 points below the state average (60.2) and 1.8 points below the national Q5 score (43.3).

Since 2014, SA residents in Q1 high-income households recorded a 5.5 point increase in their ADII score. Most of the gains occurred in the past 12 months (4.3 points). Since 2014 SA residents in Q5 low-income households have recorded an even greater gain (up 8.5 points, from 33.0 to 41.5), thereby narrowing the Income Gap. But, in the past 12 months digital inclusion gains for South Australians in Q5 low-income households have been marginal (up 0.3 points). Members of these households did not experience the substantial gains in Access recorded by other South Australians.

The 2019 ADII score for South Australians in employment is 65.3. This is 5.0 points higher than those who are unemployed (60.3) and 12.6 points above those not in the labour force (52.7). While the Employment Gap between the employed and NILF groups had been widening each year between since 2016 (from 10.6 points in 2016 to 14.7 points in 2018) this trend was reversed in 2019. The Employment Gap is now 12.6 points.

In 2019, SA residents who did not complete secondary school recorded an ADII score of 49.5, while those with a tertiary education scored 64.3 – an Education Gap of 14.8 points. Since 2014 digital inclusion for South Australians who did not complete secondary school has fluctuated. The 2019 score for this group (49.5) is 9.9 points higher than that recorded in 2014 (39.6). The substantial increase recorded by this group in the past 12 months (up 6.1 points) was unmatched by those with a tertiary education (up 1.8 points) and has led to a narrowing of the Education Gap (down from 19.1 to 14.8 points).

Table 23: SA: digital inclusion by demography (ADII 2019)

2019	SA	Income Quintiles					Employment			Education			Age					Disability*	Indigenous Australians**	CALD*
		Q1	Q2	Q3	Q4	Q5	Employed	Unemployed**	NILF	Tertiary	Secondary	Less	14-24	25-34	35-49	50-64	65+			
ACCESS																				
Internet Access	87.8	95.3	94.1	92.3	81.9	72.2	93.8	88.1	79.1	92.2	87.7	75.2	95.6	93.5	92.4	87.8	73.0	79.1	84.1	90.7
Internet Technology	80.6	87.0	85.3	85.2	76.7	66.7	84.7	81.1	74.7	83.8	80.4	71.7	86.5	85.1	83.4	81.0	69.7	73.1	62.6	81.4
Internet Data Allowance	56.9	64.7	62.2	61.6	53.6	39.8	62.3	63.2	48.1	59.7	55.9	45.2	68.2	64.7	61.5	55.6	39.0	52.3	36.4	63.5
	75.1	**82.3**	**80.5**	**79.7**	**70.7**	**59.5**	**80.2**	**77.5**	**67.3**	**78.6**	**74.7**	**64.0**	**83.4**	**81.1**	**79.1**	**74.8**	**60.6**	**68.2**	**61.1**	**78.5**
AFFORDABILITY																				
Relative Expenditure	52.5	82.0	68.6	47.7	27.7	10.7	56.9	47.0	46.1	57.2	51.0	43.8	55.8	46.1	54.7	57.4	46.9	29.8	34.1	55.3
Value of Expenditure	61.7	62.3	64.6	63.8	59.0	49.2	63.0	66.2	58.9	61.7	63.3	54.9	74.0	62.0	61.1	63.2	50.1	52.2	65.0	67.5
	57.1	**72.1**	**66.6**	**55.7**	**43.4**	**30.0**	**60.0**	**56.6**	**52.5**	**59.4**	**57.2**	**49.4**	**64.9**	**54.0**	**57.9**	**60.3**	**48.5**	**41.0**	**49.5**	**61.4**
DIGITAL ABILITY																				
Attitudes	48.7	57.5	49.4	51.8	44.6	37.4	53.3	52.5	41.4	52.1	44.2	36.8	62.4	58.9	52.2	43.0	33.0	44.2	52.3	54.6
Basic Skills	56.6	68.7	67.3	62.0	48.1	40.1	66.3	51.0	43.2	64.3	56.3	42.2	58.2	67.9	66.4	57.2	36.5	40.0	44.9	55.9
Activities	40.3	51.0	46.9	44.7	32.4	27.1	47.5	37.2	30.1	48.7	36.9	26.2	43.0	50.8	48.6	39.1	23.2	26.6	26.8	44.2
	48.5	**59.1**	**54.5**	**52.8**	**41.7**	**34.9**	**55.7**	**46.9**	**38.2**	**55.0**	**45.8**	**35.1**	**54.5**	**59.2**	**55.8**	**46.5**	**30.9**	**36.9**	**41.3**	**51.6**
DIGITAL INCLUSION INDEX	**60.2**	**71.2**	**67.2**	**62.7**	**51.9**	**41.5**	**65.3**	**60.3**	**52.7**	**64.3**	**59.2**	**49.5**	**67.6**	**64.8**	**64.3**	**60.5**	**46.6**	**48.7**	**50.6**	**63.8**

*Sample size <150, exercise caution in interpretation. **Sample size <75, exercise extreme caution in interpretation.
Source: Roy Morgan Single Source, March 2019.

Reflecting the national pattern, age is also an important factor influencing digital inclusion in SA. People in SA aged below 50 recorded higher ADII scores in 2019 than older groups in that state. The age group with the highest ADII score was the 14-24 year olds (67.6). This age group led all others on both the Access and Affordability sub-indices, while the 25-34 year olds recorded the highest Digital Ability score. SA residents aged 50-64 recorded a significant improvement in all three dimensions of digital inclusion in the past year, resulting in an overall ADII score increase of 6.2 points (from 54.3 in 2018 to 60.5 in 2019). SA residents aged 65+ recorded the lowest ADII score (46.6) of all SA age groups in 2019. Over the five years since 2014, those aged 65+ made substantial improvements on the Digital Access (up 17.9 points) and Digital Ability (up 12.0 points) sub-indices. These gains have been partially offset by a decline in the Affordability sub-index (down 2.5 points). This decline is due to an increase in the proportion of household incomes spent on network access by those in this age group.

In 2019, South Australians with disability have an ADII score of 48.7. This is 13.2 points below the national average (61.9) and 3.3 points below the national score for Australians with disability. Since 2014 digital inclusion scores for this group have fluctuated, some of this volatility may be due to the small sample upon which these scores are based. Indeed, care should be exercised in interpreting this data given the limited sample size.

CALD migrants in SA recorded an ADII score of 63.8 in 2019, above the state average (60.2) and the national average (61.9). Since 2014, the ADII score for CALD migrants in SA rose by 11.0 points, outpacing the increase recorded for state (up 9.9 points). The CALD migrant population is large and highly diverse and it should be noted that aggregate data may obscure some of the digital inclusion outcomes for distinct groups within that population. Furthermore, care should be exercised in interpreting SA CALD migrant data given the limited sample size from which it is drawn.

Several sociodemographic groups in SA are more digitally excluded, with ADII scores substantially below the state average (60.2). In ascending order, these groups are: people in Q5 low-income households (41.5), people aged 65+ (46.6), people with disability* people (48.7), those who did not complete secondary school (49.5).

Tasmania

Findings

Tasmania's (TAS) ADII score in 2019 is 58.1. TAS is 3.8 points below the national average (61.9) and ranks the lowest out of Australia's eight states and territories. Since 2014 the gap between TAS's ADII score and the national average has been as wide as 7.9 points (2017). The gap fell to 3.3 points in 2018 after TAS made a significant jump in digital inclusion, but has widened again in the past year as the state did not sustain a growth rate above the national average (the national ADII score rose 1.7 points in the past year while TAS's ADII score rose 1.2 points).

