

COMMUNICATIONSREPORT

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Australian Communications
and Media Authority

**Communications report
2017–18**

The ACMA *Communications report 2017–18* (the Communications report) draws on data from a range of sources including the ACMA's own databases, information reported by industry, the ACMA's research using third-party public sources, and commissioned surveys and analysis. The ACMA has made every reasonable effort to provide current and accurate information in the Communications report, but it does not make any guarantees regarding the accuracy, completeness or adequacy of the information.

The ACMA has a statutory reporting obligation under section 105 of the *Telecommunications Act 1997* that requires it to collect data from industry for monitoring and reporting purposes. The ACMA will continue to work with industry participants to identify opportunities to streamline regulatory reporting arrangements.

Comments

The ACMA welcomes feedback on the Communications report. Comments and enquiries about the scope, content and format of the report should be sent to research.analysis@acma.gov.au.

Further information

For further information about ACMA research and links to the Communications report, please go to acma.gov.au/commsreport.

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Senator the Hon Mitch Fifield
Minister for Communications and the Arts
Parliament House
Canberra ACT 2600

ACMA file reference: ACMA2012/669-9

Dear Minister

ACMA Communications Report 2017–18

I am pleased to provide you with the *ACMA Communications report 2017–18* (the report).

It is a report on the performance of the telecommunications industry for 2017–18, prepared in accordance with section 105 of the *Telecommunications Act 1997* (the Act).

The ACMA's statutory reporting obligations under section 105 of the Act are fulfilled in the following chapters of the report:

- > For paragraphs 105(3)(a) and (b) of the Act, which relate to the efficiency of the supply of telecommunications services and the adequacy and quality of such services—Chapters 1, 2 and 4 of the report.
- > For paragraphs 105(3)(c) and (d), which relate to carrier and carriage service provider obligations under Part 6 of the Act with respect to industry codes and standards—Chapter 4 of the report.
- > For paragraphs 105(3)(e) and (ea), and subsection 105(4) of the Act, which relate to industry performance in fulfilling universal service and Customer Service Guarantee obligations—Chapter 4 of the report; and
- > For paragraphs 105(5A) of the Act, which relates to national interest matters and cooperation with law enforcement agencies—Chapter 3 of the report.

Please note that subsection 105(7) of the Act requires that you table the report in each House of the Parliament within 15 sitting days of that House after you have received the report.

Yours sincerely



Nerida O'Loughlin

9 January 2019

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Chair's foreword

I am pleased to present the ACMA *Communications report 2017–18*. This annual report tracks the striking pace of change in the Australian communications and media landscape. That change has been so extensive that the landscape referenced in our *Communications report 2013–14*—released only four short years ago—is today almost unrecognisable.

Data-hungry services—in particular, video content—have driven huge increases in the amount of data downloaded by Australians across communications networks:

- > The volume of data downloaded over fixed-line services almost tripled from 2014 to 2018 (June quarter).
- > For mobile networks, the volume of data downloaded increased five-fold from 2014 to 2018 (June quarter).
- > By May 2018, half of Australian adults reported having a Netflix subscription service in their home, and 13 per cent had a Stan subscription.

Australians are also accessing services over many more devices, increasingly on the move and matching devices to different uses:

- > From June 2014 to June 2018, the number of adults using five or more devices almost doubled, from 23 per cent to 40 per cent.
- > 87 per cent of Australians accessed the internet through their mobile phone in 2018, compared to 76 per cent in 2014.
- > 50 per cent of Australians used a desktop computer to access the internet in 2018, a decline from 67 per cent in 2014.
- > 61 per cent accessed the internet through a tablet in 2018, compared to 54 per cent in 2014.
- > Australian adults who were mobile-only for data, with no fixed internet connection at home, decreased by nearly a third from 23 per cent in 2014 to 16 per cent in 2018.
- > However, 41 per cent of adults reported using only a mobile phone to make voice calls at home in 2018, an increase from 27 per cent in 2014.

Australian industry and government have invested significantly in communications networks to keep up with current and expected future demand:

- > The Australian Government has contributed equity of over \$24 billion between 2013–14 and 2017–18 towards the National Broadband Network (NBN) rollout. The number of premises activated on the NBN was 486,000 at 30 June 2015. By 30 June 2018, the number of premises activated has risen to just over four million—a seven-fold increase.
- > Since 2013, the government has also committed \$220 million to deliver more than 800 new mobile base stations.
- > In addition to infrastructure rollout and upgrade costs, telecommunications carriers have spent around \$5 billion on spectrum licences (including \$2 billion from the digital dividend auctions in 2013).

But, revenues to support such investment have increasingly shifted to online and ‘over-the-top’ providers that rely heavily on communications networks and underlying infrastructure to deliver their services:

- > Industry reports estimate \$44 billion in total revenue has been generated in 2017–18 by the telecommunications industry in Australia, and this is projected to increase to around \$47 billion in 2021–22.
- > Consistent with international trends, the bulk of Australian revenue growth is captured by non-infrastructure service providers, such as internet carriage providers or digital platforms. While revenue from wireless telecommunications has grown annually by around 1.5 per cent, the annual growth of revenue related to fixed networks declined each year by around 2.5 per cent between 2014–18.
- > From 2013 to 2017 (calendar year) the amount of print media advertising expenditure halved from \$3.72 billion to \$1.87 billion. During the same period, the amount of advertising expenditure online doubled from \$3.90 billion to \$7.92 billion.
- > Globally, the total revenue for communications service providers (including digital platforms) is expected to grow from US\$3,067 billion in 2017 to US\$4,034 billion in 2022.

The experience of the last four years—as captured in the ACMA’s Communications reports—demonstrates the difficulty in predicting the future of Australia’s media and communications landscape. However, it is clear that interconnectivity, mobility and content will remain central to the ongoing growth of these dynamic, innovative and disruptive sectors that are now critical to the work, home and social lives of all Australians.



Nerida O’Loughlin
Chair

Introduction

Legislative basis

The *Communications report 2017–18* fulfils multiple legislative obligations under the *Australian Communications and Media Authority Act 2005* (ACMA Act). These include requirements that the Australian Communications and Media Authority (ACMA) reports to the Minister for Communications and the Arts (the minister) on the telecommunications industry and matters affecting consumers of carriage services, conducts research on community attitudes to broadcasting programs, and advises the minister on service and industry trends in the broadcasting and internet industries and content services. Information about the broadcasting industry's performance in meeting regulatory obligations is also included in this report.

The report also fulfils the ACMA's statutory reporting responsibilities under the *Telecommunications Act 1997* (Telecommunications Act). Section 105 of the Telecommunications Act requires the ACMA to report annually on the performance of carriers and carriage service providers (CSPs) in meeting regulatory obligations, particularly for consumer satisfaction, consumer benefits and quality of service.

Scope and structure of the report

The Communications report comprises four chapters:

- > **Chapter 1: Supply and access to communications and media services**—analyses key supply-side developments in the Australian communications and media markets during 2017–18. With a focus on supply, it details the number of carriers, CSPs and services in operation; developments with rollouts of communications infrastructure; and the delivery of communications and media services.
- > **Chapter 2: Consumer engagement with communications and media**—examines consumer engagement with communications and media services and the benefits derived from these services. It notes changing consumer preferences and reports on current levels of consumer satisfaction with communications services.
- > **Chapter 3: National interest issues**—outlines the performance of emergency call services, the cost of maintaining both communications interception capabilities and the disclosure of customer information to support law enforcement and national security investigations.
- > **Chapter 4: Telecommunications consumer safeguards and quality of service**—reports on the performance of key communications safeguards, including the Telecommunications Customer Service Guarantee Standard 2011 (CSG Standard), priority assistance, the Network Reliability Framework and the Do Not Call Register (DNCR). It also looks at related unwanted communications rules covering telemarketing and spam complaints, number portability code compliance and complaints to the Telecommunications Industry Ombudsman (TIO).

Executive summary

Interconnectivity and mobility are this year's key emerging themes, coupled with an ever-increasing demand for content and services.

Key highlights for 2017–18

- > Increasing interconnectivity and mobility, and data sharing and exchange, are all driving changes in communications markets and consumer behaviours. The scope, speed and impact of these changes are now being characterised as the fourth industrial revolution. Recent and emerging communications technologies—from the continued rollout of the National Broadband Network (NBN), to the coming of 5G—present enormous opportunities for economic growth and broader consumer engagement.
- > The Internet of Things (IoT) is now mainstream, with major telecommunications carriers making firm commitments for network investments, technology trials and deployments of the IoT for commercial use. Smart devices are increasingly prevalent, with 47 per cent of Australians using them at May 2018. The smart TV is the next most commonly reported smart device in the home.
- > Subscriber numbers to fixed networks have increased, driven by the volume of premises connecting to the NBN. The Australian Government introduced a range of new standards and record-keeping rules to enhance current consumer protections.
- > The shift to mobile continues. The proportion of those who are mobile-only for voice—those who have a mobile phone at home and no fixed-line phone—increased to just over 41 per cent (seven million) of Australian adults. This is reflected in the four per cent decrease in the supply of fixed-line phone services, while mobile services in operation increased by four per cent. The proportion of those who are mobile-only for internet has decreased in the last four years—from 23 per cent in 2013–14 to 16 per cent in 2017–18.
- > Although Australians spend a majority of their viewing time watching broadcast television, this share continues to decrease, driven by younger Australians' demand for online content, including online subscriptions and user-generated content.

Infrastructure developments

The NBN fixed network rollout continued at pace in 2017–18, with the number of premises activated over the NBN increasing by 65 per cent to 4.036 million.

Activity in 2017–18 included significant technological developments that, with greater cost efficiency, are likely to drive the next wave of IoT adoption. Investment in IoT capabilities among service providers and private enterprise has been significant, amounting to billions of dollars as new infrastructure is rolled out. A number of IoT technologies are being rolled out in Australia, laying the foundation for a rapidly expanding connected environment.

Improvements to the 4G mobile networks has seen combined 3G and 4G coverage now reaching 99.4 per cent of Australia's population. The three largest mobile carriers are rolling out advanced 4G infrastructure in the 700 MHz and 850 MHz spectrum bands. The 5G mobile network is expected to be activated in 2019, with compatible handsets likely to become available during the year.

The Australian Government's Mobile Black Spot Program continued to deliver improved coverage across Australia. In April 2018, the Priority Locations round was announced by the government, with all 125 identified locations to receive improved mobile coverage. The first live base station from this round was activated in June 2018. A fourth round of the program was launched in June 2018, with \$25 million allocated toward improving mobile coverage in regional and remote communities.

New submarine cable infrastructure investments were confirmed, with the Australian Government awarding a contract to build an international submarine cable between Sydney, Port Moresby in Papua New Guinea and Honiara in the Solomon Islands. The project is expected to be completed in late 2019.

Connectivity and devices

Most Australian adults (89 per cent) accessed the internet in the six months to May 2018—74 per cent went online three or more times a day.

The majority (90 per cent) of Australian adults are using more than one device to go online—with four in 10 using five or more services at May 2018.

Use of the internet via a mobile phone was the most common, while access via a home internet connection remained steady.

The volume of data downloaded continued its decade-long increase, reaching 4.08 million terabytes in the June 2018 quarter over both fixed and mobile networks (up 29 per cent in the last year). The growth in data downloaded slowed compared to previous years, largely driven by less growth from fixed networks; however, growth in data downloaded over wireless and mobile handsets continued at the same steady pace.

Age is a strong predictor of technology use, with older Australians (aged 65 and over) more likely to use traditional communication services, while younger age groups increasingly use over-the-top services (OTT). Messaging and calling apps were used by the majority of Australians aged 18–44 (63 per cent), compared to 29 per cent of those aged 45 and over.

Market developments

During 2017–18, Australian consumers continued to embrace new forms of communications technology in their take-up of digital platforms.

5G is expected to facilitate consumer applications and communications, as well as machine-to-machine (M2M) services. Advances in automation technologies—using machines to perform tasks otherwise done by humans—are also expected to significantly boost productivity, efficiencies and provide new opportunities.

In planning for the transformative power of artificial intelligence (AI), in May 2018, the Australian Government allocated \$29.9 million to fund the development of an AI ‘technology roadmap’ and ‘standards framework’. A national AI ‘ethics framework’ is also proposed to identify global opportunities, guide future investments and support responsible technological development.

Data-driven services such as Facebook, Apple, Amazon, Netflix, and Google (FAANG) continue to expand, increasing pressure on communications infrastructure and consumer demand for increased connectivity and mobility.

The spread of IoT technology has provided the launching pad for a number of new technologies requiring rapid M2M communications—in health, agriculture, transport and civic infrastructure and planning. In 2017, the Australian IoT home market increased by 55 per cent to exceed half a billion dollars, with rapid take-up of internet-connected devices (such as smart speakers) in Australian households set to continue. Research company Telsyte predicts that the Australian market for smart devices will reach \$4.7 billion by 2021.

Ongoing shift to mobile

At 30 June 2018, there were 34.84 million mobile services in operation, up four per cent from 33.57 million services in 2016–17. The declining trend in fixed-line phone services continued, down 4.3 per cent to 8.09 million services, compared to 8.46 million services in 2016–17.

The mobile phone was the most used service, while fixed-line phone use continued to decline, especially among younger Australians. At June 2018, 48 per cent of Australian adults had used a fixed-line phone in the previous six months, down from 54 per cent in 2017.

In June 2018, 41 per cent of Australian adults were mobile-only for voice, owning or using a mobile phone but without a fixed-line phone in their home. Sixteen per cent were mobile-only for data, accessing the internet by mobile phone or mobile broadband, with no fixed-internet at home. At the end of May 2018, nearly all Australian adults (96 per cent) had used a mobile phone to make a call in the last six months, while 86 per cent had sent a text message. Sixty-six per cent had used social media and 64 per cent had used a messaging/calling app.

Media consumption

Australians continued to spend a majority of their viewing time watching television on the day of broadcast. While there has been a gradual decline in free-to-air (FTA) viewing over the last six years, it continues to hold the largest share of viewing hours—48 per cent of total hours. FTA broadcast programs remained the most watched of any type of content, with older Australians spending most of their viewing time watching FTA TV.

Australian adults spend more time listening to traditional radio (AM and FM) than digital or online, with 49 per cent of those living in metropolitan areas having a digital audio broadcasting plus (DAB+) radio at home or in their car.

The number of Australian adults watching some online TV or video content in the six months to May 2018 was 71 per cent, with 46 per cent regularly watching both user-generated content and video content via a subscription service.

Take-up of subscription video on demand (SVOD) and pay-as-you-go services increased by 54 per cent, from 5.9 million to 9.1 million (paid and non-paid) at May 2018—Netflix is the most used service and accounts for 3.9 million subscribers.

There are clear generational differences in engagement with online video content. Time spent viewing online content (catch-up TV, subscription and free video content) decreased proportionally to age—increasingly, younger Australians aged 18–24 are spending most of their total viewing time watching online content.

Online advertising expenditure grew, along with total advertising expenditure across the main media categories.

Telecommunications consumer safeguards

After last year's slight increase in the number of services subject to the Customer Service Guarantee (CSG) Standard, this year saw a return to the declining trend. At 30 June 2018, there were 5.78 million services subject to the CSG Standard, compared to 6.11 million at 30 June 2017 (a 5.4 per cent decrease). The number of instances in which consumers waived their rights under the CSG Standard continued to increase. At the end of the reporting period, there were 1.77 million occasions where customers waived their rights under the CSG Standard, up by 22.3 per cent.

All qualifying CSPs reported that they met the CSG performance benchmarks. There was a decrease in the amount of compensation paid to customers by CSPs for failing to meet CSG Standard time frames—down 30 per cent to \$14.66 million.

During 2017–18, 167,831 new complaints were made to the TIO. This represents an increase of 6.2 per cent from 2016–17, but is much lower than the 41.1 per cent increase in 2016–17. Complaints about services delivered over the NBN fell across several categories, with complaints about service quality falling from 4.1 per 1,000 premises to 3.2. In the second half of 2017–18, complaints relating to NBN connections or changing service providers fell to 5,878, down from 8,711 in the first half.

ACMA consumer survey data shows that Australians aged 18 and over experienced relatively high satisfaction with their communications services, being most satisfied with fixed-line phone, followed by mobile and then internet services.

The number of complaints received by the ACMA about telemarketing increased by 42 per cent from 28,197 in 2016–17, to 40,098 in 2017–18. The number of complaints about email and SMS increased by 39 per cent to 3,309. The growth in telemarketing complaints activity over recent years may reflect improved awareness of the DNCR, increasing scam activity and growing consumer concern about unsolicited marketing.

National interests

In 2017–18, there were just under nine million calls made to the emergency call service numbers—Triple Zero and 112—an increase of 4.8 per cent, with a majority of emergency calls made from mobile phones.

Telstra’s performance as the Emergency Call Person exceeded the benchmarks—85 per cent answered within five seconds, 95 per cent within 10 seconds—for the time taken to answer emergency service calls.

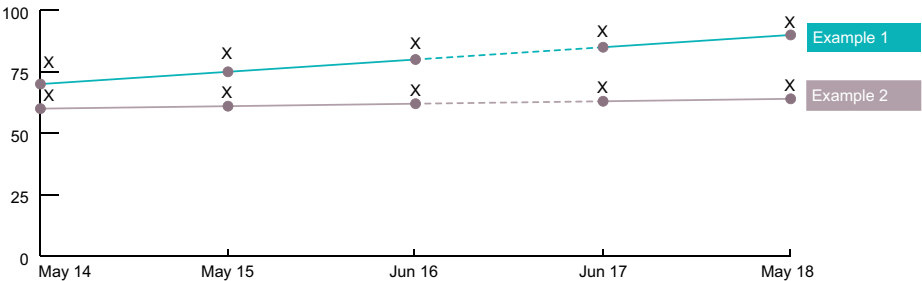
The number of disclosures made by CSPs and carriers reported under section 308 of the Telecommunications Act was 2.27 million. While this appears to be a large increase compared to 2016–17 (638,371), this rise can be attributed to the way one provider used customer information to perform data analytics on new commercial offerings, and investigations carried out by the ACMA as part of its compliance work.

The cost to industry of providing interception capabilities decreased by 2.3 per cent to \$21.5 million in 2017–18.

Note on ACMA consumer survey methodology

In 2016, the ACMA-commissioned survey used a different methodology from previous ACMA-commissioned surveys. In 2017 and 2018, the methodology was refined to ensure a more representative sample could be obtained by shifting to a probability-based sample. This means that some differences between 2016 and 2017 may be explained by the methodology rather than any significant change.

Care should therefore be taken when comparing 2017 consumer survey data with figures from previous years. Where this is the case, the tables and charts in the report show a dotted line between the 2016 and 2017 figures, as shown in the example below.



The change in methodology is further explained in the appendix to this Communications report.

Key indicators—at a glance

Telecommunications services

Number of telecommunications services in operation (millions)

	Jun 14	Jun 15	Jun 16	Jun 17	Jun 18	2017–18 change (%)
Mobile services (voice and data)	31.01	31.77	32.59	33.57	34.84	3.8
Fixed-line phone services*	9.19	8.50 [†]	8.48 [†]	8.46	8.09	–4.3

*Includes public switched telecommunications network and other fixed-line phone services.

[†]Methodology change from 2015 to report total resale (retail services directly connected via another network) and retail services in operation, but not wholesale services in operation. Previously, the ACMA reported total retail and wholesale services but not resale services.

Source: See Chapter 1 for further explanatory details for this data.

Number of internet subscribers (millions)

	Jun 14	Jun 15	Jun 16	Jun 17	Jun 18	2017–18 change (%)
Total mobile subscribers*	26.52	29.66	30.86	32.44	33.54	3.4
Mobile handset subscribers*	20.57	23.65	24.82	26.33	26.98	2.5
Mobile wireless broadband (e.g., dongle/ datacard) subscribers	5.95	6.00	6.04	6.11	6.56	7.4
Total fixed internet subscribers [†]	6.53	6.76	7.26	7.64	8.16	6.8
Total internet service subscribers [‡]	33.05	36.41	38.12	40.08	41.70	4.0

*Sum of mobile phone handset and mobile wireless broadband subscribers. The Australian Bureau of Statistics (ABS) has revised 2015 and 2016 figures for mobile handset subscribers and they are different from those previously published.