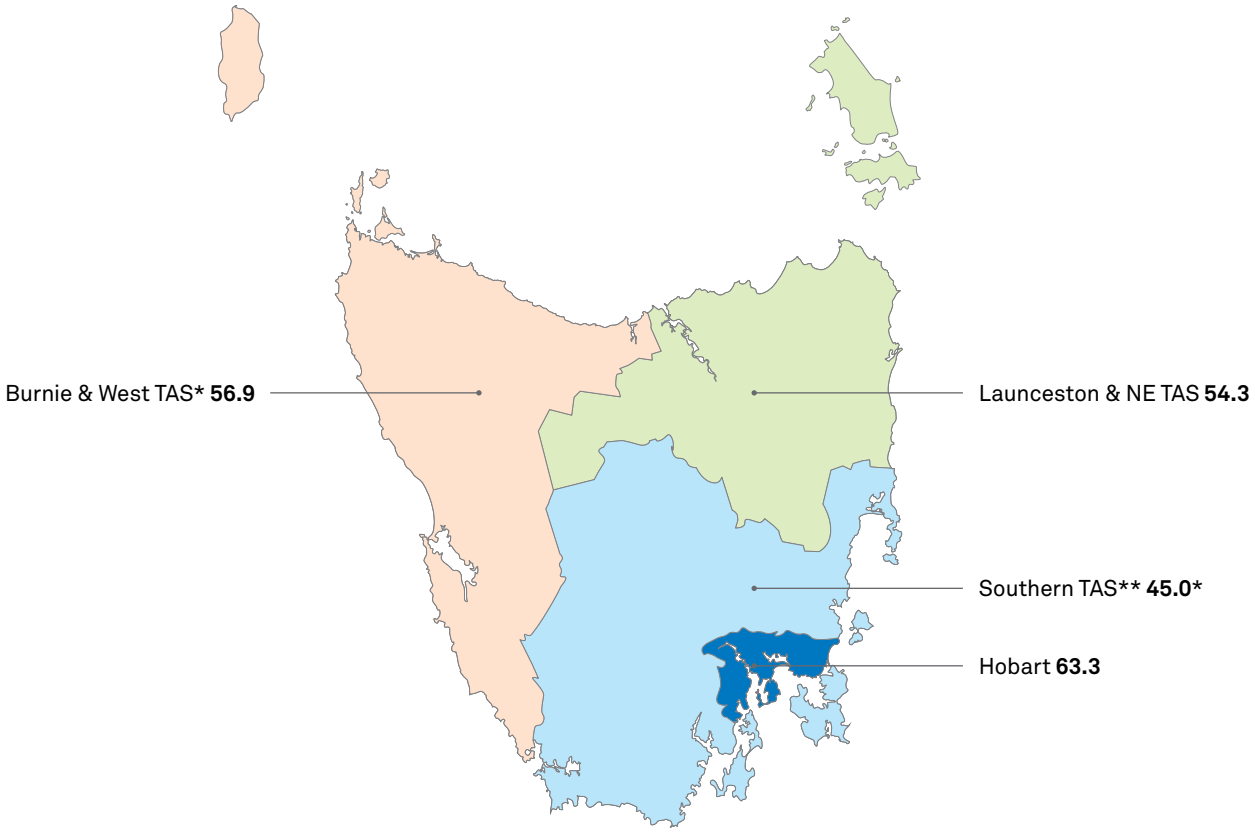
TAS experienced four years of digital inclusion stagnation between 2014 and 2017. It was, therefore, remarkable that between 2017 and 2018 TAS's ADII score increased 6.8 points (from 50.1 in 2017 to 56.9 in 2018). Detailed analysis of this improvement in the 2018 report revealed it was underpinned by a major increase in Access (which rose from 64.7 to 71.6 points) and Affordability (which rose from 45.7 in 2017 to 53.7 in 2018). In turn, changes to these sub-indices was linked to the rapid uptake of NBN services. The NBN rollout in TAS was essentially completed in 2018 and existing landline and internet networks had been progressively switched off which translated into a doubling of NBN service uptake between 2017 and 2018. In addition to improvements in Access and Affordability, Tasmanians also recorded an improvement in Digital Ability in 2018.

Since 2018 the rate of NBN uptake has slowed substantially and the proportion of Tasmanian households with NBN broadband services has changed very little. While TAS made further improvements across all three digital inclusion sub-indices in the past year, the improvements have been small. TAS's Access score rose 0.6 points to 72.2. This small improvement was based on a 2.2 point rise on the Data Allowance component. TAS's Affordability score rose 2.2 points – a consequence of a 4.0 point improvement in the Value of Expenditure component with Tasmanians receiving slightly more fixed broadband data and more mobile broadband data per dollar of expenditure in 2019 than they did in 2018. Digital Ability for TAS increased 0.8 points (from 45.5 in 2018 to 46.3 in 2019).

Geography

Hobart recorded an ADII score of 63.3 in 2019. Since 2014, Hobart's score has risen 9.4 points (up from 53.9). This gain is greater than the overall capital city average gain over that period (7.2 points), indicating Hobart is closing the gap with other capitals: the gap is now 0.5 points (the capital city average is 63.8). Mirroring TAS's overall result, Hobart's digital inclusion gains were concentrated between 2017 and 2018 and centred on a rise in Access which in turn largely reflects a rise in NBN connectivity.

TAS Regions ADII scores
TAS ADII score: 58.1



*Sample size <150, exercise caution in interpretation. **Sample size <75, exercise extreme caution in interpretation.
Source: Roy Morgan Single Source, March 2019.

Table 24: TAS: digital inclusion by geography (ADII 2019)

2019	Australia	TAS	Hobart	Rural TAS	Launceston & NE TAS	Burnie & West TAS*	Southern TAS**
ACCESS							
Internet Access	87.9	83.9	88.0	80.6	80.8	82.6	74.0
Internet Technology	80.4	79.9	83.9	76.9	78.2	79.8	63.3
Internet Data Allowance	58.7	52.9	56.6	50.1	50.5	54.2	36.8
	75.7	**72.2**	**76.2**	**69.2**	**69.8**	**72.2**	**58.0**
AFFORDABILITY							
Relative Expenditure	54.6	49.2	55.6	44.0	42.1	43.7	52.4
Value of Expenditure	63.9	62.6	67.9	58.4	57.8	65.9	38.0
	59.2	**55.9**	**61.7**	**51.2**	**49.9**	**54.8**	**45.2**
DIGITAL ABILITY							
Attitudes	51.2	46.4	53.9	40.6	43.1	40.7	30.9
Basic Skills	58.1	52.8	57.7	49.0	50.5	50.8	38.4
Activities	43.1	39.6	44.2	35.9	35.9	39.3	26.5
	50.8	**46.3**	**51.9**	**41.8**	**43.1**	**43.6**	**31.9**
DIGITAL INCLUSION INDEX	**61.9**	**58.1**	**63.3**	**54.1**	**54.3**	**56.9**	**45.0**

*Sample size <150, exercise caution in interpretation.
**Sample size <75, exercise extreme caution in interpretation.
Source: Roy Morgan Single Source, March 2019.

In 2019, the ADII score for rural TAS is 54.1. This is a rise of 6.7 points since 2014 (up from 47.4). Like Hobart, improvements in digital inclusion in rural TAS were concentrated between 2017 and 2018 and centre on a rise in the Access sub-index score related to NBN take-up. In the past year, only marginal gains in Access were recorded in rural TAS (up 0.6 points) and Affordability and Digital Ability declined slightly (down 0.3 points and 0.1 points respectively).

In 2019, the ADII score for Launceston & North East TAS is 54.3. This is slightly lower than the score recorded by this region in 2018 (54.7), a result of a slight decline in Access and Affordability. Overall, the digital inclusion has improved in the region since 2014 when it recorded an ADII score of 50.4. The 2019 ADII score for Burnie & Western TAS* is 56.9. The sample size for this region is small and this can lead to some volatility in ADII results. The general trend for this region since 2017 indicates improvements across all three ADII sub-indices. The 2019 ADII result for Southern TAS** (45.0) is based on a very small survey sample and should be treated cautiously.

Demographics

Mirroring the broad pattern of the national figures, Tasmanians with lower income, employment, and education levels are less digitally included.

Given the small number of surveys conducted with Q1 high-income household members in TAS, the following analysis will focus on those in Q5 low-income households, where the sample size is more robust.

Between 2014 and 2016 Tasmanians in the Q5 low household income bracket recorded extremely low and declining ADII scores. ADII scores for this cohort fell marginally between 2014 (37.4) and 2015 (36.6), before a more substantial drop in 2016 (down 4.2 points, to 32.4) due to a sharp decline in this group's Relative Expenditure result. Since 2016, digital inclusion has improved for this cohort, rising 9.0 points to 41.4. Results across the three sub-indices fluctuated during this period. Access and Digital Ability scores rose between 2016 and 2018 (up 12.1 points and 8.2 points respectively), but have declined slightly in the past year (Access down 0.3 points and Digital Ability down 2.2 points). Affordability improved in between 2016 and 2017 (up 6.5 points), declining in 2018 (down 2.7 points) before again trending up in 2019 (up 5.5 points).

Despite these recent improvements in digital inclusion for low-income Tasmanians, the gap between Tasmanians living in Q5 low-income households and the Tasmanian population average widened from 13.0 points in 2014 to 16.7 points in 2019. The substantial increase in the Tasmanian state average between 2017 and 2018 (up 6.8 points) was not matched by Tasmanians in Q5 low-income households, whose ADII score rose just 1.3 points. Over the past year the overall improvement recorded in TAS (1.2 points) was again not matched by the improvement recorded by those in Q5 low-income households (up 1.0 points). The digital inclusion gap between Tasmanians from low-income households and other Tasmanians is widening.

The 2019 ADII score for Tasmanians in employment is 64.2 and 52.1 for Tasmanians not in the labour force, an Employment Gap of 12.1 points. Since 2014, the ADII score for employed Tasmanians increased 8.3 points (from 55.9 in 2014 to 64.2 in 2019), while the score of those not in the labour force rose 7.9 points (from 44.2 in 2014 to 52.1 in 2019). Much of this improvement occurred between 2017 and 2018. In the past year both groups recorded modest improvements in digital inclusion – the ADII score for employed Tasmanians rose 1.5 points and the score for Tasmanians not in the labour force rose 1.6 points.

Table 25: TAS: digital inclusion by demography (ADII 2019)

		Income Quintiles					Employment			Education			Age							
2019	SA	Q1**	Q2**	Q3*	Q4*	Q5	Employed	Unemployed**	NILF	Tertiary	Secondary*	Less	14-24**	25-34**	35-49*	50-64	65+	Disability*	Indigenous Australians**	CALD**
ACCESS																				
Internet Access	83.9	95.8	92.2	91.3	80.9	68.7	91.2	84.2	76.4	90.3	85.6	68.3	91.2	88.1	92.2	85.5	67.0	76.4	78.5	77.2
Internet Technology	79.9	91.8	87.5	85.0	79.5	66.3	84.9	77.0	75.2	86.0	82.1	66.9	83.6	81.4	89.5	78.0	69.8	73.4	67.4	76.0
Internet Data Allowance	52.9	68.0	62.5	58.4	49.2	42.6	58.4	43.8	48.3	56.7	56.6	38.2	59.3	60.4	62.4	49.4	39.0	46.8	49.2	56.0
	72.2	**85.2**	**80.8**	**78.3**	**69.8**	**59.2**	**78.2**	**68.4**	**66.7**	**77.7**	**74.8**	**57.8**	**78.0**	**76.6**	**81.4**	**71.0**	**58.6**	**65.6**	**65.0**	**69.7**
AFFORDABILITY																				
Relative Expenditure	49.2	83.6	66.9	47.8	29.6	11.3	56.8	45.4	41.3	54.2	42.9	44.6	55.9	43.5	56.0	51.6	38.1	38.3	45.0	63.0
Value of Expenditure	62.6	66.5	73.0	64.4	59.5	55.2	63.9	54.0	62.1	66.5	61.8	51.8	68.5	60.7	65.7	60.4	58.9	58.8	41.4	57.3
	55.9	**75.1**	**69.9**	**56.1**	**44.6**	**33.3**	**60.4**	**49.7**	**51.7**	**60.4**	**52.3**	**48.2**	**62.2**	**52.1**	**60.9**	**56.0**	**48.5**	**48.6**	**43.2**	**60.1**
DIGITAL ABILITY																				
Attitudes	46.4	59.8	51.1	50.6	38.7	35.0	52.0	57.8	39.8	52.7	44.2	32.0	58.5	55.6	54.0	42.4	30.1	36.8	41.6	46.9
Basic Skills	52.8	70.6	64.1	64.7	47.1	35.2	62.7	56.4	42.5	64.8	50.2	35.0	53.7	59.1	69.5	53.5	32.4	44.3	38.4	49.5
Activities	39.6	54.3	46.7	47.6	36.4	25.1	47.6	44.5	31.1	47.8	39.9	23.4	43.1	49.7	50.7	38.0	22.4	31.3	30.4	38.2
	46.3	**61.5**	**54.0**	**54.3**	**40.8**	**31.8**	**54.1**	**52.9**	**37.8**	**55.1**	**44.8**	**30.1**	**51.8**	**54.8**	**58.1**	**44.6**	**28.3**	**37.5**	**36.8**	**44.8**
DIGITAL INCLUSION INDEX	**58.1**	**73.9**	**68.2**	**62.9**	**51.7**	**41.4**	**64.2**	**57.0**	**52.1**	**64.4**	**57.3**	**45.4**	**64.0**	**61.2**	**66.8**	**57.2**	**45.1**	**50.5**	**48.3**	**58.2**

*Sample size <150, exercise caution in interpretation. **Sample size <75, exercise extreme caution in interpretation.
Source: Roy Morgan Single Source, March 2019.

In 2019, tertiary educated Tasmanians recorded an ADII score of 64.4, while those who did not complete secondary school scored 45.4 – an Education Gap of 19.0 points. This gap is wider than that recorded in 2014 (16.1 points). Similar to the national picture, tertiary educated Tasmanians have higher scores on all three sub-indices than those who did not complete secondary school. The gap in Digital Ability is 25.0 points, the gap in Access is 19.9 points and the gap in Affordability is 12.2 points.

As is the case nationally, age is also a significant factor impacting digital inclusion in Tasmania. Given the limited sample sizes for the younger age cohorts in that state, this analysis focuses on those aged 65+.