[†]Totals include data that is not available separately for publication (e.g., dial-up and n/a).

[‡]Including mobile phone handset, mobile wireless broadband, fixed-broadband, satellite, fixed-wireless, other broadband and dial-up subscribers.

Note 1: ABS subscriber statistics measure the number of 'subscriber lines' rather than the number of 'users'. Counts of subscribers are not the same as counts of people/organisations with internet access, as some subscribers may have accounts with more than one ISP or multiple accounts with a single ISP. Data relates to internet service providers with more than 1,000 subscribers. As of December 2016, dial-up is no longer a response category and is not included in the table.

Source: See Chapter 1 for further explanatory details for this data.

Fixed-line phone, smartphone or mobile phone-only use (millions)

	Jun 14	Jun 15	Jun 16	Jun 17	Jun 18	2017–18 change (%)
Fixed-line phone at home	13.37	13.07	12.56	11.92	10.98	–7.9
Own or use a smartphone	12.07	13.41	13.75	15.45*	15.97	3.4
Own or use a mobile phone	16.73	17.17	16.97	18.19*	18.57	2.1
Mobile phone users without a home fixed-line phone	4.9	5.32	5.78	6.67	7.70	15.4
Mobile-only for internet	4.15	3.84	3.80	3.55	2.96	–17.0

*2017 and 2018 data for smartphone and mobile phone users is not comparable with previous years due to a change in methodology.

Note: Data relates to people aged 18 and over. Percentage changes are calculated on non-rounded data.

Source: See Chapter 1 for further explanatory details for this data.

Payphones (number)

	2013–14	2014–15	2015–16	2016–17	2017–18	2017–18 change (%)
Payphones (Telstra-operated and privately owned)	28,068	25,876	24,573	23,226	22,716	–2.2

Source: See Chapter 4 for further explanatory details for this data.

Customer Service Guarantee (CSG)—services covered and waivers (millions)

	Jun 14	Jun 15	Jun 16	Jun 17	Jun 18	2017–18 change (%)
Telephone services covered by the CSG Standard*	6.54	6.34	6.11	6.11 [†]	5.78	–5.4
CSP customers who have waived their rights under the CSG	0.324	0.867	1.024	1.446	1.768	22.3

*Relates to the number and value of compensation payments made by CSPs to customers occurring during the financial year.

[†]i1Net's 2016–17 CSG information was independently audited in early 2018. The 2016–17 CSG information presented in this report reflects its revised, audited data.

Source: See Chapter 4 for further explanatory details for this data.

Communications network and service providers (number)

	Jun 14	Jun 15	Jun 16	Jun 17	Jun 18	2017–18 change (%)
Members of the TIO scheme*	1,384	1,539	1,599	1,518	1,589	4.7
Licensed carriers	208	229	250	276	293	6.2
ISPs†	71	69	66	63	n/a	n/a

n/a=not available.

*Carriers and eligible CSPs to join the TIO scheme. Eligible CSPs are those providers who supply fixed standard phone, mobile or internet services to residential and small-business customers.

†ISPs with more than 1,000 subscribers operating in Australia as reported by the ABS.

Source: See Chapter 1 for further explanatory details for this data.

Volume of broadband and mobile data downloaded—terabyte (TB) and gigabyte (GB)

	Qtr to Jun 14 (TB)	Qtr to Jun 15 (TB)	Qtr to Jun 16 (TB)	Qtr to Jun 17 (TB)	Qtr to Jun 18 (TB)	2017–18 change (%)
Fixed-line broadband*	963,429	1,349,975	2,049,553	2,913,245	3,714,068	27.5
Wireless broadband†	32,731	38,673	48,100	82,727	123,147	48.9
Mobile handset internet	38,734	71,572	121,147	175,076	246,765	40.9
Total volume of data downloaded‡	1,034,894	1,460,220	2,218,800	3,171,048	4,083,980	28.8
	(GB)	(GB)	(GB)	(GB)	(GB)	2017–18 change (%)
Average per fixed-line broadband subscriber	155	207	291.9	394.4	475.6	20.6
Average per wireless broadband subscriber	5.4	6.3	7.8	13	17.8	37.0
Average per mobile phone handset internet subscriber	1.9	3	4.9	6.6	9.1	37.5

*ADSL, cable, fibre and other fixed-line broadband.

†Includes satellite; fixed wireless; mobile wireless via a datacard, dongle or USB modem and other wireless broadband. Excludes subscriptions via mobile handsets.

‡Total includes dial-up volume prior to 2017.

Source: See Chapter 2 for further explanatory details for this data.

Australians accessing online content services (millions)

	May 14	May 15	Jun 16	Jun 17 [†]	Jun 18	2017–18 change (%)
Accessed professionally-produced online video content*	8.22	9.62 [†]	11.5	11.35	12.51	10.2
Accessed user-generated content	n/a	n/a	n/a	n/a	8.92	n/a
Watched or played online games	n/a	n/a	n/a	n/a	2.33	n/a
Accessed online news sites	10.79	10.28	13.01	12.73	13.34	4.8
Paid for an online news subscription	1.18	1.24	1.39	n/a	1.69 [†]	n/a

n/a=not available.

*Excludes user-generated content.

[†]Data is not comparable with previous years due to a change in methodology.

Note: Content accessed in the six months to each date.

Source: See Chapter 2 for further explanatory details for this data.

Australians' online participation—have broadband or accessed the internet via mobile phone (millions)

	Jun 14	Jun 15	Jun 16	Jun 17	Jun 18	2017–18 change (%)
Have a broadband connection at home	14.64	15.72	15.76	16.04	16.4	2.2
Accessed internet via mobile phone during last six months*	12.5	13.21	12.75	14.37	15.2	5.8
Number of '.au' domain name registrations [†]	2.86	2.97	3.04	3.11	3.15	1.4

*In six months to May 2013, May 2014 and May 2018. 2017 data is not comparable with previous years due to a change in methodology.

[†]Excludes domain names registered under '.gov.au'.

Note: Data relates to Australians aged 18 years and over.

Source: See chapters 1 and 2 for further explanatory details for this data.

Broadcasting licences

Commercial radio and TV, and subscription TV licences (number)

	2013–14	2014–15	2015–16	2016–17	2017–18	2017–18 change (%)
Commercial radio	274	274	274	274	274	0.0
Commercial television	69	69	69	69	69	0.0
Subscription television*	2,735	2,735	2,835	2,835	2,835	0.0

*Each subscription service is licensed separately.

Note: Commercial radio and television licence numbers for the periods 2012–13, 2013–14, 2014–15 and 2015–16 have been amended to correct a reporting error.

Source: See Chapter 1 for further explanatory details for this data.

Number portability

Local and mobile numbers ported (number)

	2013–14	2014–15	2015–16	2016–17	2017–18	2017–18 change (%)
Mobile numbers	1,668,163	1,721,284	1,733,834	1,871,233	2,271,593	21.4
Local geographic numbers	865,522	1,223,599	991,011	1,320,313	1,249,142	–5.4
Freephone and local rate	11,088	12,495	11,991	10,710	11,082	3.5

Source: See Chapter 4 for further explanatory details for this data.

National interest matters

Calls to emergency service numbers Triple Zero and 112

	2013–14	2014–15	2015–16	2016–17	2017–18	2017–18 change (%)
Total number of calls offered (millions)	8.481	8.377	8.351	8.58	9.00	4.8
Total percentage of calls answered	96	96	96	96	96	n/a

n/a=not available.

Note: 'Calls offered' refers to the number of calls waiting (at time zero) at the instant the four-second recorded voice announcement finished.

Source: See Chapter 3 for further explanatory details for this data.

Disclosures of customer information by carriers and CSPs to support law enforcement and national security agencies (number)

	2013–14	2014–15	2015–16	2016–17	2017–18	2017–18 change (%)
Total number of disclosures	748,079	824,841	667,792	638,371	2,268,796	n/a

Source: See Chapter 3 for further explanatory details for this data.

Note: This increase was the result of the way one provider used customer information to perform data analytics on new commercial offerings.

Complaints and investigations

Telemarketing and spam complaints and enquiries (number)

	2013–14	2014–15	2015–16	2016–17	2017–18	2017–18 change (%)
TIO total new complaints	138,946	124,417	111,989*	158,016	167,831	6.2
Telemarketing complaints and enquiries	31,797	30,293	29,799	33,743	54,117	60.4

*The figure for 2015–16 has been revised to be consistent with data published in the TIO 2016–17 annual report.

Source: See Chapter 4 for further explanatory details for this data.



Chapter 1

Supply and access to communications and media services

This chapter covers the communications infrastructure and systems that underpin and shape adoption of technology in an interconnected environment. It examines the major developments that have occurred in the availability and use of communications and media services in Australia. This chapter addresses the statutory requirements under paragraphs 105(3)(a) and (b) of the Telecommunications Act.

At a glance—our access to services

Internet subscribers



41.70 million—up 4% from 2016–17

NBN premises activated



4.03 million—up 65% since June 2017

IoT



The IoT is taking off. More Australian city councils are using the IoT to automatically monitor water use, waste services and parking meters

Fixed-line phone services



Total retail and resale

8.09 million in operation—down 4% from 2016–17

Use at home

58% of all Australians aged 18+ used a fixed-line phone—down from 64% in the 12 months to June 2017

Mobile



Voice and data services

34.84 million—up 4% from 33.57 million in 2016–17

Mobile phone/smartphone use

96% of Australians aged 18+ had used a mobile phone, 83% had a smartphone

Carrier licences



293 in operation at 30 June 2018—up 6% from the previous year

Online advertising



Accounted for 51% of main media advertising expenditure in the 2017 calendar year

1.1 Infrastructure

National Broadband Network

The NBN is an Australian Government investment to upgrade Australia's existing phone and internet infrastructure. NBN Co Limited (NBN Co)—wholly owned by the Commonwealth of Australia as a Government Business Enterprise—was established in 2009 to design, build and operate Australia's wholesale broadband access network.

The NBN uses a range of broadband technologies—the multi-technology mix (MTM)—including:

- > fibre to the premises (FTTP)
- > fibre to the building (FTTB)
- > fibre to the node (FTTN)
- > fibre to the distribution point (FTTdp)—also known as fibre to the curb (FTTC)
- > hybrid fibre coaxial (HFC)
- > fixed wireless
- > Sky Muster satellite.

NBN premises ready to connect

At 30 June 2018, there were 8.124 million premises in 'ready for service'¹ areas—a 42 per cent increase from June 2017 (5.713 million premises):

- > 7.038 million ready to connect² premises at 30 June 2018—a 29 per cent increase from June 2017 (5.445 million premises)
- > 4.036 million activated³ premises—a 65 per cent increase since June 2017 (2.443 million premises).

NBN Co temporarily paused⁴ new orders over the HFC network in November 2017. The staged re-sale of wholesale HFC services recommenced at the end of April 2018.⁵ NBN Co expects to have built the required infrastructure for all Australian homes and businesses by 2020.⁶ Table 1.1 provides an overview of the status of premises as at June 2018.

Table 1.1 NBN progress by technology—cumulative premises ready to connect and premises activated (millions)

	Technology type	30 Jun 2015	30 Jun 2016	30 Jun 2017	30 Jun 2018	2017–18 change (%) [†]
Premises ready to connect	Fixed-line footprint [‡]	0.836	2.005	4.510	5.997	33
	Fixed wireless	0.268	0.421	0.518	0.610	18
	Satellite	0.048	0.410	0.418	0.430	3
	Total	1.153	2.836	5.445	7.038	29
Premises activated	Fixed-line footprint [‡]	0.400	0.942	2.183	3.705	70
	Fixed wireless	0.047	0.118	0.185	0.240	30
	Satellite	0.038	0.039	0.075	0.090	20
	Total	0.486	1.099	2.443	4.036	65

[†]Percentage change has been calculated on whole numbers.

[‡]Fixed-line footprint refers to all non-fixed wireless or satellite connections.

Note: 'Premises ready to connect' refers to premises where an nbn service order can be placed and the service can be connected. 'Premises activated' refers to premises that have an active service installed.

Source: NBN Co, Weekly Progress Report; 19 July 2018.

New NBN technology

In some areas, the MTM employed in the NBN rollout uses Australia's existing infrastructure, creating data speed bottlenecks in FTTB and FTTC connections. NBN Co has recently announced the use of two next generation technologies to enhance data speeds over copper and HFC infrastructure using higher range spectrum:

- > G.fast technology—deployment began in 2018, enabling faster speeds for FTTB and FTTC. Successful trials in 2015 indicated that G.fast can take broadband speeds from 100 Mbps to 1 Gbps by using higher frequencies of either 106 MHz or 212 MHz.⁷ Ovum predicts that up to 30 million end users globally will be using G.fast technology by 2021.⁸
- > DOCSIS 3.1—implemented on its HFC network in August 2018, doubling the available download capacity of HFC by using a new higher range spectrum. NBN Co predicts DOCSIS 3.1 will serve three million premises across Australia by 2020.⁹

Research and reporting on the NBN

- > The ACMA published a range of reports relating to the NBN during the reporting period, including:
 - > industry information-gathering from telecommunications providers across the NBN supply chain (published December 2017)¹⁰
 - > a review of website customer information provided by all telecommunications providers offering NBN services, including critical information summaries (published April 2018)¹¹
 - > quantitative consumer research from residential households and small and medium-sized businesses based on their experiences migrating to services delivered over the NBN (published August 2018)¹²
 - > *A better practice guide for NBN providers* to help companies provide information in a way that makes it easier for customers to understand (published jointly with the Behavioural Economics Team of the Australian Government—BETA, in July 2018).¹³
- > The ACCC published its *Communications sector market study final report* in April 2018 with recommendations, actions and findings in relation to a broad range of communication services.¹⁴
- > The ACCC published its first quarterly performance report for its Measuring Broadband Australia program in March 2018, which aims to increase transparency, and encourage greater performance-based competition and internet performance. The second report was published in July 2018.¹⁵
- > The TIO published NBN complaints data in its annual report.¹⁶
- > NBN Co publishes weekly progress reports and an annual report. These are available on the NBN website.

Wireless technologies—mobile network coverage

Legacy technology—closure of 2G

Vodafone closed its 2G network on 30 June 2018.¹⁷ Optus completed the second phase of its 2G switch off on 1 August 2017, closing services in Queensland, New South Wales, the Australian Capital Territory, Victoria, South Australia and Tasmania—their 2G services in the Northern Territory and Western Australia were closed in April 2017.¹⁸ The ACMA will re-farm the 900 MHz GSM frequency band to optimise its utility for a newer generation of mobile broadband services, such as 4G.¹⁹

4G networks

Mobile network operators continued to expand their network coverage in 2017–18. With the 3G phase-out scheduled to begin in the next few years²⁰ and the 3G and 4G network reaching 99.4 per cent of Australia's population²¹, the three largest mobile carriers are rolling out advanced 4G infrastructure on the 700 MHz (Telstra and Optus) and 850 MHz (Vodafone) spectrum bands. Known variously as 4GX (Telstra), 4G Plus (Optus) and 4.9G (Vodafone), these advanced 4G networks are capable of carrying voice and data services.

During 2017–18, mobile network operator developments included:

- > The rollout of Telstra's 4GX network continued, reaching 1,600 cities and towns across the country.²²
- > Optus' 4G Plus network reached 96.5 per cent of the Australian population, available in all capital cities and over 700 regional towns.²³
- > Vodafone's 4.9G trial network was launched in Sydney's western suburbs in May 2018, with four other metropolitan sites across Australia to be switched on throughout 2018.²⁴
- > In March 2018, TPG announced that it was progressing the build of Australia's fourth mobile network.²⁵

Mobile Black Spot Program

The Australian Government's Mobile Black Spot Program aims to improve mobile coverage and competition across Australia.²⁶ The government's \$220 million commitment to the program is supported by co-contributions from mobile carriers Telstra, Optus and Vodafone, state and local governments, businesses and community organisations.

Program activity during the reporting period included:

- > In April 2018, the outcomes of the Priority Locations round were announced by the government with all 125 identified priority locations to receive improved mobile coverage. Total funding of \$82.8 million is being invested in this round, including \$45.6 million in Commonwealth funding and \$37.2 million in contributions from the mobile carriers.²⁷ The first live base station from this round of the program was activated in June 2018.²⁸
- > In June 2018, the fourth round of the program was announced, with up to \$25 million to deliver improved mobile coverage in more regional and remote communities.²⁹ The competitive selection process for Round 4 of the program closed on 10 December 2018, with rollout expected to commence in early 2019.³⁰

The Victorian State Government established a black spot program in 2018, allocating \$11 million³¹ with an additional commitment of \$7 million from Telstra³² and \$4.8 million from Optus.³³ Under the plan, 28 mobile sites will be constructed across Victoria, along with small cells and signal repeaters to be installed in State Emergency Service operation centres and vehicles.^{34, 35}

Mobile phone base stations

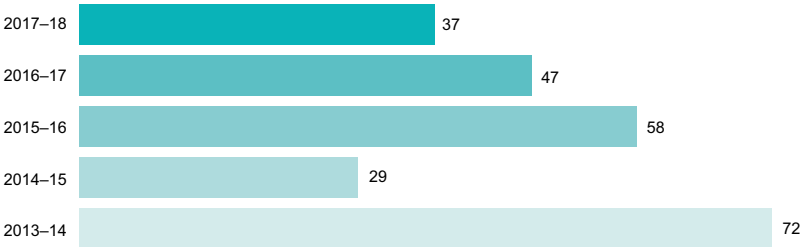
Optus, Telstra and Vodafone are the carriers that currently operate mobile phone networks in Australia. When installing mobile phone base stations, these carriers are required to comply with the industry code C564:2018 *Mobile Phone Base Station Deployment Code* (mobile phone base station code). The mobile phone base station code supplements the requirements already imposed on carriers under the existing legislative scheme by requiring carriers to consult with local communities and adopt a precautionary approach in planning, installing and operating mobile phone base stations.

The mobile communications industry has developed a national database of mobile phone base stations—the Radiofrequency National Site Archive—to improve access to information about the deployment of mobile phone infrastructure across Australia. The archive contains information about most mobile phone base stations deployed by carriers and includes electromagnetic energy reports about these facilities. This information is available at www.rfnsa.com.au.

Complaints and enquiries to the ACMA

Complaints about carriers’ compliance with the mobile phone base station code are directed to the carriers first. The code specifies mandatory processes for complaints-handling by carriers. If a complainant is dissatisfied with a carrier’s response, they can then complain to the ACMA. The ACMA will assess the complaint against the code and decide whether to formally investigate under Part 26 of the Telecommunications Act. If the ACMA decides to investigate, and a breach of the code is found, compliance or enforcement action may be taken against the carrier. In 2017–18, the ACMA responded to 25 enquiries and received 12 complaints under the code (Figure 1.1). Over the same period, the ACMA completed 13 preliminary assessments, including five that were carried over from 2016–17. Three preliminary assessments carried over from 2016–17 were closed as no further information was provided. Four preliminary assessments will continue into 2018–19.

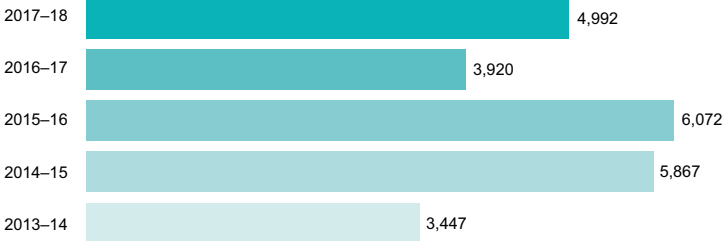
Figure 1.1 Number of enquiries and complaints received by the ACMA, relating to the mobile phone base station code



Source: ACMA.