In 2019, Tasmanians aged 65+ recorded the lowest score (45.1) of all ADII age cohorts. The score for this age group was 13.0 points lower than the state average (58.1) and 2.9 points lower than the national 65+ age group average (48.0). In the past year digital inclusion for Tasmanians aged 65+ improved markedly (up 4.3 points) after having improved little between 2014 and 2018 (rising just 0.1 points over this period). Those aged 65+ did not experience the large increase in digital inclusion registered by other age groups between 2017 and 2018 that was underpinned by the uptake of NBN services. While Tasmanians aged 65+ did take-up the NBN in this period leading to a rise in their Access (up 5.0 points), their Affordability score fell (down 6.5 points). This decline in Affordability, which was based on a sharp increase in expenditure on internet access relative to household income, has turned around in 2019. A slight increase in household income and slight drop in internet access expenditure, combined with higher data allowance acquisition per dollar of expenditure generated a 9.7 point increase in the Affordability score for Tasmanians aged 65+ in the past year.

From the data available, there are several sociodemographic groups in TAS that are particularly digitally excluded, with ADII scores substantially below the state average (58.1). In ascending order, they are: people in Q5 low-income households (41.4), people aged 65+ (45.1), people who did not complete secondary school (45.4), and people not in paid employment (52.1).

Australian Capital Territory

Findings

The Australian Capital Territory's (ACT) ADII score in 2019 is 67.6. The ACT is 5.7 points higher than the national average (61.9). The ACT is the most digitally included of the eight states and territories, a position it has held in each year of the ADII data collection period (2014-2018).

While the level of digital inclusion in the ACT rose only marginally between 2014 and 2017 (up 1.3 points), the territory recorded a substantial increase between 2017 and 2018 (up 4.7 points). Although more modest, further improvement in 2019 (up 1.3 points) has yielded an overall improvement of 7.3 points since 2014.

Dimensions of digital inclusion: Access, Affordability, Digital Ability

The ACT's strong overall ADII results since 2014 have been underpinned by high scores across all three sub-indices. The territory has almost continuously led all other states and territories on each of the three sub-indices in the past five years (only VIC recorded a slightly higher Access score in 2017).

The ACT's 2019 Access score of 78.9 is 3.2 points above the national average (75.7). Since 2014, the ACT's score on this sub-index has increased 11.4 points, with 7.8 points of that increase occurring since 2017. The Internet Data Allowance and Internet Technology components that have contributed most to the ACT's Access improvement since 2014.

A substantial 12.5 point increase in Internet Data Allowance since 2017 has contributed to the jump in the ACT's Access score. The average volume of fixed broadband data allowance purchased by those in the ACT rose substantially between 2017 and 2018 and again in 2019 – although more modestly. A substantial and sustained increase in the volume of mobile broadband data purchased since 2017 is also evident. There has been a rise in the number of NBN connections in the ACT since 2017, with a sharp increase in the past 12 months, leading to an improvement in the Internet Technology component of the Access sub-index which rose 7.3 points since 2017.

In 2019 the ACT recorded an Affordability score of 66.8. This is 7.6 points above the national average (59.2). Although Affordability had essentially been trending down prior to 2018 – with gains in the Value of Expenditure component offset by a decline in Relative Expenditure – a substantial improvement in Affordability was registered over between 2017 and 2018 (up 6.8 points). This improvement was the result of a very large Value of Expenditure gain generated by a sharp rise in fixed and mobile broadband data allowances. In the past year some of these Value of Expenditure gains were eroded as expenditure on internet connectivity grew faster than data allowances, resulting in decrease in the Value of Expenditure component score of 2.1 points (from 68.6 in 2018 to 66.5 in 2019). Although Relative Expenditure improved between 2018 and 2019 (up 1.2 points) this did not offset the Value of Expenditure decline resulting in an overall fall in the ACT's Affordability in the past year of 0.4 points (from 67.2 in 2018 to 66.8 in 2019).

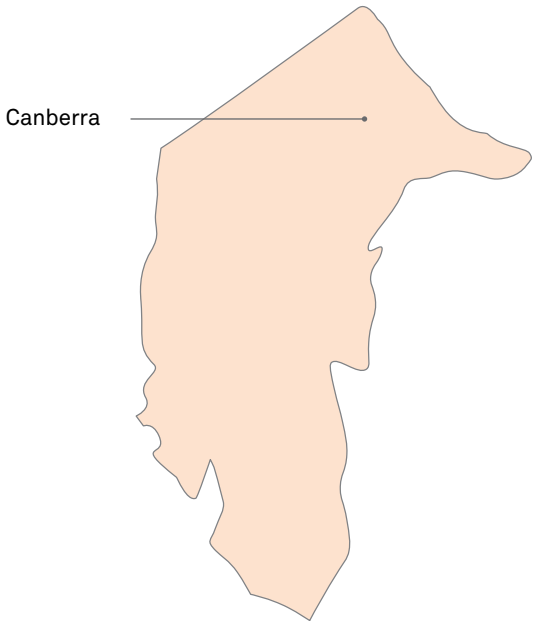
Since 2014 the ACT has recorded significantly higher Digital Ability scores than other states and territories. In 2019, the

Table 26: ACT: digital inclusion (ADII 2019)

2019	Australia	ACT
ACCESS		
Internet Access	87.9	91.8
Internet Technology	80.4	82.5
Internet Data Allowance	58.7	62.4
	75.7	**78.9**
AFFORDABILITY		
Relative Expenditure	54.6	67.1
Value of Expenditure	63.9	66.5
	59.2	**66.8**
DIGITAL ABILITY		
Attitudes	51.2	59.3
Basic Skills	58.1	62.6
Activities	43.1	49.8
	50.8	**57.2**
DIGITAL INCLUSION INDEX	**61.9**	**67.6**

Source: Roy Morgan Single Source, March 2019.

ACT ADII score: 67.6



ACT's Digital Ability score of 57.2 is 6.4 points above the national average (50.8) and 4.5 points above the next highest state, VIC (52.7). Although registering some fluctuations, the ACT's 2019 Digital Ability score (57.2) is 5.9 points higher than that of 2014 (51.3). The gap between the ACT and other states on this sub-index is closing, with all other states and territories registering an improvement of between 6.8 and 10.8 points since 2014.

The available data for ACT was not broken down into demographic or sub-regional categories, given the restricted sample size for the territory. This means our aggregated figures may not reflect the considerable variations that exist between different communities within the ACT population.

Northern Territory

Findings

The ADII score for the Northern Territory (NT) in 2019 is 64.3. It should be noted that the annual sample size of the dataset from which NT's ADII scores have been derived throughout the ADII collection period have generally been small, and very small in the year 2017 in particular. Small samples can generate volatility in the results. Substantial fluctuations in some variables underlying the Affordability and Digital Ability results for 2019 indicate that the index scores for this year should be treated with some caution. As such the focus of the following analysis is to draw out general trends experienced by the territory since 2014.

NT's 2019 ADII score (64.3) is higher than the national average (61.9) as it has been for most of the years since 2014. Although the annual ADII score for the NT has fluctuated greatly since 2014, the general trend indicates an overall degree of improvement over the last five years.

Dimensions of digital inclusion: Access, Affordability, Digital Ability

Since 2014, the improvement to the NT's ADII score has been driven by gains in Access, rising steadily (up 10.3 points from 64.0 in 2014 to 74.3 in 2019). The rollout of the NBN to parts of the NT has at least partly underpinned this improvement. This influencing factor is reflected in an upward trend in the scores received on the Internet Technology and Internet Data Allowance components.