While the ACMA did not find any breaches of the mobile phone base station code in 2017–18, several potential process improvements were raised with carriers and the Mobile Carriers Forum.³⁶ Telstra, Optus, Vodafone and PIPE Networks (a subsidiary of TPG) undertook 4,992 public consultations about mobile phone base station deployments during the reporting period. This figure includes public consultations undertaken by carriers under the industry code process and the relevant local council’s development application/approval process (Figure 1.2).

Figure 1.2 Number of public consultations undertaken by carriers



Source: CSP data.

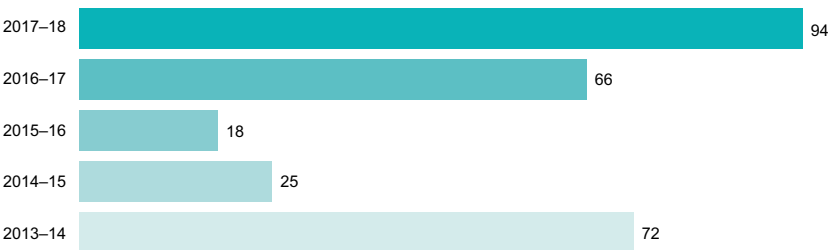
Carriers' powers and immunities

The ACMA can accept a complaint about carriers' compliance with Schedule 3 of the Telecommunications Act and the Telecommunications Code of Practice 2018 (the Code of Practice).

In 2017–18, the ACMA received 82 enquiries and 12 complaints from local councils, carriers, solicitors, landowners and members of the public (Figure 1.3). The ACMA completed five preliminary assessments about alleged contraventions, while two complaints were closed without the need to undertake a preliminary assessment. A further five preliminary assessments will continue into 2018–19.

Following these preliminary assessments, the ACMA did not find any breaches of Schedule 3 of the Telecommunications Act or the Code of Practice.

Figure 1.3 Number of powers and immunities complaints and enquiries received by the ACMA



Source: ACMA.

Complaints to the TIO about facility installations

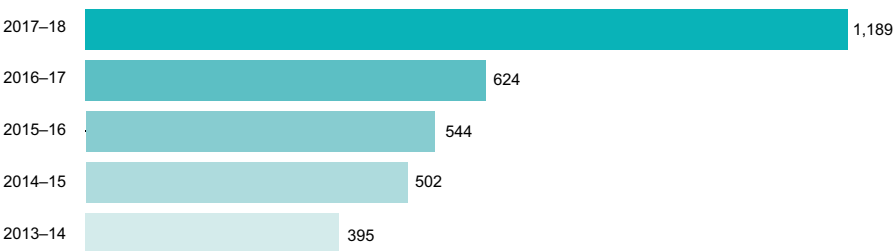
From 1 July 2017, the TIO changed the categorisation of service types and issues for complaints received from consumers and landowners. The new categorisation aims to improve the TIO's data collection, provide opportunities for better analysis of complaints, and improve reporting.

The TIO can consider objections from landowners or occupiers relating to land access matters under Schedule 3 to the Telecommunications Act. Most land access complaints made to the TIO related to:

- > damage to property
- > hazardous, non-compliant or temporary infrastructure
- > the location of equipment on land.

During the reporting period, the TIO received 1,189 new complaints from residents and small businesses (not including enquiries), compared to 624 during 2016–17 (Figure 1.4).

Figure 1.4 Number of facility installation complaints/land access complaints received by the TIO



Source: TIO.

TIO's land access objections and decisions

During the reporting period, 12 objections were referred to the TIO, while eight objections were carried over from 2016–17, totalling 20 objections in all. Of these:

- > 13 directions were given to carriers about the way in which they engage in their land access activity
- > two could not be progressed, because of non-compliance notices or failure to comply with requirements under the Telecommunications Act or the Code of Practice, or where the TIO determined the objection was about a facility that was not a low-impact facility
- > one could not be considered as it was not made within the specified time
- > one was withdrawn
- > three were yet to be finalised at 30 June 2018.

Deployment of optical fibre

In 2017–18, the ACMA received one complaint under Part 20A of the Telecommunications Act about the deployment of optical fibre in a new real estate development. The ACMA has commenced a preliminary assessment into the matters raised in this complaint.

Submarine cables

Submarine cables carry the bulk of Australia's international voice and data traffic, and contribute significantly to the Australian economy. A 2018 working paper from the Bureau of Communications and Arts Research forecasts that Australian peak bandwidth demand for the highest usage households will increase from between 11 and 20 Mbps in 2016, to between 20 and 49 Mbps in 2026.³⁷ Peak demand is important as it defines the maximum necessary capacity of the cables. Globally, industry analysts forecast bandwidth demand to continue to double every two years for the foreseeable future, consistent with growth levels in recent years. Much of this demand has been driven by the proliferation of data centres and cloud service providers, increasing the need for international infrastructure.³⁸

At June 2018, there were 11 international submarine cables connecting Australia to the rest of the world across three protection zones—two located off the Sydney coast and one located off the Perth coast. There were also three domestic submarine cables.

Efforts to further address service unreliability caused by breakages in the single cable out of Perth have continued. In July 2018, the laying phase of the 4,600 km Australia Singapore Cable was completed and commissioned as ready for service on 14 September 2018³⁹, while an additional cabling project out of Perth is expected to be finished in 2019.⁴⁰ Funded by a consortium of telecommunications providers, the latter entails 9,000 km of cable laid in two distinct projects—Indigo West (Singapore to Perth via Jakarta) and Indigo Central (connecting Perth to Sydney).

In June 2018, Vocus was awarded a \$136.6 million Australian Government contract to build an international submarine cable between Sydney, Port Moresby in Papua New Guinea and Honiara in the Solomon Islands. The project is expected to be completed in late 2019.⁴¹

Copper network switch-off

NBN Co is replacing and upgrading the existing fixed-line phone and internet network infrastructure.

At the time of publication, there was an 18-month window from the ready-for-service date until an area has its copper network services disconnected. All premises within the NBN fibre footprint in each area are required to switch over to the NBN before the designated switch-off date, to continue receiving fixed-line phone and internet services.

The coverage of the NBN, including areas that are active or under construction, is published on NBN Co's website.⁴²

1.2 Network access

NBN activations

NBN Co announced the introduction of several initiatives during the 2017–18 reporting period, including:

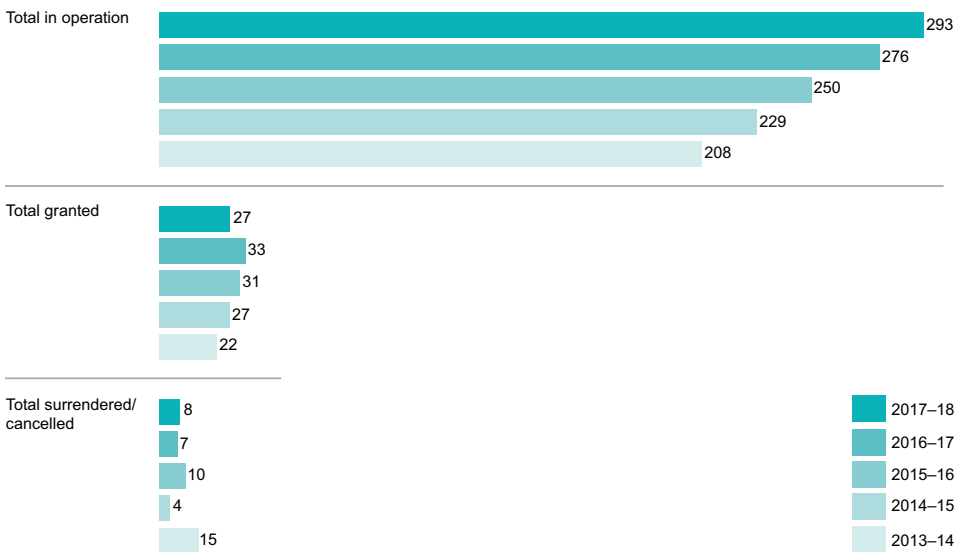
- > doubling the amount of peak data that retail service providers (RSPs) are able to offer end-user Sky Muster satellite customers from October 2017. The total monthly data allowance was also doubled⁴³
- > announcing, in November 2017, a range of initiatives to improve the experience of businesses migrating to services delivered over the NBN, via the Future of Customer Experience (FoCX) Program—these include a dedicated team working with RSPs, new partner and communication programs and a new capped pricing model⁴⁴
- > introducing, in December 2017, wholesale price reductions that came into effect on its top-tier internet access plans in the second quarter of 2018⁴⁵
- > undertaking a limited launch of FTTC between March and June 2018 (with the potential to use a new copper acceleration technology, G.fast), delivering fibre to the pit or footpath outside a home. NBN Co forecasts 1.4 million FTTC premises to be delivered by 2020–21⁴⁶
- > testing and monitoring NG-PON2, G.mgfast and 4.9/5G as possible upgrade paths.⁴⁷

Licencing and numbering

Carriers and CSPs

At 30 June 2018, there were 293 licensed carriers in Australia (a rise of 6.2 per cent), with the ACMA granting 27 carrier licences in 2017–18. In the same period, eight carriers surrendered their licences, with one carrier licensee being deregistered by the Australian Securities and Investments Commission (ASIC) (Figure 1.5).

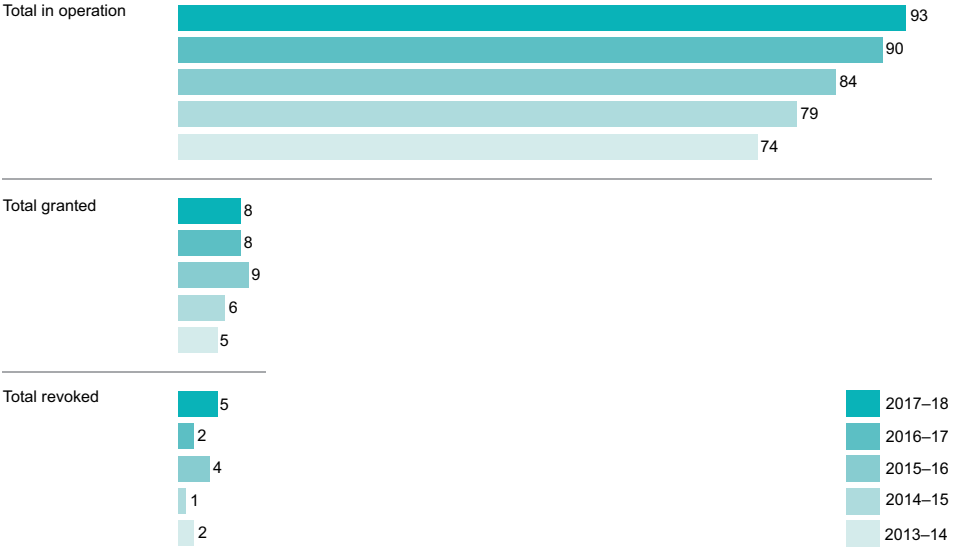
Figure 1.5 Number of carrier licences



Source: ACMA.

A nominated carrier declaration (NCD) permits the owner(s) of one or more network units to nominate a carrier to supply carriage services over those units to the public. At 30 June 2018, there were 93 NCDs in force. In 2017–18, the ACMA granted eight NCDs and revoked five⁴⁸, and also issued four trial certificates, compared to six in 2016–17 (Figure 1.6).⁴⁹

Figure 1.6 Number of nominated carrier declarations



Source: ACMA.

At June 2018, the total number of CSPs identified as members of the TIO scheme rose to 1,589 (a 4.7 per cent increase). While CSPs do not need to be licensed or registered, TIO scheme membership is mandatory for all eligible CSPs that provide or resell telecommunications services to residential customers and small businesses.

Allocation of numbers

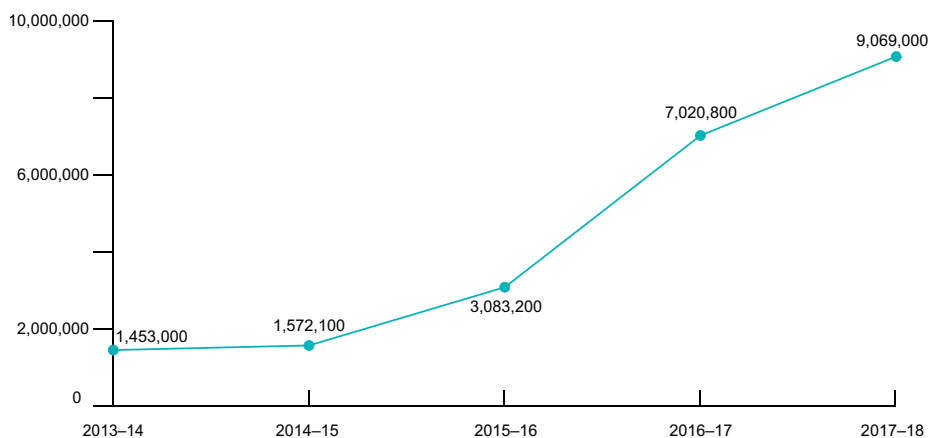
Smartnumbers

The Numbering System sells the rights of use to smartnumbers (numbers starting with 13, 1300 and 1800, where the number may have a valuable pattern or spell a word). In 2017–18, the rights of use to 4,641 smartnumbers were sold, 296 fewer than 2016–17.

Geographic numbers

In 2017–18, CSPs were allocated 9,069,000 geographic numbers, compared to 7,020,800 in 2016–17 (Figure 1.7). CSPs also surrendered 956,200 geographic numbers, less than half the number surrendered in 2016–17. A total of 19,000 geographic numbers were transferred in 2017–18, falling from 132,000 in 2016–17.

Figure 1.7 Number of geographic numbers allocated to CSPs



Source: ACMA.

Mobile numbers

During 2017–18, CSPs were allocated 720,000 mobile numbers, a 46 per cent decrease from the 2016–17 figure of 1.34 million mobile numbers.

Other numbers

During 2017–18, one interconnection and routing code, three mobile network codes and four premium rate codes were allocated to network operators.

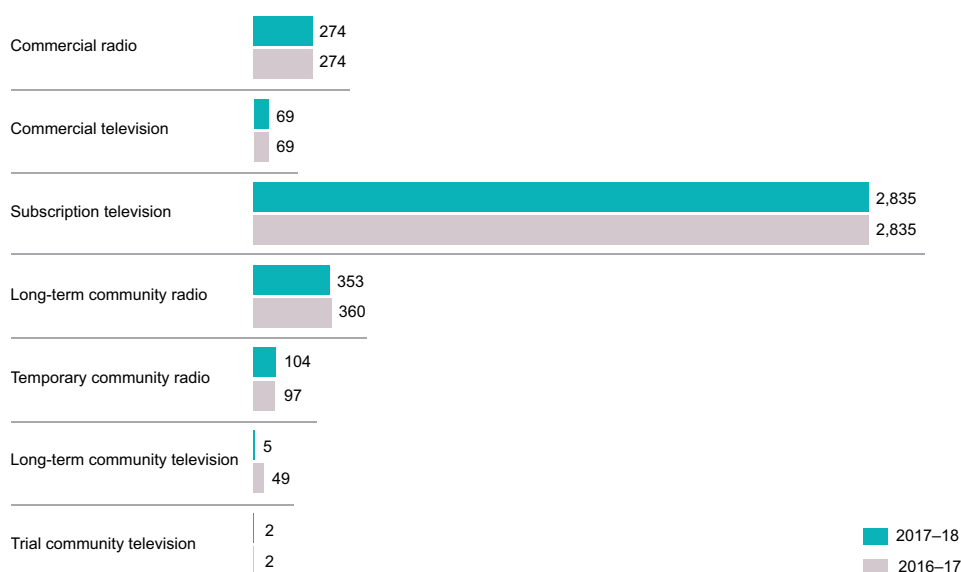
Broadcasting licences in operation

The number of commercial broadcasting licences in operation for television and radio did not change during the reporting period. However, there were some changes for community broadcasting licences from 2016–17.

At 30 June 2018, the number of active licences in Australia were (Figure 1.8):

- > 343 commercial broadcasting (radio and television) licences—unchanged from last year
- > 2,835 subscription television licences—unchanged from last year
- > 464 community radio and television licences (including temporary and trial licences)—down by 44 from last year. These include five long-term community television licences—down from 49 last year. Of the 44 licences that are no longer active:
 - > 15 remote Indigenous community television broadcasting licences were surrendered during the reporting period
 - > 29 licensees did not apply to renew their licences, which lapsed on their respective expiry dates.

Figure 1.8 Number of broadcasting licences in operation in Australia



Source: ACMA.

Community radio broadcasting licences

At 30 June 2018, there were 353 long-term community radio broadcasting licences, representing a range of community interests (Table 1.2). Twenty-one per cent of these licences were remote Indigenous broadcasting services.

Table 1.2 Number of long-term community radio broadcasting licences by community interest, June 2018

Community interest	Number of licences	Total (%)
General geographic area	178	50
Indigenous and Torres Strait Islander	91	26
Religious	34	10
Educational/special interest	20	6
Ethnic	6	2
Music	8	2
Senior citizen	8	2
Youth	8	2
Total	353	100

Source: ACMA.

1.3 Ownership and control of commercial television and radio services

Television

The media control rules and media diversity rules seek to limit concentration of broadcasting ownership and control within licence areas.

Legislative amendments

The *Broadcasting Legislation Amendment (Broadcasting Reform) Act 2017* received royal assent on 16 October 2017 and among other amendments, repealed two media diversity and control rules in the *Broadcasting Services Act 1992* (the BSA):

- > the '75 per cent audience reach rule', which prevented an entity from controlling television services that reach in excess of 75 per cent of the Australian population
- > the 'two out of three control rule', which prevented an entity from controlling more than two of the three regulated forms of media (commercial radio, commercial television and associated newspapers) in the one commercial radio licence area.

During 2017–18, there were a number of ownership and control changes in the media. Some were the result of takeovers and mergers of media companies, others were a result of financial or company restructures or mergers.

The key changes that occurred during 2017–18 included:

- > On 16 November 2017, CBS Corporation (CBS) acquired all of the issued shares of Ten Network Holdings (TNH) Limited. As a result of this transaction, CBS came into a position to exercise control of the TNH Limited commercial television broadcasting licences. The receivers and managers and the liquidators of TNH Limited ceased being in a position to exercise control of the TNH Limited licences on the same date.
- > On 29 March 2018, several companies and individuals came into a position to exercise control of the Pacific Star Network Limited (PNW) commercial radio broadcasting licences as a result of the merger of PNW and Crocmedia Pty Ltd. Two persons ceased being in a position to exercise control of the PNW licences as a result of this transaction.
- > On 22 December 2017, Tabcorp Holdings Limited, a controller of a racing radio station in Sydney RA1, acquired 100 per cent of the shares of Tatts Group Limited, the controller of two radio stations in Brisbane and Maryborough (Qld).

The Seven, Nine and Ten networks operate commercial television broadcasting licences predominantly in metropolitan markets. Their programming is also made available in regional markets through affiliation agreements with the regional television licences controlled by Prime Media Group Limited, Southern Cross Media Group Limited (Southern Cross), WIN Corporation Pty Ltd (WIN) and Imparja Television Pty Ltd.⁵⁰

Table 1.3 summarises ownership and control of these services in Australia.