Between 2014 and 2018, the NT's Affordability score was on an almost continuous downward trend. Underlying this pattern was a decline in Relative Expenditure as the growth in expenditure on internet connectivity outpaced household income growth – a pattern mirroring that occurring at the national level. Data for 2019 suggest this pattern may have halted. In accordance with the national picture, the Value of Expenditure component for NT has also trended upwards as each dollar of expenditure on internet access has yielded substantially greater data allowances.

There have been significant annual fluctuations in the NT's Digital Ability results since 2014. The general trend has been one of improvement across all three components of Digital Ability. Interestingly, trend data for the variables underlying the Attitudes component indicate people in the NT have an increasing level of interest, confidence and empowerment in relation to digital technologies[48].

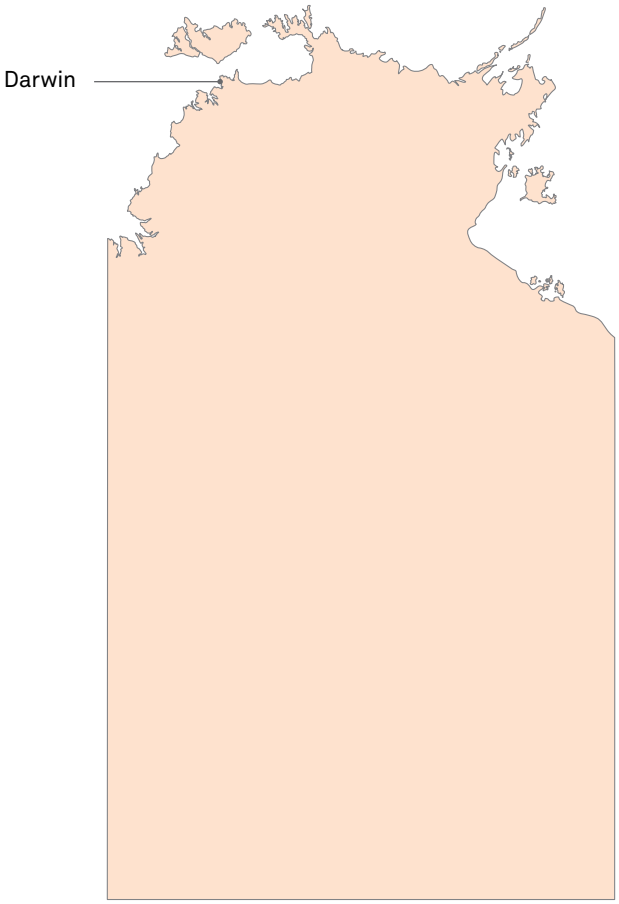
Given the restricted sample size for the NT, the available data for this territory was not broken down into demographic or sub-regional categories. This means our aggregated figures may not reflect the considerable variations that exist between different communities within the broader NT population. In particular, general ADII data collection did not extend to remote Indigenous communities, where high levels of geographic isolation and socioeconomic disadvantage pose real challenges for digital inclusion. In a bid to know more about digital inclusion in these communities, the ADII team conducted a supplementary digital inclusion survey in the remote NT Indigenous community Ali Curung in 2018. The results of this study are presented in the 2018 ADII Report; some data from this study is included in the case study on the Pormpuraaw remote Indigenous community included in this report (see pp.23-25).

Table 27: NT: digital inclusion (ADII 2019)

2019	Australia	NT*
ACCESS		
Internet Access	87.9	85.6
Internet Technology	80.4	80.6
Internet Data Allowance	58.7	56.5
	75.7	**74.3**
AFFORDABILITY		
Relative Expenditure	54.6	62.0
Value of Expenditure	63.9	63.9
	59.2	**62.9**
DIGITAL ABILITY		
Attitudes	51.2	55.0
Basic Skills	58.1	60.8
Activities	43.1	51.1
	50.8	**55.6**
DIGITAL INCLUSION INDEX	**61.9**	**64.3**

*Sample size <150, exercise caution in interpretation.
Source: Roy Morgan Single Source, March 2019.

NT ADII score: 64.3



*Sample size <150, exercise caution in interpretation.
**Sample size <75, exercise extreme caution in interpretation.
Source: Roy Morgan Single Source, March 2019.

Conclusion

If the benefits of digital technology are to be shared by all Australians, digital inclusion must be considered an integral part of state and national policy-making and strategic planning

The ADII shows digital inclusion in Australia continues to improve at a national level. Since 2014, the national ADII score has risen from 54.0 to 61.9, and every state and territory has recorded improved scores in this period. Nevertheless, many Australians are missing out. Digital inclusion remains linked to geography and sociodemographic factors such as income, age and education.

Digital inclusion across the three dimensions

The ADII measures three key dimensions of digital inclusion: Access, Affordability, and Digital Ability. It reveals how each dimension changes over time and according to social and economic as well as geographic circumstances.

Access has improved steadily over the past five years, from 63.9 in 2014, to 75.7 in 2019 (up 11.8 points). Australians are accessing the internet more often, connecting an increasingly diverse range of devices, and are purchasing access to more data than ever before. In part, this reflects improvements to both mobile and fixed network infrastructure.

There is now clear evidence that the NBN rollout is having a positive effect on our indicators of Access. That evidence comes from the states where the NBN rollout is either complete or well progressed: TAS, SA, WA, and the ACT, and in rural Australia where the NBN rollout schedule has been prioritised. In these geographic areas the extensive NBN rollout has translated into higher levels of NBN fixed broadband uptake. The impact of the NBN rollout on digital inclusion is multidimensional: representing a higher quality of fixed connection, and spurs new household telecommunication decisions that can lead to the initiation of new fixed broadband connections or migration of existing fixed broadband customers from legacy plans onto NBN plans with greater data allowances. While the ADII data does not directly tie the NBN rollout to other digital inclusion dimensions such as increasing internet use, regularity of use, and changes to the nature and sophistication of online activity, this offers an opportunity for further exploration.

Affordability, on the other hand, declined from 2014 to 2016 while making a modest recovery in the three years since. In 2019, it is 59.2, just 3.2 points above the 2014 level (56.0). While the value of internet services has improved overall, households are spending a growing proportion of their income on them (up from 1.0% in 2014, to 1.18% in 2019). We need to address the challenges of Affordability and its effects, especially in relation to digitally excluded Australians on low or fixed incomes.

Digital Ability has improved considerably since 2014, although from a low base. The score for the Basic Skills component has risen 11.5 points, and the Activities component 8.9 points. Attitudes improved by 5.3 points. Digital Ability remains a critical area for attention with policy makers, business, education, and community groups. This will require collaboration and cooperation across all three levels of government for program funding, development and implementation. Attention needs to be given to improving the digital skills of the most excluded socio-demographic groups, and in light of the lower levels of digital ability for Australians aged 50+, a focus on supporting workforce digital skills is also needed. The websites of essential service providers and government agencies need to be made accessible and easy to navigate and use for all Australians, at all ability levels, and across all the devices that they use. Although an increasing proportion of Australians are engaging in a range of basic and more advanced internet activities and are keen to have continuous internet access, there remain significant attitudinal barriers to effective and rewarding internet participation. Addressing Digital Ability should not simply target skill building but also seek to support the informed use of digital technologies.

Regional variations

The ADII illuminates the link between geography and digital inclusion. In 2019, the highest-scoring state or territory is the ACT (67.6, or 5.7 points above the national average), followed by VIC (63.3). In the past year SA has experienced a considerable improvement in digital inclusion (rising 2.7 points). Australia's big cities record high levels of digital inclusion, however some rural and regions are well behind, including Southern TAS** (45), North West QLD* (48.8), South East SA* (53.1), Murray & Murrumbidgee (53.2), North East NSW (53.9) and Northern VIC (53.9).