Table 1.3 Ownership and control of commercial television services in Australia

Network	Licence type	Number	Ownership and control—licence areas
Seven Group Holdings Ltd	Metropolitan	5	Sydney, Melbourne, Brisbane, Adelaide and Perth
	Regional	1	Regional Queensland
Nine Entertainment Co. Holdings Ltd	Metropolitan	5	Sydney, Melbourne, Brisbane, Adelaide and Perth
	Regional	3	Darwin (one sole operation and one joint venture with Southern Cross Media Group Ltd) and Northern New South Wales
Ten Network Holdings Ltd	Metropolitan	5	Sydney, Melbourne, Brisbane, Adelaide and Perth
WIN Corporation Pty Ltd	Regional	22	Across regional Australia, including joint ventures in: > Tasmania with Southern Cross Media Group Ltd > Mildura, Geraldton, Kalgoorlie, Western Zone, South West and Great Southern television licence areas with Prime Media Group Ltd > Also includes three licences in each of Griffith, Riverland and Mount Gambier South-East licence areas, and one licence in Northern New South Wales
Southern Cross Media Group Ltd	Regional	18	Across regional Australia, including joint ventures in: > Darwin with Nine Entertainment Co Holdings Ltd > Tasmania with WIN Corporation Pty Ltd > Mt Isa and Remote Central and Eastern Australia TV2 licence areas with Imparja Television Pty Ltd > Also includes three licences in each of the Broken Hill and Spencer Gulf licence areas
Prime Media Group Ltd	Regional	13	Across regional Australia, including joint ventures in: > Mildura, Geraldton, Kalgoorlie, Western Zone, South-West and Great Southern licence areas with WIN Corporation Pty Ltd

Note: Does not include licences for services provided by satellite allocated under section 38C and other licences allocated under subsection 40(1) of the BSA. The number of licences does not add up to the total number of commercial television broadcasting licences (69) due to double-counting of joint ventures.

Source: ACMA, Register of Controlled Media Groups and the Media Control Database.

Radio

Table 1.4 shows the ownership and control of commercial radio services in 2017–18:

- > Southern Cross, Australian Radio Network Pty Ltd, Nova Entertainment Pty Ltd and Macquarie Media Limited owned the majority of capital city commercial radio broadcasting licences.
- > Southern Cross, Broadcast Operations Pty Ltd (Super Radio Network) and Grant Broadcasters Pty Ltd remained the three largest networks of regional commercial radio broadcasting licences.
- > Nine different networks each controlled more than six commercial radio broadcasting licences, which was unchanged from the previous year. Together, these nine networks controlled 228 licences out of a total of 262 commercial radio licences that were subject to the media diversity and control rules under Part 5 of the BSA. This does not include commercial radio broadcasting licences allocated under subsection 40(1) of the BSA. The remaining 37 licences were held by 18 networks/owners, each with five or fewer licences.

Table 1.4 Ownership and control of commercial radio services

Network group company	Total licences controlled	Ownership and control—licences and operations
ACE Radio Broadcasters Pty Ltd	17	Licences in regional Victoria and one licence in the regional New South Wales licence area of Albury, which includes parts of regional Victoria
Australian Radio Network Pty Ltd (HT&E Limited)	13	Metropolitan licences in Adelaide (2), Brisbane (1), Melbourne (2), Perth (1), Sydney (1) and Western Suburbs, Sydney (1) Regional radio licence in Katoomba, New South Wales (1) Joint-venture licences with Nova Entertainment Pty Ltd—Brisbane (1) and Perth (1), and with Southern Cross Media Group Ltd in Canberra (2)
Nova Entertainment Pty Ltd	10	Metropolitan licences in Adelaide (2), Brisbane (1), Melbourne (2) and Sydney (2) as well as one regional radio licence in Gosford, NSW (1) Joint-venture licences with Australian Radio Network Pty Ltd—Brisbane (1) and Perth (1)
Grant Broadcasters Pty Ltd	52	Metropolitan licence in Perth (1) Licences in regional areas in New South Wales, Northern Territory, Queensland, Victoria, South Australia and Tasmania, including joint-venture licences with Kevin Blyton that are part of the Capital Radio Network (5)
Macquarie Media Limited (formerly Macquarie Radio Network Ltd)	7	Metropolitan licences in Brisbane (2), Melbourne (2), Perth (1) and Sydney (2)
Redwave Media Ltd/Seven Group Holdings Ltd	9	Licences in regional and remote areas in Western Australia
Southern Cross	78	Metropolitan licences in Adelaide (2), Brisbane (2), Melbourne (2), Perth (2) and Sydney (2) Licences in regional areas in New South Wales, Queensland, Tasmania, Victoria, South Australia and Western Australia Joint-venture licences with Australian Radio Network Pty Ltd in Canberra (2)
Broadcast Operations Pty Ltd (Super Radio Network)	36	Licences in regional areas of New South Wales and Queensland Metropolitan licence in Sydney (1)
Resonate Broadcasters Pty Ltd and Resonate Regional Radio Pty Limited	10	Licences in regional areas in Queensland held by Resonate Regional Radio Pty Limited—Charleville (2), Emerald (1), Kingaroy (1), Mt Isa (1), and Roma (1), and by Resonate Broadcasters Pty Ltd—Longreach (2) and Charters Towers (2)

Note: Table includes networks with more than six licences.

Source: ACMA, Register of controlled media groups and media control database.

Cross-media ownership

A small number of entities controlled two types of media assets in the same market:

- > Southern Cross controlled a combination of radio and television broadcasting licences in 21 radio licence areas
- > Fairfax Media Limited controlled two radio licences and a newspaper in Melbourne, and two radio licences and a newspaper in Sydney
- > Seven Group Holdings Limited controlled a television licence and a newspaper in Perth
- > WIN controlled a radio and television licence in Wollongong
- > Lachlan Murdoch, through his position as Co-Chairman of News Corporation and interests in Nova Entertainment Pty Ltd, controlled two radio licences and an associated newspaper in each of the Sydney, Brisbane, Adelaide and Melbourne metropolitan licence areas.

In July 2018, a proposed merger between Nine and Fairfax was announced, with the ACCC stating in November that it would not oppose the merger.⁵¹ Supported by a majority of Fairfax shareholders⁵², the merger was approved by the Federal Court on 27 November 2018.⁵³

Notification of changes in control

Commercial television and radio licensees and publishers of associated newspapers must notify the ACMA of any changes in control within 10 business days of becoming aware of those changes (section 63 of the BSA). Those who come into a position to exercise control of such licences and associated newspapers are also required to notify the ACMA within 10 business days of becoming aware of the change in control (section 64 of the BSA).

During 2017–18, the ACMA sent three informal advisory letters for late notifications of changes. There were no formal warnings or infringement notices given for late notifications.

There were 13 events affecting the control of media operations. These notifications of change of control affected:

- > 11 commercial television broadcasting licences
- > 17 commercial radio broadcasting licences
- > three associated newspapers.

1.4 Supply of services

Market overview

According to IBISWorld, \$44 billion in total revenue has been generated in 2018 by the telecommunications industry in Australia and this is projected to increase to around \$47 billion in 2022.⁵⁴

- > While revenue from wireless telecommunications has grown annually by around 1.5 per cent⁵⁵, the annual growth of revenue related to fixed networks declined by around 2.5 per cent each year between 2014–2018.⁵⁶
- > The total global revenue for CSPs (including digital platforms) is expected to grow from US\$3,067 billion in 2017 to US\$4,034 billion in 2022.⁵⁷

Mergers and acquisitions

There were few large-scale mergers or acquisitions in 2017–18:

- > Telstra acquired MT Data and VMTech in late 2017.⁵⁸
- > Network operator Superloop acquired SkyMesh⁵⁹, NuSkoop and GX2 holdings.⁶⁰

In August 2018, TPG and Vodafone announced plans to merge, subject to regulatory and shareholder approvals. While shareholder approval was received, the ACCC published a statement of issues on 13 December 2018 and will make its decision in March 2019.⁶¹

Fixed-line phone

There were 8.09 million retail and resale fixed-line phone services in operation at June 2018, compared to 8.46 million services at June 2017, a net decline of 4.3 per cent (Table 1.5). Telstra retail services accounted for 60 per cent of fixed-line phone retail and resale services at June 2018.

In 2018, Telstra's total fixed-line phone services in operation experienced a decline in the number of retail fixed voice lines in operation, reporting a loss of 472,000 services—a reduction of 8.8 per cent (Table 1.5).

Telstra's fixed voice revenue decreased by 15.4 per cent to \$2.6 billion, while fixed data revenue fell by 0.2 per cent to \$2.5 billion.⁶²

Table 1.5 Fixed-line phone services in operation (millions)

	Jun 14	Jun 15 [†]	Jun 16	Jun 17	Jun 18	2017–18 change (%)
Total retail and resale	9.19	8.50	8.48*	8.46	8.09	–4.3
Total Telstra (retail only)	6.25	5.98	5.71	5.36	4.89	–8.8

*ACCC has revised the 2016 figures for total retail and resale subscribers and they are different from those previously published.

[†]Methodology change from 2015 to report total resale (retail services directly connected via another network) and retail, excluding wholesale services in operation. Previously, the ACMA reported total retail and wholesale, excluding resale services in operation.

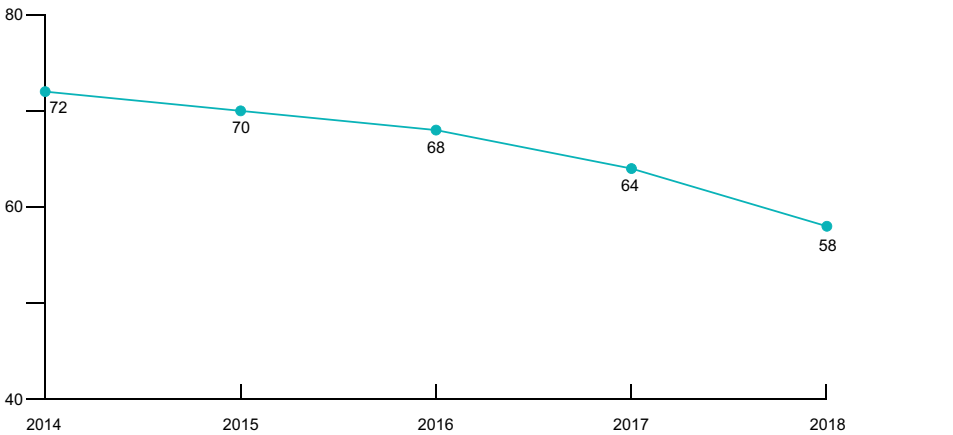
Note: Percentage change calculated of whole numbers.

Source: Total retail and resale data—2015–18 figures: ACCC data collected from the providers stated in the Division 12 Report Record Keeping and Reporting Rules; 2014 figure: ACCC and ACMA data collected from the top six service providers; total Telstra (retail only): Telstra annual reports.

Access to fixed-line phone

The number of Australian adults with a fixed-line phone service at home continued to decline—58 per cent (approximately 10.98 million) had a fixed-line phone at home at June 2018, down from 72 per cent four years ago (Figure 1.9).

Figure 1.9 Australians with a fixed-line phone service at home (percentage)



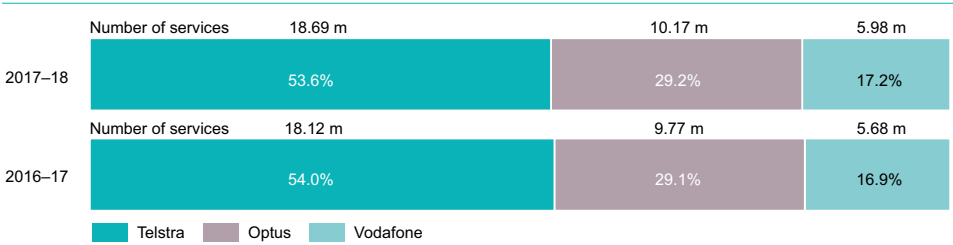
Base: Australians aged 18 years and over, in the 12 months to June of each year.
Source: Roy Morgan Single Source.

Mobile

Carrier market share

During 2017–18, the market share for Australia’s three mobile carriers remained largely stable. Telstra’s share of mobile services decreased slightly by 0.3 of a percentage point to 53.6 per cent. Optus’s share increased by 0.1 of a percentage point to 29.2 per cent, while Vodafone Australia’s share increased by 0.2 of a percentage point to 17.2 per cent (Figure 1.10).

Figure 1.10 Mobile services in operation—carrier share and customer base



Note: Percentage changes are calculated on unrounded figures.
Source: Telstra Corporation Limited—Financial results for the full year ended 30 June 2018—CEO/CFO Analyst Briefing Presentation and Materials, 16 August 2018; Singapore Telecommunications Limited and subsidiary companies, Management discussion and analysis of financial condition, results of operations and cash flows for the first quarter ended 30 June 2018; and Hutchison Telecommunications (Australia) Limited ASX Half Year Information 30 June 2018.

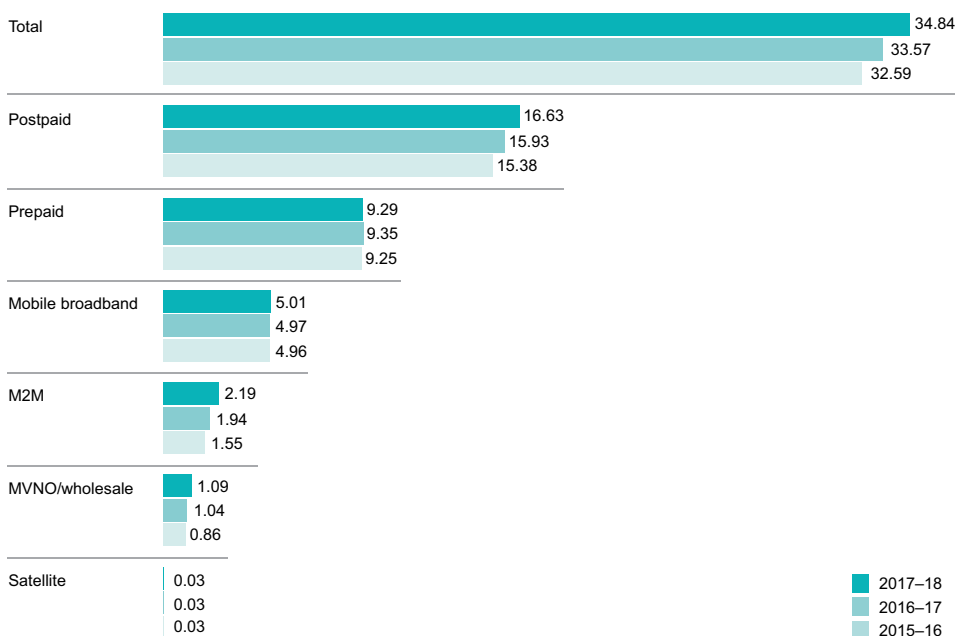
Access to mobile services

An estimated 34.84 million mobile voice and data services were in operation in Australia at June 2018—an increase of 3.8 per cent on the previous year (Figure 1.11).

Machine-to-machine (M2M) services continued to be a strong contributor to the growth in mobile services. Telstra reported M2M revenue grew by 13.0 per cent in 2018 to \$165 million.⁶³

Consumer survey data shows that at the end of May 2018, nearly all Australian adults (96 per cent) had used a mobile phone to make a call in the last six months, while 86 per cent had sent a text message from their mobile handset. Sixty-six per cent had used social media and 64 per cent, a messaging/calling app. See Chapter 2 for further information.⁶⁴

Figure 1.11 Mobile services in operation by product category (million)



Note 1: The total figure includes retail (excluding resale) and wholesale mobile services. The retail services component includes postpaid and prepaid mobile services, mobile broadband, M2M and satellite services.

Note 2: Data may not add up to displayed totals due to rounding.

Note 3: Totals may be different from those previously published by the ACMA due to some providers reclassifying customers into different categories.

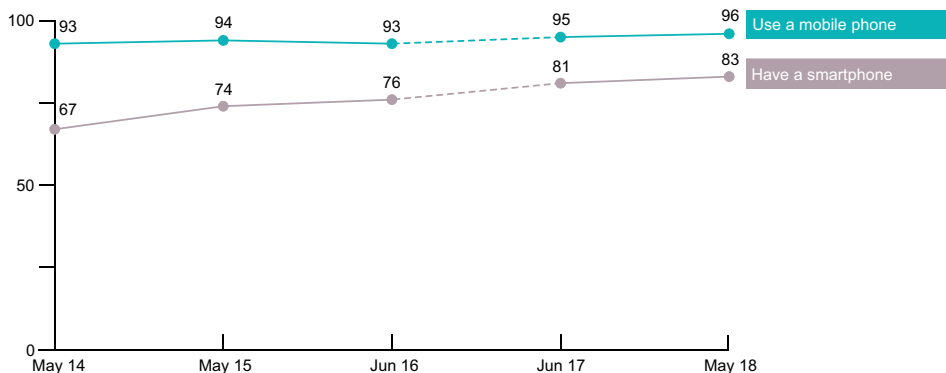
Source: Telstra Corporation Limited—Financial results for the full year ended 30 June 2018—CEO/CFO Analyst Briefing Presentation and Materials, 16 August 2018; Singapore Telecommunications Limited and subsidiary companies, Management discussion and analysis of financial condition, results of operations and cash flows for the first quarter ended 30 June 2018; and Hutchison Telecommunications (Australia) Limited ASX Half Year Information 30 June 2018.

Mobile phone use and ownership

At June 2018, 83 per cent (approximately 15.97 million) of Australian adults had a smartphone. There was little change in the percentage of those who had a mobile phone of any kind at 96 per cent (approximately 18.57 million), remaining steady over the past five years (93 to 96 per cent) (Figure 1.12).

The mobile phone was once again the most popular and most frequently used device to access the internet. Chapter 2 provides more detailed information on internet activities and devices.

Figure 1.12 Own or use a mobile phone, have a smartphone in the last six months (percentage)



Base: Australians aged 18 and over (over the 12 months to June for each year).

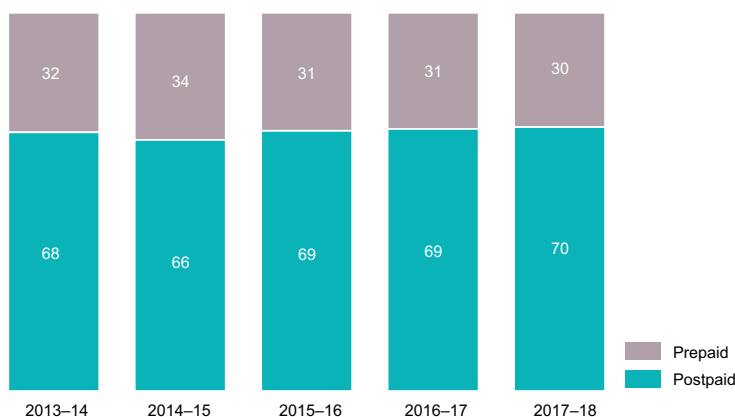
Source: ACMA-commissioned surveys, May 2014, 2015, June 2016, 2017, and May 2018.

Note: The methodology changed in 2016 and 2017 and may impact on comparability with earlier years.

Prepaid or postpaid

Of the 17.785 million Australian adults who were the main users of a mobile phone, seven in 10 had a postpaid mobile phone plan, while 30 per cent had a prepaid plan at June 2018. The proportions of prepaid and postpaid mobile phone users have remained relatively consistent in Australia over the past five years (Figure 1.13).

Figure 1.13 Mobile phone payment plans—prepaid and postpaid (percentage)



Base: Australians aged 18 and over who are the main user of a mobile phone (over the 12 months to June for each year).

Source: Roy Morgan Single Source.

Australia's internet supply

The NBN

The NBN roll out continues, with plans to connect eight million Australian premises by 2020.⁶⁵

Table 1.6 shows that in June 2018, there were 4.036 million activated premises—a 65 per cent increase since June 2017 (2.443 million premises), with the majority using fixed-line technology.

Table 1.6 NBN services—cumulative premises activated (millions)

Technology type	30 Jun 2015	30 Jun 2016	30 Jun 2017	30 June 2018	2017–18 change (%)†
Fixed-line footprint‡	0.400	0.942	2.183	3.705	69.7
Fixed wireless	0.047	0.118	0.185	0.240	30.0
Satellite	0.038	0.039	0.075	0.090	20.6
Total	0.486	1.099	2.443	4.036	65.2

[†]Percentage change has been calculated on whole numbers.

[‡]Fixed-line footprint refers to all non-fixed wireless or satellite connections.

Note: 'Premises activated' refers to premises that have an active service installed. Premises are activated after receiving and provisioning a service order from a retail service provider to install a new service.

Source: NBN Co, Weekly Progress Report; Full Year Results, 2018.

Service providers

Table 1.7 provides a snapshot of fixed-internet services in operation by number of subscribers in the Australian market for the top four internet service providers (ISPs)—Telstra, Optus, TPG (which includes iiNet) and Vocus Communications (which includes M2 Group).

Table 1.7 Fixed internet services in operation for large Australian ISPs (thousands)

	2016	2017	2018	2017–18 change (%)
Telstra	4867	5,510	6,141	11.5
Optus	1,071	1,174	1,249	6.4
TPG	1,868	1,936	1,931	–0.3
Vocus Communications	528	547	520	–4.9

Total fixed internet/broadband subscribers for each ISP are calculated by summing the following:

Telstra: The table has been revised in 2018 to include Telstra NBN services and exclude Telstra wholesale services.

Terminology used is consistent with that used in company annual reports. Fixed-broadband retail, NBN premise bundled connections excluding voice-only, ISDN access (basic line equivalents).

Optus: On-net broadband customers, off-net resale, off-net NBN, dial-up.

TPG: On-net ADSL bundle, on-net ADSL, FTTB, off-net ADSL, NBN.

Vocus Communications: Bundled and DSL, NBN.

Note: The table has been revised in 2018 to include Telstra NBN services and exclude Telstra wholesale services.

Terminology used is consistent with that used in company annual reports. 'On-net' refers to services provided by the ISP over its own network. Off-net and off-net resale refer to services provided by an ISP over another ISP's network.

The number of subscribers is measured using the number of subscriber lines rather than number of users. Subscribers may have multiple accounts with more than one ISP. Numbers presented in the table may also include SIO of subsidiaries. Numbers may not add up due to rounding.

Source: Company annual reports and press releases.

Internet subscribers

There were 41.7 million internet subscribers in Australia at June 2018, an increase of 4.0 per cent since June 2017 (Table 1.8). The increase reflects continued growth in NBN-related services and mobile internet services.

Table 1.8 Internet subscribers by technology type (millions)

	Jun 14	Jun 15	Jun 16	Jun 17	Jun 18	2017–18 change (%)
Total fixed internet subscribers [†]	6.528	6.758	7.258	7.641	8.159	6.8
ADSL	5.065	5.106	5.032	4.233	3.232	–23.6
Cable	0.946	0.996	1.029	1.010	0.937	–7.2
Satellite	0.080	0.69	0.062	n/a	0.132	n/a
Fixed wireless*	0.050	n/a	0.083	0.138	0.217	57.2
Fibre	0.203	0.420	0.960	2.144	3.640	69.8
Other	0.002	n/a	0.001	n/a	0.001	n/a
Total mobile internet subscribers	26.521	29.656	30.857	32.437	33.542	3.4
Mobile handset [‡]	20.567	23.652	24.818	26.330	26.981	2.5
Mobile wireless (dongle, data card, USB modem services)	5.954	6.004	6.039	6.107	6.561	7.4
Total internet subscribers[§]	33.049	36.414	38.115	40.078	41.701	4.0

n/a=not available for publication.

*Fixed wireless: for example, WiMAX uses an air interface to connect an internet service. An antenna installed at the customer's premises receives signals from the service provider's base station.

[†]Totals include data not available separately for publication (e.g., dial-up and n/a).

[‡]ABS has revised the 2015 and 2016 figures for mobile handset subscribers and they are different from those previously published.

[§]Including mobile phone handset, mobile wireless broadband, fixed-broadband, satellite, fixed-wireless, other broadband and dialup subscribers.

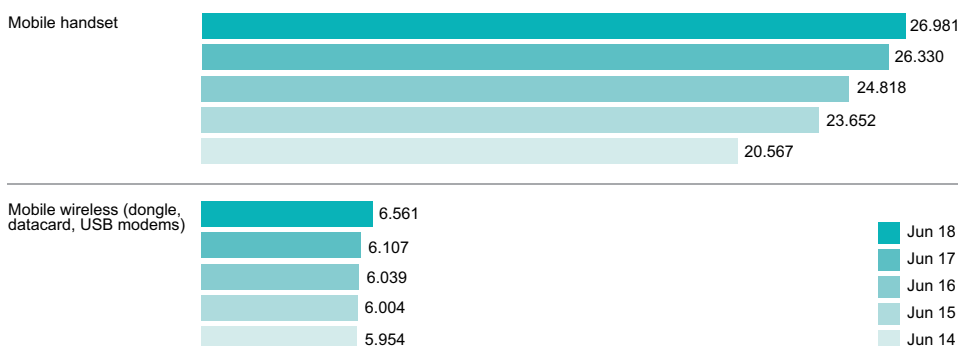
Note 1: ABS subscriber statistics measure the number of 'subscriber lines' rather than the number of 'users'. Counts of subscribers are not the same as counts of people/organisations with internet access, as some subscribers may have accounts with more than one ISP or multiple accounts with a single ISP. Relates to ISPs with more than 1,000 subscribers.

Note 2: As of December 2016, dial-up is no longer an applicable response category for type of access connection and has not been included separately in the table. Dial-up data has been included in totals.

Source: ABS, 8153.0 Internet activity, Australia, June 2018.

The latest data from the Australian Bureau of Statistics (ABS) shows that mobile handset subscribers increased 2.5 per cent in the 12 months to June 2018 to reach 26.981 million subscribers. Mobile wireless internet subscribers increased by 7.4 per cent to reach 6.561 million subscribers (Figure 1.14).

Figure 1.14 Mobile internet subscribers in Australia (millions)



Base: Number of subscribers.

Note: The ABS has revised mobile handset internet subscriber figures for June 2015 and 2016 and they are different to those previously published.

Source: ABS, 8153.0 Internet activity, Australia, June 2018.

International trends—fixed and mobile broadband

International data currently available from the International Telecommunication Union (ITU) provides a broad level comparison of global fixed and mobile broadband penetration (Table 1.9).

Australia is ranked 26th globally for fixed broadband subscriptions and seventh for mobile broadband subscriptions, per 100 inhabitants in 2017.

Table 1.9 International comparison of fixed broadband and mobile broadband subscriptions, per 100 inhabitants, 2017

Rank	Fixed-broadband subscriptions		Mobile-broadband subscriptions	
1	Monaco	49.8	Macao, China	321.8
2	Switzerland	45.4	United Arab Emirates	243.4
3	Andorra	44.5	Kuwait	227.9
4	France	43.8	Finland	153.8
5	Denmark	43.2	Singapore	148.2
6	Netherlands	42.3	Bahrain	147.3
7	Malta	42.1	Australia	134.9
8	Liechtenstein	42.0	Estonia	133.4
9	Korea (Rep. of)	41.6	Japan	133.2
10	Germany	40.5	United States	132.9
11	Norway	40.2	Denmark	129.0
12	Iceland	39.9	Brunei Darussalam	126.6
13	United Kingdom	39.3	Liechtenstein	122.6
14	Belgium	38.3	Sweden	122.6

Rank (cont.)	Fixed broadband subscriptions (cont.)		Mobile broadband subscriptions (cont.)	
15	Canada	38.0	Latvia	117.9
16	Sweden	37.7	Qatar	117.4
17	San Marino	37.4	Costa Rica	116.6
18	Luxembourg	36.5	San Marino	113.8
19	Hong Kong, China	35.9	Iceland	113.3
20	Cyprus	34.8	Korea (Rep. of)	112.8
21	Portugal	34.6	Uruguay	112.1
22	Greece	33.9	Malaysia	111.5
23	United States	33.9	Cyprus	106.4
24	New Zealand	33.6	Israel	105.1
25	Belarus	33.4	Hong Kong, China	105.0
26	Australia	32.4	Jordan	103.8

Source: ITU, *The State of Broadband: Broadband catalysing sustainable development*, September 2018.

Domain name registrations

Australian businesses and organisations continued to show increased participation online, with the number of '.au' domain names growing by 1.4 per cent to 3.15 million at June 2018.⁶⁶

The registration of '.au' domain names is administered by the not-for-profit organisation .au Domain Administration Ltd (auDA). The '.com.au' domain, designed for commercial entities, including companies and businesses, accounts for 88 per cent of the second level-domains (2LD), and remained unchanged from 2016.⁶⁷

At June 2018, 4,830 '.gov.au' domain names were registered (including all tiers of government), up from 4,726 at June 2017.⁶⁸

In December 2017, auDA appointed Afilias Australia Pty Ltd as the new .au registry operator from 1 July 2018⁶⁹, replacing AusRegistry after more than 15 years. The transition saw more than 3.1 million .au domain names moved from a legacy system to a new registry and national domain name infrastructure. The new infrastructure will provide a national network of Domain Name System nodes across Australia, providing faster response times, increased capacity, security and resilience to support growth in Australia's expanding digital economy.⁷⁰

A review into auDA conducted by the Department of Communications and the Arts (DoCA), released in April 2018, identified 29 recommendations to reform auDA's management and governance framework.⁷¹ In response, auDA announced a range of measures, including increased transparency, a four-year strategic plan and a campaign to attract a larger and more diverse membership base.⁷²

1.5 Market developments—the fourth industrial revolution

New and emerging digital technologies are redefining the communications and media sector and the way Australians connect, access and consume content and services. It is broadly agreed by industry experts that 5G will accelerate a ‘fourth industrial revolution’. This is characterised by a fusion of technologies further blurring the lines between the physical and digital worlds.⁷³ It is supported by the ongoing evolution and growth of the internet, spurred by the demand for wireless broadband connectivity and the rollout of IoT—a network of devices and objects that combine internet connectivity, data analytics and automation.

During 2017–18, Australian consumers and citizens continued to embrace new forms of communications technology in their take-up of digital platforms. While broadband infrastructure is already central to daily life, IoT networks and applications are a largely invisible technology integrated in households, daily life and utility networks as ‘smart’ infrastructure.

Numerous sectors, including agriculture and transport, are already benefiting from developments in IoT, with advances expected in other areas of the economy such as health and education. The impending arrival of 5G is expected to deliver increased bandwidth, reliability and performance, along with wide-ranging social and economic benefits.

5G mobile network developments

5G is the next-generation wireless broadband technology that aims to deliver much higher data limits and dramatically faster data speeds. 5G differs from previous developments in a number of ways, including support for very low latency and ultra-reliable communications, data rates that exceed that of Long Term Evolution (LTE)/4G, capacity to support multiple M2M communications and use of broader channel bandwidths than those currently used.⁷⁴

The rapid development of 5G is a key driver of change to existing arrangements. In October 2017, the Australian Government outlined how it will support the 5G rollout in Australia with its directions paper, *5G—Enabling the future economy* and the formation of the 5G working group. The ACMA is working to ensure that Australia is well-placed to take advantage of the opportunities associated with 5G, with planning activities detailed in the ACMA’s *Five-year spectrum outlook 2018–22*, released in September 2018.

In December 2017, the 3GPP, the organisation that governs cellular standards, signed off on a universal standard called 5G NR⁷⁵, while in June 2018, an international industry agreement on 5G standalone specifications was reached.⁷⁶ The agreement enables developers to select from a standalone 5G standard that does not depend upon 4G, or the earlier non-standalone 5G standards with 4G ties.

While Australia’s carriers have been rolling out 5G technology for several years, 5G services are not expected to be switched on until the first half of 2019, with compatible handsets likely to become available later that year.⁷⁷ Live trials of 5G services were run during the April 2018 Commonwealth Games by both Optus⁷⁸ and Telstra⁷⁹, providing demonstrations of robotics, virtual reality sports, and artificial intelligence (AI) technology. Vodafone, having carried out Australia’s first 5G test run in 2016, has since moved to a cloud-based virtual 5G network to enable faster updates.

Consumer take-up of 5G is expected to be slow initially, with compatible devices on offer limited to a fixed router.⁸⁰ Industry reports indicate that 5G handsets are unlikely to appear in the market before mid-2019, with Apple and Samsung’s 5G handsets expected in 2020.⁸¹

Telstra has revealed its three-phase plan to deploy the 5G network, with the first phase based on pre-5G technical standards and focused on fixed wireless services for residential customers. Phase two of the rollout is scheduled for late 2019 or early 2020, when 5G compatible handsets become available. Full commercial deployment of 5G is scheduled for the financial year 2020.⁸²

In preparing for 5G, Australia's mobile network operators have been investing heavily in infrastructure, upgrading their 4G networks and strengthening their spectrum holdings. In December 2017, Australia's carriers paid a total of \$92.6 million at the ACMA's spectrum auction for a total of 33 residual lots in the 1800 MHz, 2 GHz, 2.3 GHz, and 3.4 GHz bands.⁸³ Other spectrum developments include:

- > In May 2018, the ACMA released draft spectrum licensing legislative instruments for the 3575–3700 MHz band (3.6 GHz band) and announced plans to auction the 3.6 GHz spectrum.⁸⁴
- > In December 2018, the ACMA auctioned 125 MHz of available spectrum in the 3.6 GHz band. All 350 lots available in the auction were sold, realising total revenue of approximately \$853 million.⁸⁵ Licences won at auction will commence in March 2020 and will extend until 13 December 2030.⁸⁶ The 3.6 GHz band is recognised internationally as the first band for 5G services. The minister set competition limits that restrict single bidders to acquire a maximum of 60 MHz in urban areas and 80 MHz in regional areas.⁸⁷ The allocation limits took into account existing spectrum holdings in the broader 3400–3700 MHz band, and aimed at preventing any one telecommunications carrier monopolising the spectrum to ensure a competitive mobile broadband market.

Globally, the move toward 5G has proceeded at a rapid pace, and while home-based 5G services have been launched in the Middle East and North America, most countries appear unlikely to launch 5G services before 2020.⁸⁸

- > In the US, Verizon has launched the first 5G commercial services in the country, offering unlimited data from a home gateway for US\$50 a month to its wireless customers living in a select number of cities with 5G coverage.⁸⁹
- > Qatar's service provider, Ooredoo, announced in May that its 5G network had gone live, with commercial services available in densely populated suburbs of Doha.⁹⁰
- > China is reportedly nearing a launch of its 5G network, which is currently predicted to go live in 2019. China is projected to be the largest 5G market, with 50 million connections by 2020, and one billion by 2025.⁹¹
- > In the UK, the first 5G network is expected to launch after August 2019, with coverage limited to large cities.⁹² Widespread 5G availability would arrive after mid-2020, coinciding with the expected arrival of compatible handsets.

Artificial intelligence, automation and algorithms

5G is expected to facilitate consumer applications and communications, as well as M2M applications. Advances in automation technologies—using machines to perform tasks that would otherwise be done by humans—are also expected to significantly boost productivity and efficiencies, and provide new opportunities. These technologies will be critical for such things as automating the management of increasing network traffic and the immense flows of data. Automation covers a broad range of technologies, including AI, robotics, and IoT.⁹³ AI is transforming economic and social sectors across the globe faster than expected. While the benefits are far-reaching, the potential risks and negative impacts, such as workers displaced by automation, must be considered.⁹⁴

In planning for the transformative power of AI, in May 2018, the Australian Government allocated \$29.9 million to fund the development of an AI 'technology roadmap' and 'standards framework'. A national AI 'ethics framework' is also proposed to identify global opportunities, guide future investments and support responsible technological development.⁹⁵ Data-driven services such as Facebook, Apple, Amazon, Netflix, and Google (FAANG) continue to expand, increasing pressure on communications infrastructure and consumer demand for increased connectivity and mobility.

Developments in IoT infrastructure

After years as an emerging technology, IoT is now mainstream and regarded as an important tool for business and leisure activities. Activity in 2017–18 included significant technological developments that, with greater cost efficiency, are likely to drive the next wave of IoT adoption. Industry reports that IoT adoption in the Australian consumer market rose by 55 per cent in 2017, spurred on by the rapid take-up of smart speakers, and the increasing internet connectivity of appliances such as air conditioners and security cameras.⁹⁶ Local councils are also adopting IoT technology to monitor waste management, public space maintenance and water use.

Investment in IoT capabilities among service providers has been significant. Australia's service providers have embraced IoT, establishing networks to carry data between millions of devices across the country. In addition, IoT specialist companies such as Thinxtra and Semtech are pairing with councils and private enterprise to establish extensive IoT networks.

There are multiple IoT technologies being rolled out across Australia, many falling into the class known as LPWAN (low-power wide area network). Among these are LTE Cat-M1 (Cat-M1), Narrowband IoT (NB-IoT), Sigfox and LoRaWAN.

LTE Cat-M1

LTE Cat-M1 (Cat-M1) is designed for transmitting IoT and M2M communications and is capable of moving 10 bytes of data a day, but also has access to move a megabit per second.⁹⁷ As well as simple M2M data transfer, CAT-M1 technology is capable of supporting voice functionality via Voice over LTE⁹⁸, and is able to work in fully mobile and in-vehicle environments. Its low power consumption means that devices may have a battery life of up to 10 years on a single charge.

Switched on in August 2017, Telstra's Cat-M1 IoT network had a coverage area of around three million square kilometres in June 2018. Take-up has been swift, with more than 2.1 million IoT devices connected in the first month of operation.^{99, 100}

Service provider Verizon has also rolled out a Cat M1 network, offering a voice service using 'connected mode mobility', which improves data transfers and handoffs, allowing for seamless transitions when using mobile voice or latency sensitive data.¹⁰¹

NB-IoT (LTE-CAT-NB1)

NB-IoT is a newer technology standard that delivers increased connectivity and penetration, allowing connection of devices in areas where it had not been possible previously (for example, underground car parks).¹⁰² NB-IoT is more suited to communications in fixed environments such as buildings and is unable to carry voice communications, so is limited to M2M applications. Australia's communications service providers have been using NB-IoT technology to establish their IoT networks:

- > In January 2018, Telstra expanded its IoT network with the deployment of narrowband technology, offering the service in major Australian cities and many regional towns.
- > After launching Australia's first commercial NB-IoT services in Melbourne and Sydney in October 2017¹⁰³, Vodafone's NB-IoT network has expanded into Queensland, including Brisbane and the Gold Coast, and along the New South Wales south coast into Wollongong.
- > Optus completed its live NB-IoT technology trials in Melbourne and Sydney in February 2017¹⁰⁴ and in December 2017, it announced a five-year deal with Hoyts cinemas to provide a managed services platform, including the use of M2M SIMS, to tap into the IoT.¹⁰⁵

Sigfox

Sigfox uses a simple modulation scheme, low bit rate and ultra narrowband technology to send very small amounts of data, achieving a more extended range than some other IoT technologies, and in 2018 was reportedly a leading provider globally of connectivity for the IoT.¹⁰⁶

In Australia, Sigfox operator Thinxtra partnered with a range of technology companies to launch a Smart Council Program that provides free IoT services to councils for 90 days.¹⁰⁷ Coffs Harbour was the first regional council to join the scheme in 2016, with more than 100 councils following by 2018.¹⁰⁸ Other applications of Sigfox in Australia have included mining, smart water meters¹⁰⁹ and farming.¹¹⁰

LoRa/LoRaWAN

LoRa is a wireless IoT technology that enables very long range data transmissions with low power consumption over a wider spectrum than Sigfox, using sub-gigahertz radio frequency bands. LoRaWAN (long-range wide area network) is the network specification over which LoRa operates and is characterised by its very long range, long battery life and low cost.¹¹¹

LoRaWAN networks are being rolled out in Australian locations, typically by municipal councils. In 2018, Gold Coast Council announced that LoRaWAN would be used to create an IoT network covering more than 1,300 square kilometres. The council has flagged that it will use the network to monitor water consumption, including water metering, waste management and the maintenance of parks and sporting fields.¹¹²

New developments in communications—smart technologies

The spread of IoT technology has provided the launchpad for a number of new technologies requiring rapid M2M communications. This section takes a look at developments that are about to change the way we live and work.