Australia's regional cities have higher digital inclusion than country areas, but generally do not score as well as the capital cities. A substantial improvement in 2019 has pushed the Gold Coast's ADII score (63.3) above both Perth (62.4) and Adelaide (61.7).

The overall Capital–Country Gap has narrowed slightly from 8.6 points in 2014 to 8.1 points in 2019. This trend is not consistent across the three sub-indices. The gaps in Affordability and Digital Ability have fluctuated since 2014. It is only Access that has continuously narrowed. The rollout schedule of the NBN, which prioritised rural Australia, has had a discernible impact on reducing the Access gap. NBN fixed broadband uptake is currently higher in rural Australia than in the capital cities. The uptake of the NBN by rural households seems to have driven up fixed broadband connectivity in general, reducing the gap in fixed-broadband penetration rates between rural and capital city households since 2014.

While national momentum and coordination is required, state-based, regional and local initiatives with strong engagement strategies may prove to be central to tackling the geographic and social challenges of digital inclusion.

Addressing the needs of particular communities

The ADII helps us gauge the digital inclusion of particular sociodemographic groups in Australia. A number of groups have very low levels of digital inclusion with scores substantially below the 2019 national average (61.9). In ascending order, these groups are: those in Q5 low-income households (43.3), Australians aged 65+ (48.0), people who did not complete secondary school (49.4), people with a disability (52.0), those in the Q4 low to moderate household income bracket (53.1), and people not in the labour force (53.8).

Indigenous Australians living in urban and regional areas also have a low level of digital inclusion (55.1). While the gap between Indigenous Australians and the national average (6.8 points) is narrower than it was in 2014 (8.8 points) it has widened in the past year (up from 6.1 points in 2018).

ADII general data collection does not extend to remote Indigenous communities. In 2018 and 2019 the ADII research team conducted a supplementary face-to-face digital inclusion survey in the remote indigenous communities of Ali Curung (2018) and Pormpuraaw (2019). Although we would caution against generalising the results of these surveys to all remote communities, the Ali Curung and Pormpuraaw data suggests digital inclusion for Indigenous Australians further diminishes with remoteness, particularly with regards to Access and Affordability. Overall, both communities have a very low level of digital inclusion. The digital inclusion score for Pormpuraaw (36.7) is 25.2 points lower than the Australian average (61.9) and 18.4 points lower than that recorded by Indigenous Australians in urban and regional areas. The Ali Curung community ADII score (42.9) is 19.0 points lower than the Australian average (61.9) and 12.2 points lower than that recorded by urban and regional areas Indigenous Australians.

Consideration should be given to digital inclusion as a key commitment and measurable outcome in the refreshed Closing the Gap agenda with a program of research to measure and monitor digital inclusion specifically in remote Indigenous communities.

More than four million Australians access the internet solely through a mobile connection – this means they have a mobile phone or mobile broadband device with a data allowance, but no fixed connection. Mobile-only users experience a relatively high degree of digital exclusion. In 2019, they have an overall ADII score of 43.7, some 18.2 points below the national average (61.9). Mobile-only use is linked with socio-economic factors, with people in the lowest household income quintile (30.7%), those with low levels of education (28.0%), and the unemployed (25.3%) more likely to be mobile-only.

If the benefits of digital technology are to be shared by all Australians, digital inclusion must be considered an integral part of state and national policy-making and strategic planning. Digital inclusion is a necessary condition for the development of the digital economy, including next-generation industries and services, and for realising sustainable social and environmental goals.

Appendix

Methodology

Data collection

The data used to compile the ADII originates from Roy Morgan's ongoing Single Source face-to-face survey of 50,000 Australians annually[49]. For each 12-month period, ADII calculations are based on a sub-sample of approximately 15,000 respondents who have also completed a product poll booklet. In the extensive face-to-face interviews and product poll, Roy Morgan collects data on internet and technology products owned, internet services used, attitudes relating to technology and the internet, and demographics.

To conduct the Single Source survey, an Australia-wide sample is selected from 514 sampling areas of approximately equal population size. Using strict sampling protocol, each weekend Roy Morgan's trained researchers interview people in their homes, and directly enter the resulting data into tablets, using computer assisted personal interviewing (CAPI)[50].

All ADII scores are subject to 'margins of error', depending mainly on the sample sizes on which they are based[51]. A full set of data tables for the ADII can be viewed at **www.digitalinclusionindex.org.au**

Structure of the ADII and sub-indices

To determine the degree of overall digital inclusion in Australia, we measured the level of access to the internet and related products, services, and activities. To help clarify the many factors in play, the ADII is made up of three sub-indices, or dimensions:

Access **Affordability** **Digital Ability**

Each of these three sub-indices is made up of a number of components, which have themselves been calculated from numerous variables. These variables are either sourced directly from the Roy Morgan Single Source database, or derived from the data according to the formulas outlined below.

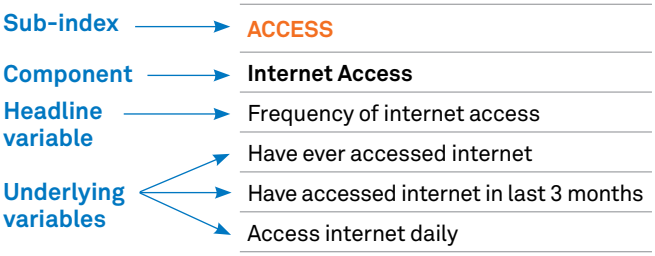
Variables come in two levels: 'headline variables' are thematic composites of 'underlying variables' (individual survey questions), and are generally calculated as simple averages.

For example, the underlying variable 'Have ever accessed internet' (see Figure A1) feeds into the headline variable 'Frequency of internet access', which then feeds into the 'Internet access' component, and so on. Conversely, the 'Frequency of internet access' headline variable is the average of its three underlying variables (see Figure A1).

Similarly, components are simple averages of headline variables. For example, the 'Internet access' component is the average of the 'Frequency of internet access', 'Places of internet access', and 'Number of internet products' headline variables. Moving upwards through the hierarchy of the ADII's structure, the sub-indices and the overall ADII itself are also calculated as simple averages.

The structure of the ADII, with a full list of variables, is detailed in Tables A1, A2, and A3. The following diagram is an example of how the sub-indices are structured, with the various elements labelled.

Figure A1: Example of sub-index structure, ADII



First sub-index: Access

The Access sub-index consists of three components:

- **Internet Access,** measured by frequency of access, places of access, and the number of access points.
- **Internet Technology,** including variables related to computers, mobile phones, mobile broadband, and fixed broadband.
- **Internet Data Allowance,** which measures mobile and fixed internet data in terms of whether there is any access at all, relative to a minimum threshold of useful data allowance[52], and benchmarks set proportional to national averages[53].