Health

Encompassing the Internet of Medical Things (IoMT), smart health uses a range of technological innovations, including IoT applications, connected devices, AI and virtual reality, to manage and engage with health services and how those services may be delivered in the future. Predicted to be worth \$158 billion globally by 2022¹¹³, IoMT connects internet-enabled medical devices, records and equipment, enabling remote patient monitoring, centralised medical records, inventories and healthcare automation.

Wearables and other personal health devices are altering the way Australians manage their health, with an increasing emphasis on self-management and personalised healthcare.¹¹⁴ While IoMT is still relatively early in its development, its potential is already starting to be realised, with medical devices such as pacemakers and insulin pumps transmitting health data directly to specialists without need for additional consultation.¹¹⁵ IoMT enables additional capability for medical instruments and through the emergence of digital secure medical records, and data archiving and sharing, the potential for massive changes in health care solutions and outcomes. However, concerns have been raised about data privacy and security, and the vulnerability of medical devices to machine failure or software issues.

In Australia, all states and territories have prioritised digital health as central to improving service delivery and health outcomes, as have many healthcare providers. In 2016, the National Digital Health Agency (NDHA) was established to facilitate digital integration in the health system. It released its proposed strategic priority outcomes in August 2017 in a National Digital Health Strategy¹¹⁶, which was officially launched on 3 July 2018.¹¹⁷

Cities and communities

The application of ‘smart’ technologies is evident in a wide range of applications including citywide Wi-Fi and advancements in parking management, lighting, roads and signage.

The Australian Government’s Smart Cities Plan, launched in April 2017, supports the development of productive, accessible and innovative cities that attract talent, encourage innovation and create growth.¹¹⁸ As part of the Smart Cities Plan, \$50 million has been allocated to the Smart Cities and Suburbs Program to be run over three years from 2017–20.^{119, 120}

Examples of smart technology use in Australian cities include:

- > The announcement of an IoT network by Lake Macquarie City Council (July 2018) that will provide coverage to all populations across the local government area, spanning 650 square kilometres.¹²¹ The City Long Range Wide Area Network (LoRaWAN) will be Australia’s first smart city network across a local government area.
- > Telstra entering into a Smart City partnership with the Tasmanian State Government (in January 2018), the Federal Government, several local councils and the University of Tasmania. The development and trial of new IoT solutions, including an IoT lab, will be established in Launceston and drive the take-up of IoT in the area.¹²²
- > The City of Adelaide’s smart parking project, which installed nearly 2,800 parking sensors across the CBD in early 2018. The sensors will be linked to a cloud-based platform and the ‘Park Adelaide’ app, expected to be launched in 2019. The app will provide real-time information about available on-street parking, along with options to remotely pay for and extend parking time and receive alerts when parking is about to expire.¹²³

Connected and autonomous vehicles

On-demand GPS data and Wi-Fi connectivity services are expected to advance to predictive vehicle maintenance, capturing real-time sensor data and autonomous vehicle control, including cooperative collision avoidance.¹²⁴

Automated vehicles bring significant opportunity for improved safety, more efficient and productive transport networks and better access to transport services. While the technology is still in its infancy, trials of highly automated shuttle vehicles have begun, with several universities across Australia using autonomous vehicles for campus transport, including at La Trobe, Monash and Flinders universities.

The NSW Government began phase two testing of autonomous transport services in September 2018, with the launch of an autonomous vehicle service around Sydney’s Olympic Park, with plans to transport office workers and residents around the precinct from early 2019.¹²⁵ It has announced additional plans to bring automated shuttle services to Coffs Harbour and Armidale within the next 12 months.

Beyond public transport, CSIRO’s Robotics Group has developed autonomous vehicles for industrial, natural and mining environments, which provide autonomous smart sensing, mapping and inspection, and can operate in challenging conditions such as deep tunnels and marine environments.¹²⁶

Managed motorways

Smart motorway technologies are also being incorporated into numerous Australian motorways, including Melbourne's M1 and Sydney's M4. Using technology-based information, communications and control systems incorporated in and alongside the road improve traffic flow and enable authorities to respond to incidents in real time.

The NSW Government is investing \$470 million to build the M4 Smart Motorway project, due for completion in 2020.¹²⁷ In Victoria, smart technology installed by the Victorian Government on the newly upgraded Tullamarine Freeway, Monash Freeway and M80 Ring Road in Melbourne was switched on in June 2018. The network upgrades include overhead gantries, road sensors, traffic monitoring cameras and freeway-to-freeway ramp signals.¹²⁸

Homes

Smart homes offer varying degrees of automated assistance¹²⁹, with internet-connected devices that can be monitored and controlled from a remote location, including smart switches, air purifiers, smoke detectors, smart security systems, smart TVs, fridges, dishwashers and voice-activated smart assistants.¹³⁰

In 2017, the Australian IoT home market increased by 55 per cent to exceed half a billion dollars, with rapid take-up of internet-connected devices in Australian households set to continue.¹³¹ Research company Telsyte predicts that the Australian market for smart devices will reach \$4.7 billion by 2021.¹³²

In January 2018, Telstra's Smart Home platform had two million IoT devices connected, including lights, cameras and motion sensors.¹³³

Agriculture (AgTech)

AgTech incorporates a broad range of connected devices, including robots and drones, driverless vehicles and ground-based sensors, along with the analytics and AI platforms needed to understand all the new data streams being created.¹³⁴

Considerable investment has been made in the AgTech sector at both the federal and state levels. Investment in research and development continues, including \$50 million over 10 years toward Food Agility—a consortium of commercial companies, universities and farming industry bodies looking to facilitate the digital transformation of the agriculture industry in Australia.¹³⁵

Public-private partnerships are also becoming common in AgTech. SproutX, for example, is a joint venture between the National Farmers' Federation and Findex, with funding provided in part by the Victorian Government.¹³⁶ SproutX projects include FarmApp—a software-based integrated pest management service for crops, IoTAg—a smart cattle ear tag for stock location and health monitor, and Water Save—an affordable, automated farm irrigation system that can be monitored online.¹³⁷

Mobile technologies in Australia

LTE-B

LTE-Broadcast (LTE-B) technology enables wireless signals to travel more efficiently, delivering data streams to multiple mobile users, instead of sending an individual stream to each user. This allows for increased network capacity and meets the ever-increasing demand for data and video where network capacity may be limited, such as at major sporting events and concerts. However, the limited number of compatible handsets has discouraged its adoption by some providers. This technology has been deployed nationally by Telstra.¹³⁸

Inquiry into digital platforms

On 4 December 2017, the Australian Government directed the ACCC to conduct an inquiry into digital platforms to examine the effect that search engines, social media platforms and other content aggregation platforms have on competition in the media and advertising services markets. The inquiry is looking at a number of important issues, including:

- > whether digital platforms have market power in their dealings with media content creators and advertisers and the implications of this for competition
- > to what extent consumers understand what data is being collected about them by digital platforms, and how this information is used
- > whether digital platforms have an unfair competitive advantage as a result of unequal treatment of regulation
- > how technological change and digital platforms have changed the media and advertising services markets, including the ability to produce quality news and journalistic content for Australians
- > how the use of algorithms affects the curation of news for digital platform users.

The ACCC provided a preliminary report to the Treasurer on 10 December 2018¹³⁹, with a final report to be completed in June 2019.¹⁴⁰

Data privacy and security

While access to online media provides increased choice, personalisation and convenience, it brings new threats and challenges to privacy and security. Protecting personal information, company data and critical infrastructure from potential damage and data misuse are vital priorities.

Recognising the importance to consumers and business of managing privacy and security, the Australian Government has over the last few years introduced a range of policies and legislative changes.

In 2017, the government introduced the Notifiable Data Breaches (NDB) scheme in Australia.¹⁴¹ The NDB scheme applies to all agencies and organisations with existing personal information security obligations under the *Privacy Act 1988* from 22 February 2018.¹⁴² The NDB scheme introduced an obligation to notify individuals whose personal information is involved in a data breach that is likely to result in serious harm. This notification must include recommendations about the steps individuals should take in response to the breach. The Office of the Australian Information Commissioner must also be notified of eligible data breaches.

In August 2018, the government established the Office of the Data Commissioner (ODC) to provide oversight and regulation of Australia's new national data sharing and release framework.¹⁴³ This new framework will break down the barriers that prevent efficient use and reuse of public data, while maintaining the strong security and privacy protections that the community expects.

On 4 July 2018, the Minister Assisting the Prime Minister for Digital Transformation released an issues paper on new data sharing and release legislation, seeking public comment. Submissions will inform the development of new legislation.¹⁴⁴

In August 2018, the Australian Government opened new headquarters for its Australian Cyber Security Centre (ACSC). The ACSC will draw on the expertise from the ICT community, law enforcement, Defence, universities and security agencies, as well as international partners, to increase the skills and capabilities needed to protect and defend Australian interests. The new centre will be the central hub for cybersecurity information, advice and assistance to all Australians. A global monitoring capability will be equipped with advanced cyber threat detection and warning systems.

1.6 Advertising expenditure in main media

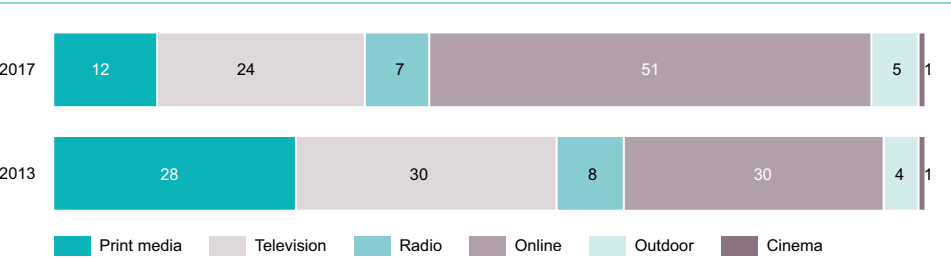
Traditional media markets continue to be challenged by the increasing shift to online content delivery, disrupting revenue streams for print media and commercial broadcasters. The reliance on an advertising-based business model, which uses circulation or audience numbers, is being challenged by changes in content creation, delivery and consumer consumption. The opposite is true for digital platforms, where advertising-based revenue models are built on their unique ability to collect and analyse data using algorithms, AI and machine learning. AI technologies are becoming more widely applied across industries including media. Delivering increased audience/market insights and more targeted advertising has made the online domain a more attractive channel for advertisers.

Share of advertising expenditure

As Australian content consumption has shifted to the online domain, the advertising dollar has become more focused on digital platforms, a trend clearly visible in Figure 1.15. While in 2013, online advertising made up 30 per cent of the total advertising expenditure in Australia, it accounted for over half of Australia’s advertising spend, at 51 per cent in 2017.

Conversely, the share of Australian advertising expenditure occupied by print and television advertising has continued to contract. Print, which in 2013 was a major source of advertising revenue at 28 per cent, has shrunk to 12 per cent of revenue in 2017, while television’s share has declined from 30 per cent to 24 per cent.

Figure 1.15 Share of advertising expenditure by main media category, 2013 and 2017 (percentage)



Note: Displayed totals may not add up to 100 per cent due to rounding.
Source: CEASA.

Growth in advertising expenditure

Commercial Economic Advisory Service of Australia (CEASA) data for the year ended 31 December 2017 shows that the combined advertising expenditure across the main media categories—print, television, radio, online, outdoor and cinema—increased by 2.4 per cent in 2017 to \$15.6 billion.¹⁴⁵

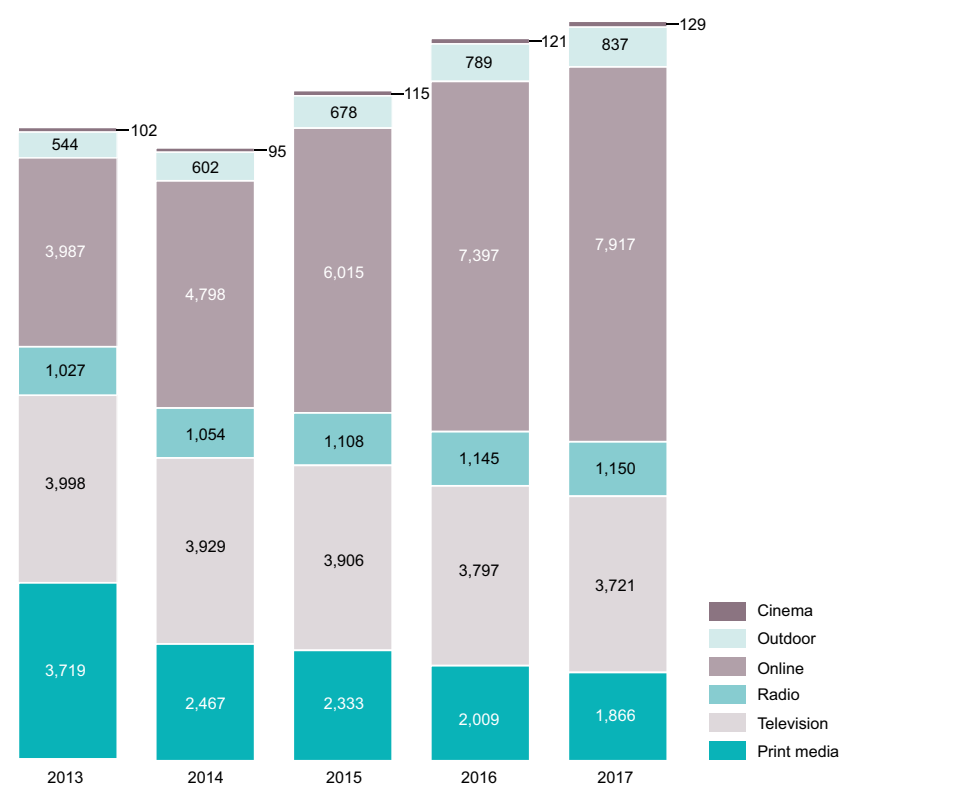
After strong increases in 2015 (25 per cent) and 2016 (23 per cent), growth in online advertising revenue slowed in 2017, increasing by seven per cent to reach \$7.9 billion for the year. Much of this growth has been driven by strong increases in online video advertising, and advertising for mobile format.¹⁴⁶

Large format advertising grew in the year to 2017—cinema advertising expanded by seven per cent, while outdoor advertising increased by six per cent (Figure 1.16).

In contrast, advertising in print media continued to contract, decreasing by seven per cent to \$1.9 billion during the 2017 calendar year.

Television (down two per cent) and radio advertising (up 0.5 per cent) remained stable, with a reported expenditure of \$3.72 billion and \$1.15 billion respectively.

Figure 1.16 Advertising expenditure by main media category (\$ million)



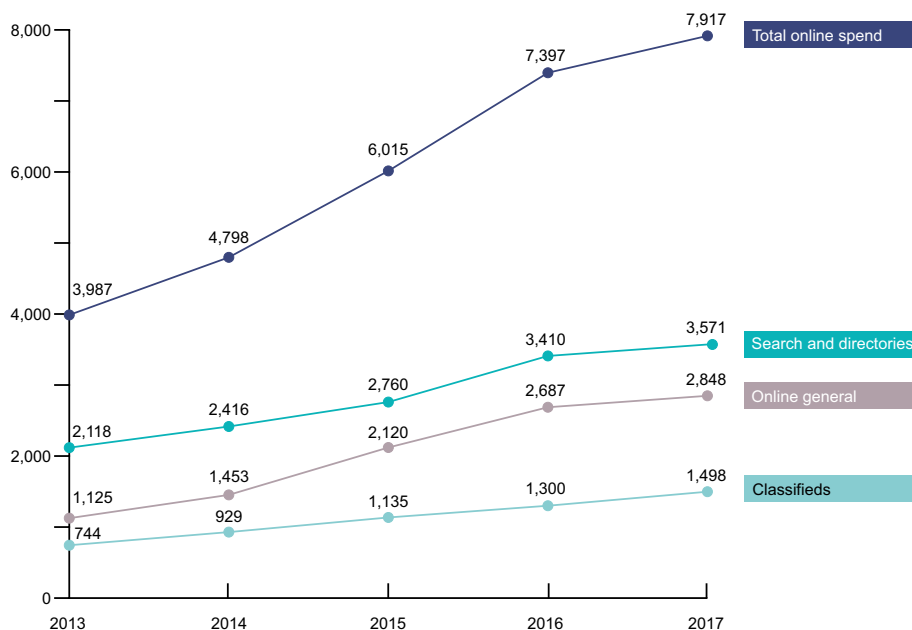
Source: CEASA.

Online advertising expenditure

The 2017 calendar year saw growth continue across all online advertising categories, with classifieds revenue exhibiting the highest level of growth at 15 per cent. Revenue in the search and directories category increased by five per cent, and in the online general category by six per cent (Figure 1.17).

Interactive Advertising Bureau (IAB) Australia reports that mobile advertising, a subset of digital advertising, grew by 38.5 per cent in the year to June 2018, to \$3.1 billion, while video advertising grew 45.6 per cent to \$1.1 billion.¹⁴⁷ Search and directories accounts for the biggest proportion of the online advertising market, accounting for almost half, at 44 per cent.¹⁴⁸

Figure 1.17 Online advertising expenditure (\$ million)



Source: CEASA.

Advertising expenditure by media category

Regional television and radio

While the television and radio sector’s share of advertising expenditure has remained relatively stable over the last five years (see Figure 1.16), there appears to be a slight decline in total television expenditure (Figure 1.18).

In the 2017 calendar year, expenditure on metropolitan television advertising was almost four times greater than regional television (\$2,490 million compared to \$695 million, respectively). Radio expenditure in the metropolitan market was over twice that of its regional expenditure (\$763 million compared to \$367 million, respectively).

Figure 1.18 Television and radio advertising expenditure for metropolitan and regional markets (\$ million)



Source: CEASA

Notes

- ¹ A rollout region is ready for service when the majority of premises are passed by the NBN, and RSPs are able to begin selling services delivered over the NBN in that rollout region. Ready for service is the cumulative number of premises ready to connect and connected homes and businesses. NBN Co generally declares an area to be ready for service once at least 90 per cent of premises in its footprint in that area are passed by its fibre network.
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- ³ Refers to premises that have an active service installed.
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- ¹⁴⁴ For further information see www.pmc.gov.au/public-data/national-data-commissioner.
- ¹⁴⁵ Commercial Economic Advisory Service of Australia (CEASA), *Advertising expenditure in main media: Year ended 31st December 2017*, April 2018.
- ¹⁴⁶ IAB Australia, 'Marketers continue to reinvest strongly in digital advertising', 29 August 2018.
- ¹⁴⁷ *ibid.*
- ¹⁴⁸ *ibid.*



Chapter 2

Consumer engagement with communications and media

This chapter examines how Australians use communications and media services, including broadcasting and online services. It focuses on online activities—our take-up and use of devices that connect to the internet; and on viewing behaviours, including access and engagement to new and traditional services and devices, as well as subscriptions, online viewing and online news services.

This chapter addresses the statutory requirements under paragraphs 105(3)(a) and (b) of the Telecommunications Act.

At a glance—how we engage

Fixed-line phone



48% of Australian adults—down from 54% in 2017

Mobile-only Australians



41% mobile-only for voice, 16% mobile-only for data

Apps



Used by 3 in 4 Australians to communicate

Internet access



89% of adult Australians—no change since 2013–14

36% of internet households are connected to services over the NBN

Devices used to go online



87% mobile, 72% laptop, 61% tablet

2 in 5 online Australians used 5 or more devices—up from 1 in 5 at June 2017

Volume of data downloaded



4.1 million terabytes—up 29% from June quarter 2017

Viewing content



80% of Australian adults in metro cities watched FTA television in 2017–18, down from 87 per cent in 2013–14

82% of Australian adults are accessing video online

76% have access to a subscription or pay-as-you-go service—up from 71% in 2017

Listening to music/radio



Remains steady—86% of Australian adults listened to radio in the past 7 days

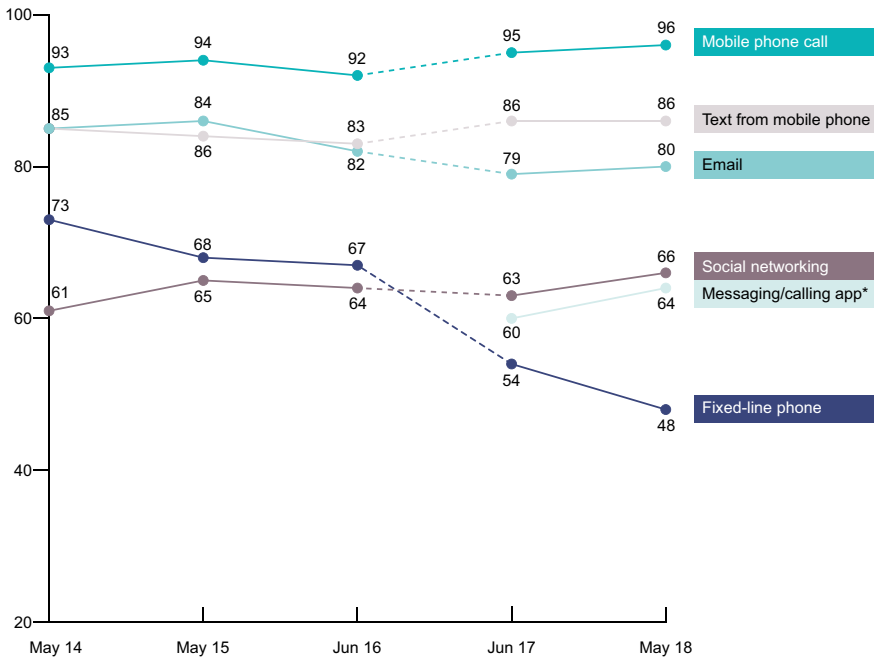
61% of Australian adults are accessing audio content online

46% used a music streaming service—increase from 37% in 2017

2.1 How we communicate

The diversity of communications services used by Australians continues to increase as more people are communicating in different ways. The mobile phone is the most used service, while fixed-line phone use continues to decline, especially among younger Australians (figures 2.1 and 2.2).

Figure 2.1 How Australians communicate for personal purposes, by service (percentage)



*Data not available prior to June 2017.

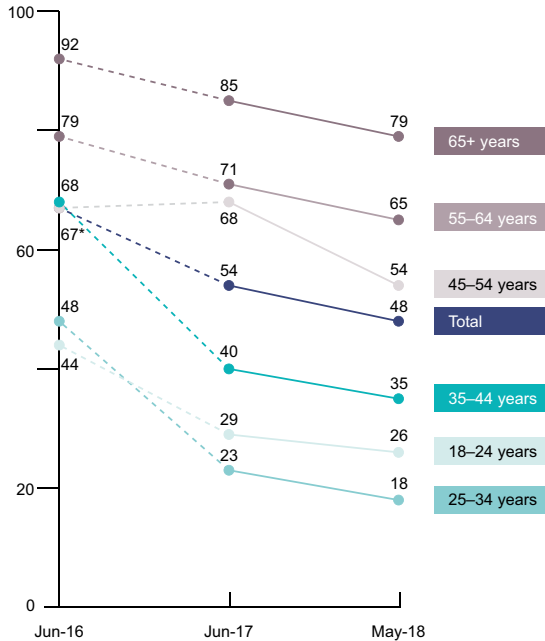
Note: The changes in methodology in 2016 and 2017 mean that some differences between these years and in the years prior may be explained by the methodology rather than any significant difference.

Base: Australians aged 18 and over.

Source: ACMA-commissioned surveys, May 2014, 2015, June 2016, 2017, and May 2018 (mobile phone call, email, text from mobile phone, social networking and instant messaging), in the six months to May/June of each year.

At May 2018, 79 per cent of Australians aged 65 and over used a fixed-line phone, compared to 18 per cent of those aged 25–34 (Figure 2.2).

Figure 2.2 Australians' use of fixed-line phones, by age (percentage)



Base: Australians aged 18 and over.

*Figure is for both Total and 45-54 years.

Note: Broken line indicates a change in methodology in 2016 and 2017 and means that some differences between these years and in the years prior may be explained by the methodology rather than any significant difference.

Source: ACMA-commissioned surveys, June 2016, June 2017 and May 2018, in the six months to May/June of each year.

At May 2018, two-thirds of Australian adults (67 per cent) had used five or more separate communications services in the last six months. Three of the top six involved the use of a mobile phone (mobile phone calls, text messages over mobile and communications apps).¹

Age continues to be a strong predictor of technology use. While older Australians (aged 65 and over) are using traditional communication services, younger age groups are increasingly communicating using OTT services. Social networking and messaging/calling apps were used by most Australians (90 per cent) aged 18-34, compared to around a quarter of those aged 65 and over.²

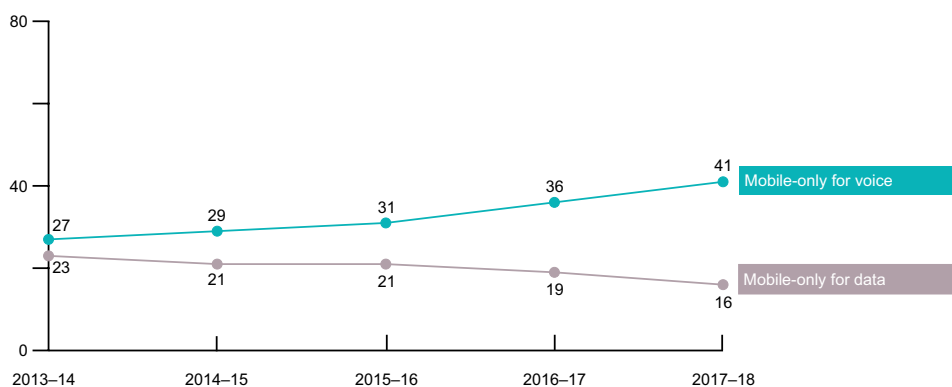
Mobile-only for voice

Many Australians are choosing to rely solely on their mobile phone for voice communications. The proportion of mobile-only for voice consumers—those who have a mobile phone and no fixed-line phone at home—is continuing to grow. At June 2018, 41 per cent of Australian adults (approximately 7.7 million) were mobile-only for voice, up from 36 per cent in 2017 (see Figure 2.3).

Mobile-only for data

Mobile-only for data refers to those who only use their mobile phone or mobile broadband to access the internet at home and do not have a fixed-internet connection at home. At June 2018, 16 per cent of Australian adults (approximately 3 million) were mobile-only for data (Figure 2.3). In the same period, 83 per cent of Australians had used only their smartphones to go online.³

Figure 2.3 Mobile-only for voice and data (percentage)



Base: Australians aged 18 and over with an internet connection at home in the 12 months to June of each year.

Source: Roy Morgan Single Source.

2.2 Internet access

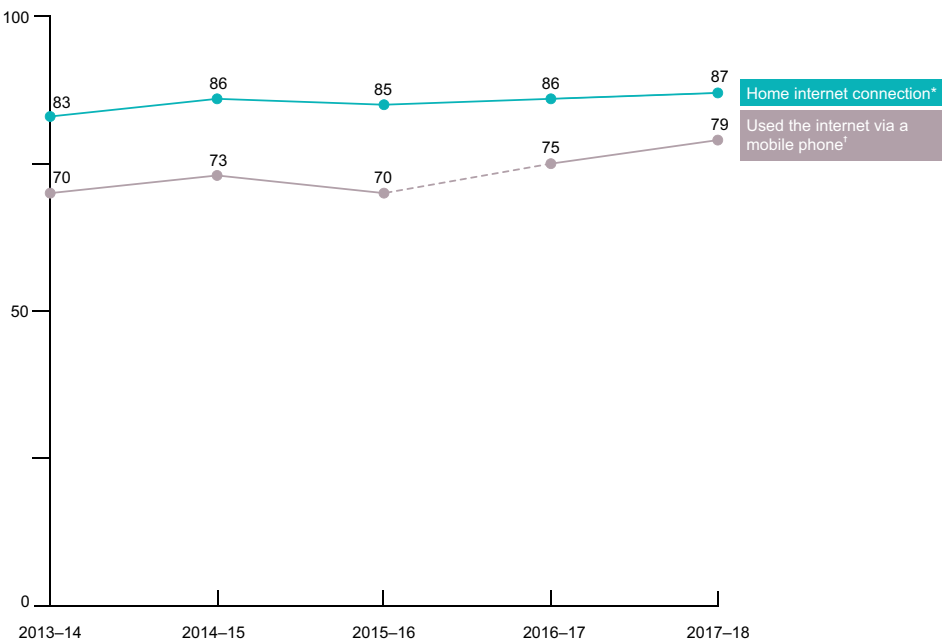
Connectivity—take-up of the internet

Internet access is available to Australians via a range of networks, devices and locations (see Chapter 1). In the six months to May 2018, 89 per cent of Australian adults had accessed the internet, with complete access by those aged 18–44 (100 per cent). Accessing the internet decreased to 71 per cent for those aged 65–74, and 45 per cent for those aged 75 and over.⁴

Internet connectivity trends show slight increases in how Australians are accessing the internet at home (Figure 2.4). In 2017–18:

- > 87 per cent of Australian adults (approximately 16.4 million) had an internet connection in the home, similar to 2016–17 (86 per cent)
- > 79 per cent (approximately 15.2 million) accessed the internet via a mobile phone, compared to 75 per cent (approximately 14.4 million) in the six months to June 2017.

Figure 2.4 How Australians access the internet (percentage)



*Includes ADSL, cable, fibre, satellite, fixed wireless, mobile wireless internet services—using dongles, datacards or USB modems. Excludes mobile handset internet.

†Relates to use of the internet via a mobile phone handset in the six months to June.

Base: Australians aged 18 and over.

Note 1: The changes in methodology for the consumer survey data in 2016 and 2017 mean that some differences between these years may be explained by the methodology rather than any significant difference.

Note 2: June 2014, 2015, 2016, 2017 and 2018 internet definitions include ADSL, cable, NBN, USB modem, portable Wi-Fi modem, SIM card for tablet, internet key and dial-up.

Source: Roy Morgan Single Source, Australians aged 18 and over with an internet connection at home in the 12 months to June of each year, and ACMA-commissioned survey (used the internet via a mobile phone) in the six months to June of each year.

Australians connected to the NBN

At June 2018, four million homes and businesses were connected to the NBN, an increase of 65 per cent on the previous year. There were also seven million homes and businesses ready to connect to services over the NBN.⁵

ACMA data showed that 36 per cent of households with an internet connection are connected to services over the NBN. Of those connected over the NBN, 68 per cent are connected via a fibre fixed-line (FTTP, FTTN, FTTB, or HFC), 21 per cent have a fixed wireless connection, and six per cent have a satellite connection.

Just over half (56 per cent) reported to have both internet and phone connected to the NBN, 42 per cent have only an internet connection, and just over one per cent have only a phone connection.⁶

Frequency of internet use

At May 2018, 89 per cent of Australian adults had accessed the internet, with the majority accessing it several times a day. Seventy-four per cent (approximately 14 million) went online three or more times a day, an increase from 71 per cent at June 2017 and 68 per cent at June 2016. Frequency of use was directly proportional to age—92 per cent of Australians aged 18–24 accessed the internet three or more times a day, while only 43 per cent of those aged 65 and over went online three or more times a day.⁷

Offline Australians

At May 2018, 11 per cent of adult Australians had *not* been online in the last six months. While the number has remained steady since 2016, the age of those who do not access the internet has increased. In the six months to May 2018, all Australians (100 per cent) aged 18–44 had accessed the internet, compared to 2017, where two per cent of those aged 35–44 had not. Seventy-nine per cent of those who have not been online in the six months to June 2018 are aged 65 and over.⁸

Using multiple devices to go online

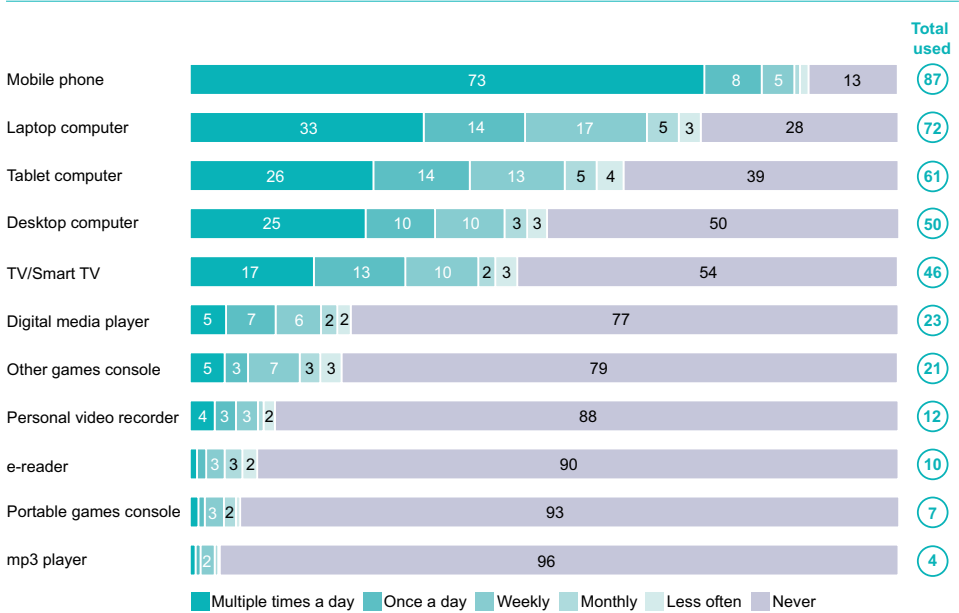
Australian internet users are using a range of devices, multiple times a day, to go online. At May 2018, the mobile phone was the most popular device used (87 per cent), followed by a laptop (72 per cent) and a tablet (61 per cent). Australians increasingly used televisions and smart televisions to access the internet—46 per cent of online Australians in the six months to May 2018, an increase from 35 per cent in 2017.⁹

In addition to being the most popular device, the mobile phone was also the most frequently used device to access the internet in the last six months. At May 2018, three-quarters (73 per cent) of online Australians used their mobile phone multiple times a day to access the internet and 81 per cent used it to go online at least once a day (Figure 2.5).

Mobile users aged 18–44 (89 per cent) were more likely to use a mobile phone to access the internet multiple times a day than those aged 45 and over (56 per cent).¹⁰

After the mobile phone, laptops and tablets were the next most frequently used to access the internet in the last six months—33 per cent of Australian adults used a laptop computer at least once a day to go online and 26 per cent used their tablet (Figure 2.5).

Figure 2.5 How often Australian internet users go online, by device (percentage)



Base: Australians aged 18 and over who accessed the internet in the last six months (n=2,017).

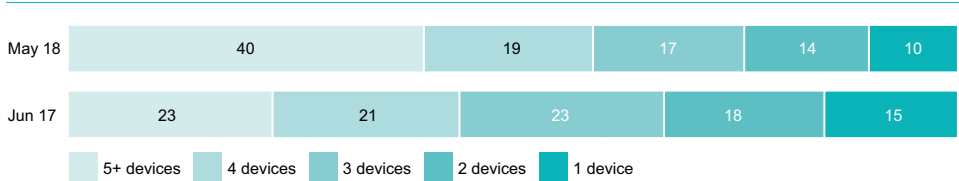
Note 1: Numbers may not add up to 100 per cent or displayed totals due to rounding.

Note 2: Data labels for values <2 per cent are not displayed.

Source: ACMA-commissioned survey, May 2018.

There is an increasing prevalence of Australians using a combination of devices to go online. At May 2018, two in five online Australians (40 per cent) had accessed the internet in the last six months via five or more devices, up from one in five at June 2017. The majority use more than one device (90 per cent), with 10 per cent using only one device to go online (Figure 2.6).

Figure 2.6 Number of devices used to access the internet (percentage)



Base: Australians aged 18 and over who accessed the internet in the last six months.

Source: ACMA-commissioned survey, June 2017 and May 2018.

The five most popular combinations of devices for Australian adult internet users to go online in the six months to May 2018 were:

- > mobile phone, laptop computer, tablet (including e-reader), desktop computer and a TV (including smart TV, personal video recorder (PVR) or digital media player)—10 per cent
- > mobile phone, laptop computer, tablet (including e-reader) and a TV (including smart TV, PVR or digital media player)—seven per cent
- > mobile phone, laptop computer, tablet (including e-reader), desktop computer, TV (including smart TV, PVR or digital media player) and games console—seven per cent
- > mobile phone, laptop computer—six per cent
- > mobile phone, laptop computer, tablet (including e-reader)—five per cent.

Voice-enabled devices

At June 2018, five per cent of Australian adults owned a voice-enabled device such as Google Home or Amazon's Alexa. Google Home launched into the Australian market in July 2017, followed by Amazon's Alexa and Apple's HomePod in February 2018. Younger Australians (aged 18–24) were almost three times more likely to own one of these devices (13 per cent), as well as those with an annual household income of \$150,000 or more (11 per cent).¹¹ Industry research reported that among those who have a device, the average number within a household is 1.5, with 55 per cent using them every day and 86 per cent every week.¹²

Commercial Radio Australia updated their digital radio app (RadioApp) to support voice-enabled devices. From September 2018, Apple users could use the Siri Shortcuts feature to ask the virtual assistant to play any of the 280 Australian radio stations available through the app. In October 2018, the app was updated to support Amazon's Alexa. It has been compatible with Chromecast and Google smart TVs since July 2018.¹³

Smart devices

Forty-seven per cent of Australian adults used a smart device to connect to the internet, at May 2018. The smart TV was still the most commonly reported smart device in the home¹⁴, used by more than one-third of Australian adults (36 per cent) at May 2018, consistent with 2017. There was also growth in wearable devices (14 per cent, up four per cent) and security cameras (five per cent, up two per cent). While relatively new to the Australian market, voice-controlled smart speakers and GPS tracking tags or devices are used by five per cent of Australian adults, while other smart-home products, such as smart dishwashers, fridges, lighting, and heating and cooling systems, were used by no more than two per cent of Australians.¹⁵

Volume of data downloaded

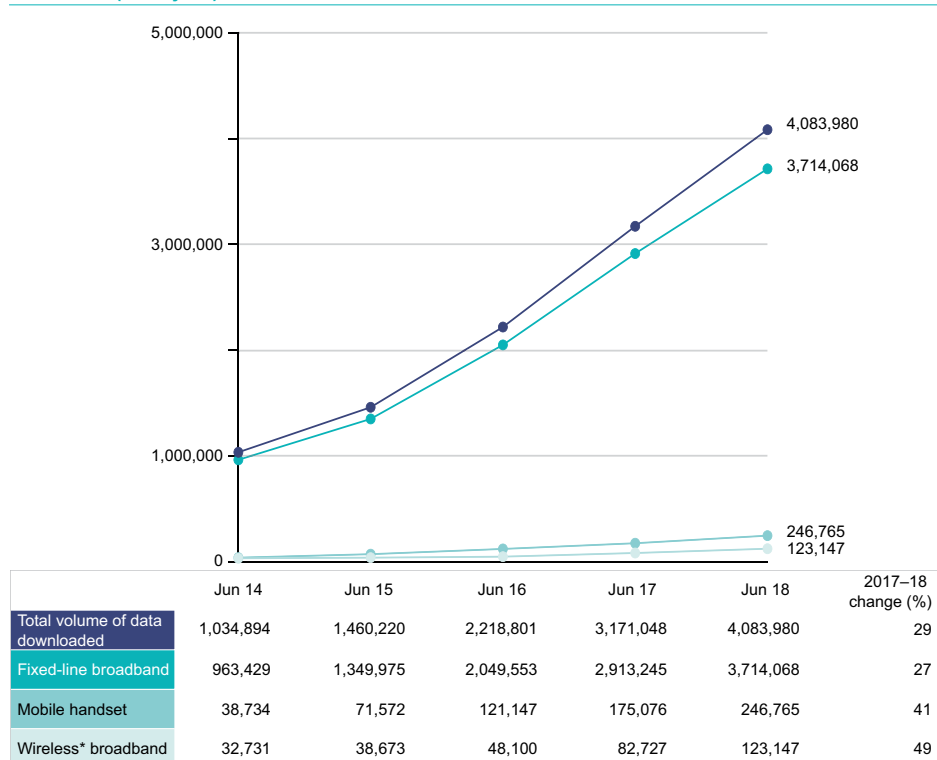
The amount of data Australians consume continues to increase, particularly for wireless broadband and mobile handsets. The total volume of data downloaded in Australia during the June quarter of 2018 was 4.1 million terabytes—29 per cent higher than the volume downloaded during the June quarter of 2017 (Figure 2.7).¹⁶

During the June quarter of 2018, the volume of data downloaded increased for wireless broadband (49 per cent), followed by mobile handsets (41 per cent) and then fixed-line broadband (27 per cent).¹⁷

During the June quarter of 2018, the average amount of data downloaded per internet subscriber increased in each category:

- > fixed-line broadband: 475.6 gigabytes (up 21 per cent)
- > wireless broadband: 17.8 gigabytes¹⁸ (up 37 per cent)
- > mobile handset internet: 9.1 gigabytes (up 38 per cent).