Table A1: Access sub-index: structure and variables

Internet Access	Internet Technology	Internet Data Allowance
• Frequency of internet access: - Have ever accessed internet - Have accessed internet in last three months - Access internet daily • Places of internet access: - Have accessed internet from home - Have accessed internet away from home • Number of internet products: - One or more internet products - Two or more internet products	• Computer technology: - Have personal computer or tablet computer in household • Mobile internet technology: - Own or use mobile phone - Have mobile internet • Fixed internet technology: - Have fixed broadband - Have cable or nbn fixed broadband	• Mobile internet data: - Have mobile internet - Have mobile internet data allowance over 1GB - Mobile internet data allowance relative to benchmark • Fixed internet data: - Have fixed broadband - Have Fixed Broadband data allowance over 10GB - Fixed Broadband data allowance relative to benchmark

Second sub-index: Affordability

Affordability is a key aspect of digital inclusion, and is made up of two components:

- **Relative Expenditure,** measured as the share of household income spent on internet access (mobile phone, mobile broadband, and fixed broadband), and then related to benchmarks set to national Relative Expenditure quintiles[54]. Those without internet connections are excluded from this measure. Affordability improves as this share decreases. Note affordability improves as the share of household income spent on access decreases.
- **Value of Expenditure,** calculated as total internet data allowance (mobile phone, mobile broadband, and fixed broadband) per dollar of expenditure on internet access, and then related to benchmarks set to national Value of Expenditure quintiles[55]. Those without internet connections are excluded from this measure. Note affordability improves as the amount of data allowance received per dollar increases.

Table A2: Affordability sub-index: structure and variables

Relative Expenditure	Value of Expenditure
• Share of household income spent on internet products relative to benchmark	• Internet data allowance per dollar of expenditure relative to benchmark

Third sub-index: Digital Ability

Digital Ability captures both the confidence with which we use the internet and associated technologies, and the extent to which they are integrated into our lives. As such, the Digital Ability sub-index consists of three components:

- **Attitudes,** measured by responses to five survey questions related to notions of control, enthusiasm, learning, and confidence[56].
- **Basic Skills,** consisting of six categories: general[57], mobile phone[58], banking[59], shopping[60], community[61], and information internet skills[62].
- **Activities,** which mirror the six categories of Basic Skills, but are more advanced: accessing content[63], communication[64], transactions[65], commerce[66], media[67], and information[68].

Table A3: Digital Ability sub-index: structure and variables

Attitudes	Basic Skills	Activities
• Computers and technology give me more control over my life • I am interested in being able to access the internet wherever I am • I go out of my way to learn everything I can about new technology • I find technology is changing so fast, it's difficult to keep up with it (negative) • I keep my computer up to date with security software	• General internet skills • Mobile phone skills • Internet banking skills • Internet shopping skills • Internet community skills • Internet information skills	• Streamed, played, or downloaded content online • AV communication via the internet • Internet transaction or payment • Purchased or sold a product online • Created or managed a site or blog • Searched for advanced information

Data collection – ADII supplementary survey

In 2017/18 the ADII team developed the ADII Supplementary Survey. This online digital inclusion survey can be used to derive digital inclusion index scores (including sub-index and component scores) comparable to the ADII. The ADII Supplementary Survey consists of the specific questions from the Roy Morgan Single Source survey used to compile the index. The vast majority of these questions are directly transposed. Some questions have minor modifications to ensure they work in an online environment in a manner which produces comparable results to the Single Source method. In-field testing, using a Roy Morgan national representative online panel, confirms that the composition of the ADII Supplementary Survey does not bias results when compared to the ADII. Survey data is captured through an online interface. As this interface runs on mobile devices there is flexibility in how the survey is administered. For instance, it can be administered face-to-face with respondents in outdoor spaces. It should be noted that sample selection will impact results.

Notes

1 Roy Morgan Single Source, March 2019., shows that 4.35 million Australians aged 14+ are mobile only.

2 According to Sawrikar and Katz (2008), Culturally and Linguistically Diverse (CALD) is a term commonly used in Australian research, practice and policy to distinguish members of the population for which English is not the main language and/or for whom cultural norms and values differ from the English-speaking Anglo-Saxon/Celtic majority. In this report CALD migrants are identified in the Roy Morgan Single Source as respondents born in non-main English speaking countries that speak a language other than English at home. The ABS (2018a) notes that the Main English-speaking countries (MESC) generally comprise Australia, United Kingdom (England, Scotland, Wales, Northern Ireland), Republic of Ireland, New Zealand, Canada, United States of America and South Africa. All other countries are defined as non-main English speaking countries (NMESC).

3 See: Australian Government (2019).

4 The ABS Household Use of Information Technology 2016–2017 survey (ABS 2018b) indicates 2.58 million Australians aged 15 years and over did not access the internet in the past 3 months.

5 Digital inclusion has become an increasingly important marker of broader human progress, framed in terms of wellbeing in the United Nations 2000 Millennium Development Goals and sustainable development in the United Nations Sustainable Development Goals. For a discussion of the former see Eardley et. al. (2009), for the latter, see ITU (2017a) and ITU (2019).

6 See: ITU (2009) and Bruno et. al. (2011).

7 See: ITU (2017b).

8 See: EIU (2018).

9 See: Park & Jae Kim (2014).

10 Lloyds Bank (2018).

11 The Tech Partnership (2017).

12 The ABS has discontinued the Household Use of Information Technology survey as a result of a shift in data collection priorities and has decided not to recommend inclusion of an internet access question on the 2021 Census of Population and Housing (ABS 2018c).

13 Australian Bureau of Statistics (2018b).

14 See: Rennie et. al. (2019) for a detailed examination of digital inclusion data collected through the ABS Census of Population and Housing since 2001.

15 See: ACMA (2019a).

16 See: EY Sweeney (2017).

17 Swinburne Institute for Social Research, Centre for Social Impact, Telstra Corporation Ltd (2015).

18 Note: the CALD Migrant groups replaces the Language other than English (LOTE) group examined in earlier ADII reports.

19 The ABS Household Use of Information Technology 2016–2017 survey (ABS 2018b) found the mean number of devices used to access the internet at home per household increased from 5.8 in 2014-15 to 6.2 in 2016-17. A 2018 ACMA-commissioned survey indicates that 40% of online Australians accessed the internet in the last six months using five or more devices up from 23% in 2017 (ACMA 2019b). The Telsyte Australian IoT@Home Market Study (2019) found more than half of Australian households had at least one IoT home product installed by the end of 2018. The average number of connected devices per household in 2018 was 17 according to this study.

20 Roy Morgan Single Source, March 2019., indicates that 72% of Australians went online every day in 2014 and 87% of Australians went online every day in 2019.

21 For an annual overview of fixed and mobile infrastructure investments see the ACMA Communications Report series (ACMA 2019b).

22 This reflects assumptions as to the general performance of the NBN, notwithstanding cases of poor NBN performance and complaints concerning NBN consumer experiences. The ACCC's Measuring Broadband Australia program produces performance data comparing NBN with ADSL services (ACCC 2019).

23 Roy Morgan Single Source, March 2019., indicates that 6.6% of those with NBN connections did not have fixed broadband 12 months prior, this 'conversion rate' is higher than that for ADSL and other fixed-broadband (4.3%).

24 Roy Morgan Single Source, March 2019., indicates that the average data allowance for NBN plans is 697.74GB and 623.74GB for ADSL and 'other' fixed broadband plans.

25 One proxy indicator of this may be the relationship between length of time with current Internet Service Provider and average data allowance. Roy Morgan Single Source, March 2019., shows that the average data allowance increases as the length of time with the ISP decreases.

26 Although the 2018 ADII dataset [Roy Morgan Single Source, March 2018] reported upon last year placed South Australia 0.2 points below Tasmania, a reweighting of that dataset in 2019 pushed South Australia marginally ahead of Tasmania (0.6 points) in that year.

27 Note: the ADII sample size for Geelong has declined during the ADII reporting period (2014-2019) and this has generated increasing volatility in this city's ADII score. The ADII score derived from the 2019 data for Geelong is 67.2 but the volatility in variables underlying all three sub-indices suggest the 2019 result may be overstated and therefore Geelong is not included in Table 6.

28 For a definition of CALD see note 2.

29 Roy Morgan Single Source, March 2019. indicates 4.3 million Australians have a mobile phone or mobile broadband device with a data allowance but do not have a fixed internet connection.

30 Alam & Imran (2015) outline the gap in research related to the digital inclusion of the migrant population in Australia. Their study examines aspects of digital inclusion for refugee migrants in the regional Queensland city of Toowoomba. They briefly touch upon the distinct experiences of recently arrived refugees, generating conclusions that accord with those found in our study of recently-arrived CALD migrants in Shepparton. They note "digital exclusion was more pronounced... among the newly arrived refugee migrants as they could not access and use the internet due to barriers associated with affordability, language and literacy" (Alam & Imran, 2015, p.358).

31 See Appendix for a general description of the ADII Supplementary Survey methodology. The Shepparton survey was administered face-to-face (using tablets and laptops to record data) by members of the ADII research team with assistance from local community service providers. Some respondents were assisted in completing the survey in their first language by community service staff, community members or family members.

32 The data was collected from a convenience sample. It is not statistically representative of the newly-arrived CALD migrant population of Shepparton. Analysis against the ABS Census of Population and Housing (2016a) reveals that the main countries of origin for recently-arrived CALD migrants in Shepparton are captured in the Supplementary Survey data, but migrants from India, the Philippines and Taiwan are under-represented, while those from Afghanistan are over-represented.

33 ABS (2017a).

34 See: FECCA (2015).

35 See: ABS (2016b); ABS (2018b).

36 For a discussion of issues of online service provision see Australian National Audit Office (2015) and Sleep & Tranter (2017).

37 Identified as Below Level 1/Level 1 Literacy in ABS (2013).

38 For a review of quantitative data sources on digital inclusion and Indigenous Australians see Rennie et. al. (2019).

39 See Appendix for a description of the ADII Supplementary Survey methodology.

40 Both the Ali Curung and Pormpuraaw ADII supplementary surveys were administered face-to-face (using a tablet to record data) by the Centre for Appropriate Technology (CfAT) with local assistance.

41 See Rennie et. al. (2016) pages 152-4 for a useful survey of the existing literature on the prevalence of mobile phone use in remote communities. Rennie's notion of demic deal-breakers offers a framework for understanding how the "consumer preference for pre-paid billing, as well as practical difficulties associated with satellite internet connections, means that households [in remote communities] are more likely to go without internet than enter into satellite internet contracts" (Rennie, 2015, p.7).

42 Although not focused on prepaid internet access, research conducted by Radoll & Hunter (2017) reveals that Indigenous Australians in remote and very remote areas are much more likely to move in and out of internet connectivity than the Australian average.

43 See: Rennie et. al. (2016). These benefits, however, do not come without concerns. Work by Rennie et. al. (2018) conducted in partnership with Telstra, explores some of the tensions arising out of the intersection of digital technologies and Aboriginal forms of governance.

44 See: Rennie et. al. (2016).

45 FNMA (2019).

46 ABC (2019).

47 See: Schram et. al. (2017).

48 These positions are based on proxy indicators from the Roy Morgan Single Source, March 2019., as follows: Interest - I am interested in being able to access the Internet wherever I am and I go out of my way to learn everything I can about new technology; Confidence - I find technology is changing so fast, it's difficult to keep up with it (DISAGREE); and Empowerment - Computers and technology give me more control over my life.

49 Roy Morgan (2017).

50 Roy Morgan adheres to the Code of professional behaviour of ESOMAR and the Australian Market and Social Research Society, the Federal Privacy Act and all other relevant legislation. Roy Morgan is certified to the AS/NZS ISO9001 Quality Management Systems standard and the AS ISO 20252 Market, Opinion and Social Research standard.

51 As the ADII scores originate from survey data, and are estimates, in each case there will be a margin of error that is dependent on the size of the sample. See Roy Morgan's Margin of Error Reference Table for a general explanation of how margins of error typically relate to survey estimates, based on sample sizes (Roy Morgan 2019).

52 1GB was chosen for mobile phone and mobile broadband, and 10GB was chosen for fixed broadband, as these were the lowest quanta in the survey data.

53 The benchmark was set at 20% above the nationwide average data allowances (recalibrated for each year in the dataset), and respondents with data allowances greater than the benchmark scored 100. For mobile internet data allowance the 2019 benchmark was 11.7GB, while for fixed internet data allowance it was 588GB.

54 Respondents without internet connections are excluded from the affordability component of the index. A percentage of household income expended on internet connections is derived for all others. Using the 2016 (April 2015-March 2016) dataset, respondents were ranked using this percentage and divided into five equal groups with the bottom and top percentage recorded for each group establishing the range. The five ranges are 0.01–73%; 0.74–1.13%; 1.14–1.65%; 1.66–2.75%; 2.75% or more. Respondents receive an index score based on the range they fall within as follows: 0.01–73% (100); 0.74–1.13% (75); 1.14–1.65% (50); 1.66–2.75% (25); 2.75% or more (0). Changes in affordability over time are measured against the base year of 2016.

55 Respondents without internet connections are excluded from the affordability component of the index. A data allowance per dollar of expenditure is derived for all others. Using the 2016 (April 2015-March 2016) dataset, respondents were ranked using this value and divided into five equal groups with the bottom and top value recorded for each group establishing the range. The five ranges are 0.01–0.1 GB/$; 0.11–0.7 GB/$; 0.71–2.6 GB/$; 2.61–6.8 GB/$; 6.81 GB/$ or more. Respondents receive an index score based on the range they fall within as follows: 0.01–0.1 GB/$ (0); 0.11–0.7 GB/$ (25); 0.71–2.6 GB/$ (50); 2.61–6.8 GB/$ (75); 6.81 GB/$ or more (100). Changes in affordability over time are measured against the base year of 2016.

56 Respondents should agree with these statements to score 100, except for the statement 'I find technology is changing so fast, it's difficult to keep up with it', which should be disagreed with in order to score 100.

57 General browsing and email; scores for each of these activities are averaged to arrive at the basic internet skills score.

58 Using a mobile phone to access the internet and download an app; scores for each of these activities are averaged to arrive at the mobile phone skills score.

59 Checking bank account balance, or viewing online bank statements (either/or).

60 Researching a product or services to buy, reading ratings/reviews of products or services, using price comparison websites, or reading online catalogues/classified ads (either/or).

61 Social networking (e.g. Facebook, Twitter), business networking (e.g. LinkedIn), online dating (e.g. RSVP), chat rooms, online forums, or reading/commenting on online newspaper articles or blogs (either/or).

62 Accessing news/weather/sport, reading newspapers/magazines/celebrity news, searching for maps or directions, traffic or public transport information, travel information and services, or entertainment/restaurants/what's-on information (either/or).

63 Streaming, playing, or downloading games, music, radio, video, TV, movies, podcasts, or software/programs.

64 Instant messaging (e.g. Google Hangouts), making telephone calls via internet (e.g. Skype, VoIP), or business video conferencing (either/or).

65 Conducting banking transactions online, paying bills online, using online payment/money transfer system (e.g. PayPal, BPAY), paying for purchases using a credit card (either/or).

66 Purchasing or selling a product online.

67 Creating or managing an online journal or blog, registering a website, or creating/managing own website (either/or).

68 Searching online for jobs/employment, government information and services, health or medical information, or IT information, or participating in online education (either/or).

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The following partner organisations worked together to create the Australian Digital Inclusion Index and produce this research:

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