Figure 2.7 Volume of data Australian internet users downloaded in the quarter to June 2018 (terabytes)



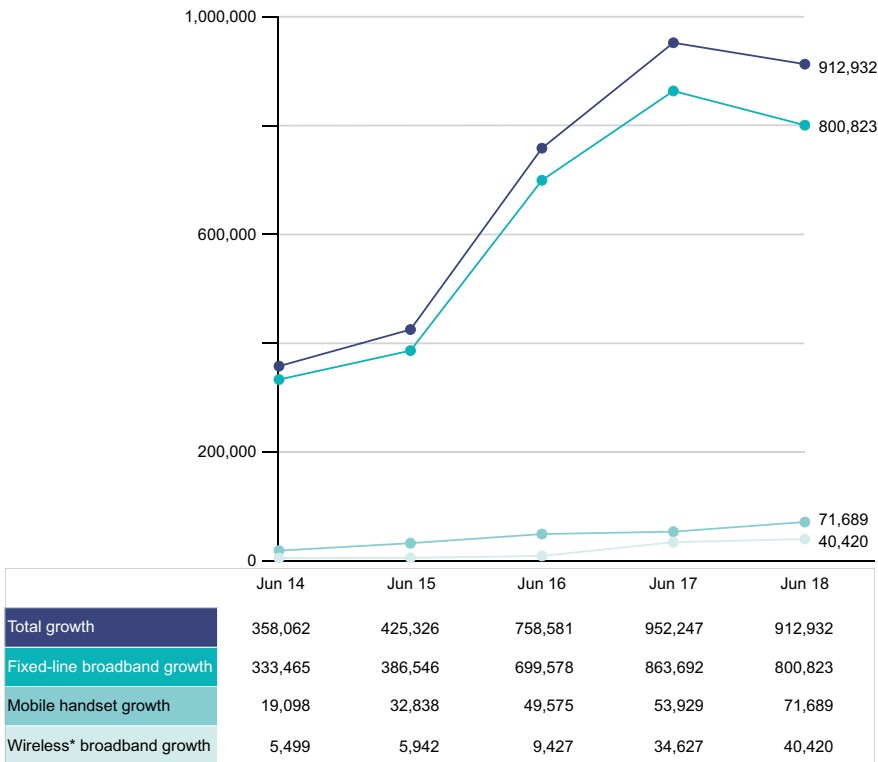
*Excludes downloads via mobile phone handsets. Includes mobile wireless services using dongle, USB modems and datacards, satellite and fixed wireless.

Note: Where figures have been rounded, discrepancies may occur between the sum of components and the total. The ABS reports that 'statistics on volume of data downloaded should only be considered as an indicative measure of internet activity during the reference period...'

Source: ABS, 8153.0—Internet Activity, Australia, June 2018.

The amount of data downloaded grew by 912,932 terabytes in the quarter to June 2018, down from 952,247 over the same period in 2017. Growth of the volume of data downloaded slowed in June 2018—largely due to less growth in data downloaded over fixed-line broadband—while growth in data downloaded for wireless and mobile handsets continued to exceed that of the previous year. Data downloaded over fixed-line broadband contributed to 88 per cent of total growth during the June quarter of 2018—with fixed connections typically offering faster download speeds and larger data plans.

Figure 2.8 Growth in volume of data downloaded in the quarter to June 2018 (terabytes)



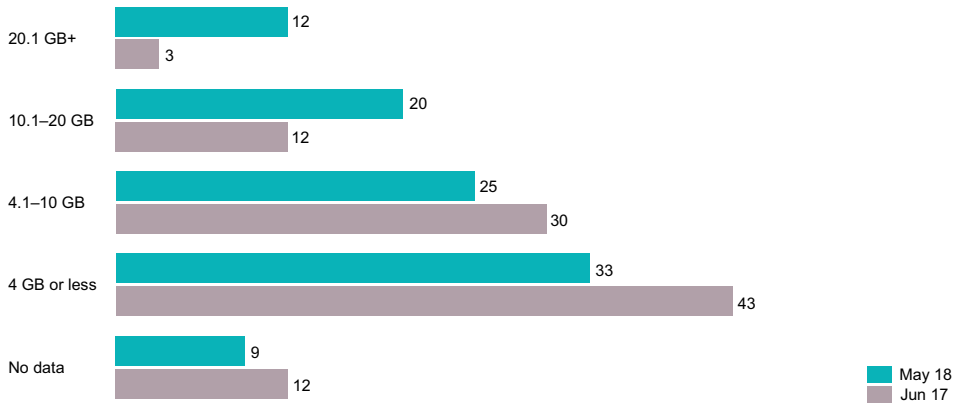
*Includes mobile wireless services using dongle, USB modems and datacards, satellite and fixed wireless. Excludes downloads via mobile phone handsets.

Source: ABS, 8153.0—Internet Activity, Australia, June 2018.

Mobile data allowance

Ninety-six per cent of Australian adults used a mobile phone to either send text messages or make voice or video calls, and 91 per cent had data included in their plans.¹⁹ Australians are increasing their data plans to accommodate on-the-go internet connectivity and video viewing. Most have a monthly data allowance of four gigabytes or under (33 per cent). However, the proportion with a plan of more than 20 gigabytes a month has increased from three per cent in 2017 to 12 per cent in 2018 (Figure 2.9).

Figure 2.9 Mobile phone users' monthly data allowance (percentage)



Base: Australians aged 18 and over who used a mobile phone in the last six months; 2017 (n=1,859), 2018 (n=1,953).

Note: 'Don't know' and 'Prefer not to say' responses are excluded from analysis.

Source: ACMA-commissioned survey, June 2017 and May 2018.

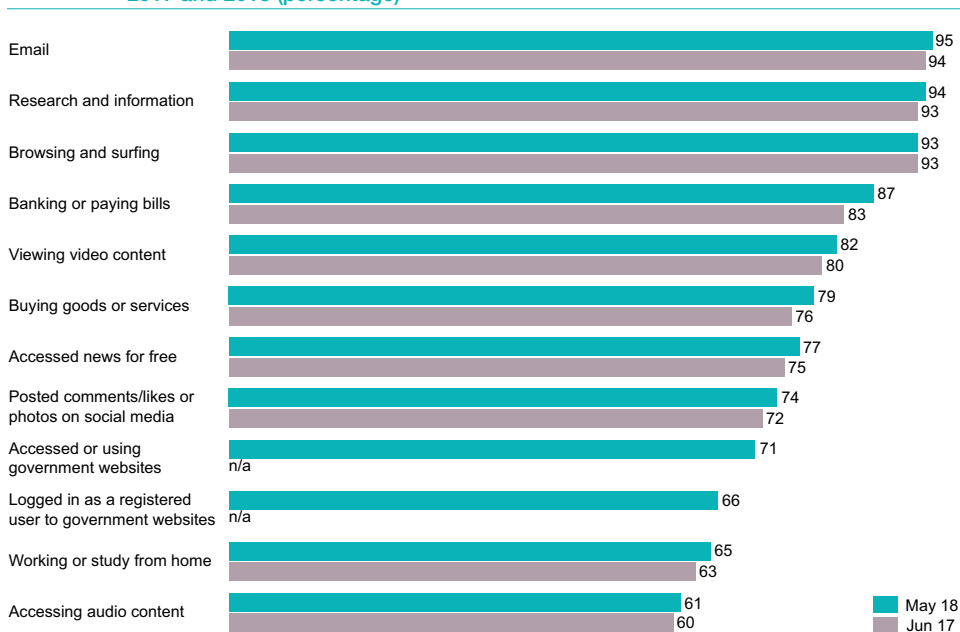
The increase in monthly data allowance and service offerings, as well as the ability to track mobile usage, has seen a decrease in the number of Australians exceeding their data allowance. At May 2018, nearly two-thirds (67 per cent) had done so once a year or less, 31 per cent once every two to six months, and five per cent every month. Thirty-nine per cent of Australian adults have used an app to track their mobile spend and usage. The higher the data allowance, the less likely users are to exceed their allowance—33 per cent of those with an allowance of four gigabytes or less exceed it at least once every six months, decreasing to 20 per cent of those with more than 20 gigabytes.²⁰

2.3 Internet activities

Performing activities online

Australian adults participate in a diverse range of online activities. Sending and receiving email (95 per cent), researching or gathering information (94 per cent) and general internet browsing (93 per cent) were the most popular activities at May 2018 (Figure 2.10). These online activities have high levels of engagement across all age groups, up to age 65. Australians aged 65 and over are less likely to perform the online activities in Figure 2.10, compared to those aged 18–64.²¹

Figure 2.10 Activities performed online by Australian internet users in the last six months, 2017 and 2018 (percentage)



n/a=not available. Data not available prior to May 2018.

Base: Australians aged 18 and over who accessed the internet.

Note: 'Don't know' and 'Prefer not to say' responses are excluded from analysis.

Source: ACMA-commissioned survey, June 2017 and May 2018.

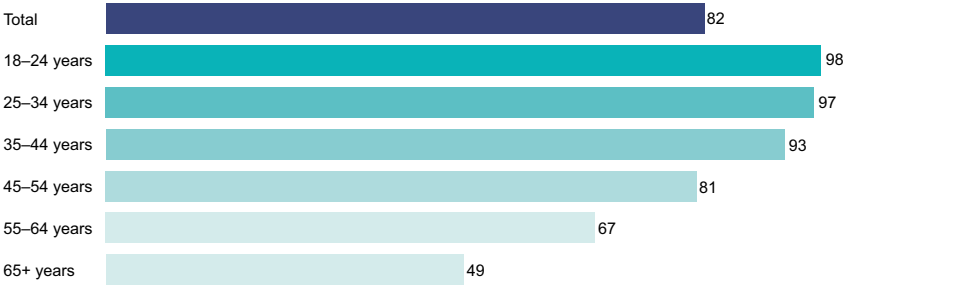
Accessing online video and audio content

Four in five (82 per cent) Australian internet users viewed video content online in the six months to May 2018, while three in five (61 per cent) accessed audio content such as internet radio or podcasts (figures 2.11 and 2.12).

Engagement with these activities was directly proportional to age—almost all users aged 18–24 and 25–34 accessed online video content (98 and 97 per cent respectively), while only half (49 per cent) aged 65 and over accessed it in the six months to May 2018.

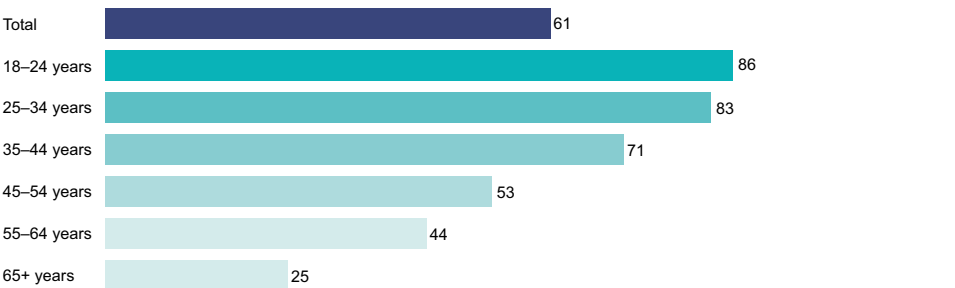
Further information on listening and viewing behaviour can be found later in this chapter.

Figure 2.11 Australians accessing online video content in the last six months, by age, May 2018 (percentage)



Base: Australians aged 18 and over who accessed the internet.
Note: 'Don't know' and 'Prefer not to say' responses are excluded from analysis.
Source: ACMA-commissioned survey, May 2018.

Figure 2.12 Australians accessing online audio content in the last six months, by age, May 2018 (percentage)

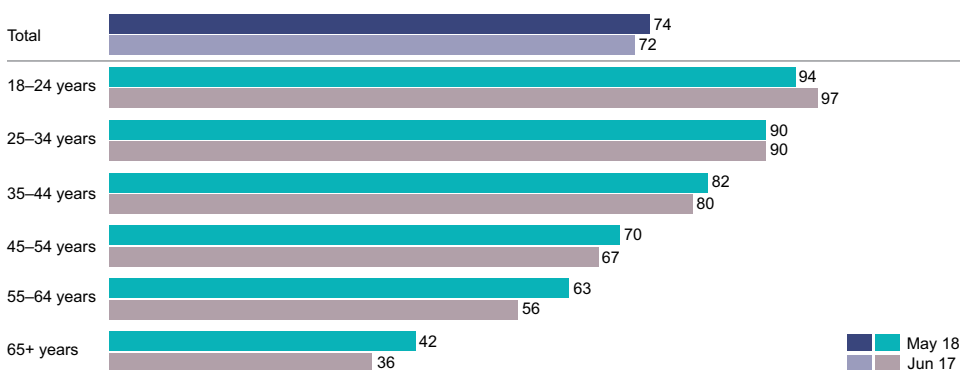


Base: Australians aged 18 and over who accessed the internet.
Note: 'Don't know' and 'Prefer not to say' responses are excluded from analysis.
Source: ACMA-commissioned survey, May 2018.

Social media activities

At May 2018, 74 per cent of online Australian adults had been active on social media sites in the last six months. As with other online activities, social media use, including posting photos or comments on social media sites, decreases with age. Those aged 18–24 were the highest users (94 per cent), compared to 42 per cent of users aged 65 and over (Figure 2.13). Women (77 per cent) were more likely than men (70 per cent) to have used social media in the six months to May 2018.²²

Figure 2.13 Social media use in the last six months, by age, May 2018 (percentage)



Base: Australians aged 18 and over who accessed the internet.

Note: 'Don't know' and 'Prefer not to say' responses are excluded from analysis.

Source: ACMA-commissioned survey, May 2018.

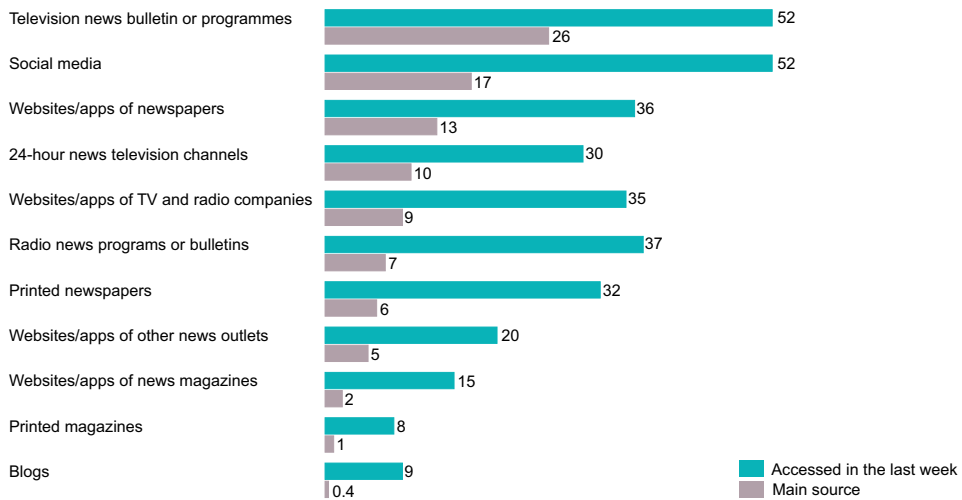
Traditional and online news services

In 2018, the proportion of Australians accessing online news surpassed traditional offline news sources for the first time.²³ Accessing online news (websites, apps, social media, blogs) increased from 74 per cent in 2017 to 82 per cent in 2018, while accessing offline news remained steady at 79 per cent. Online news access is also higher than offline in the US (73 per cent online and 67 per cent offline), while in the UK, offline news access remains the highest (74 per cent online and 78 per cent offline).²⁴

Despite the increase in online news access, TV continues to be the most used source for news, with 66 per cent watching (52 per cent watching bulletin programs and 30 per cent watching 24-hour news channels) in the week prior to the research, compared with 64 per cent using websites and apps online (including offline and online brands) and 54 per cent using social media and blogs (Figure 2.14).

TV news bulletins are the main source Australians use to access news (26 per cent), followed by social media (17 per cent) and websites or newspaper apps (13 per cent). Only seven per cent listen to radio news programs or bulletins, and six per cent use printed newspapers.

Figure 2.14 Source of news by platform and main source of news (percentage)



Source: News and Media Research Centre, *Digital news report: Australia 2018*, Canberra University.

The use of social media as a main source for accessing news is continuing to increase, with 17 per cent reporting it as their main source in 2018, which is similar to that in the US (19 per cent) but more than the UK (10 per cent). For Australians aged 18–24, social media is the main source for news (36 per cent), compared with all other age groups that rely on TV as their main source. Just under half (46 per cent) of Australians aged 55 and over use TV as their main source for accessing news, while only four per cent reported social media as their main source.²⁵

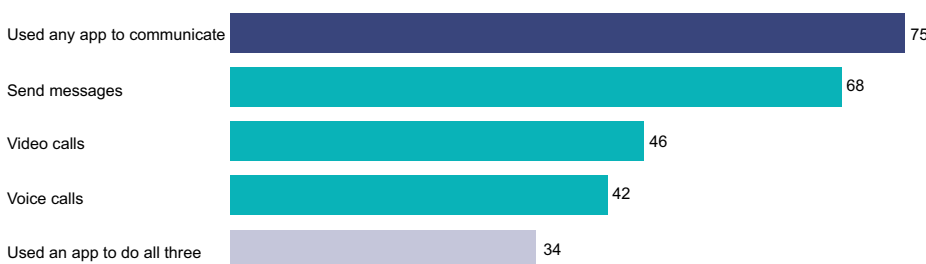
Increasingly, apps are being used to access news. Seventy-nine per cent of news consumers had used an app to access news, 34 per cent used one in the last day and 18 per cent in the last week. News aggregator apps were used by 55 per cent, with Google News the most used (16 per cent), followed by Apple News (14 per cent). The use of Snapchat for news has increased for those under the age of 35, with 35 per cent using Snapchat Discover.

Fewer Australians are paying to access online news. In the six months to May 2018, approximately 13.3 million Australian adults (69 per cent) accessed an online news site (free or paid)—68 per cent accessed news for free online, while only nine per cent (approximately 1.7 million) paid to access news. Australians aged 18–44 who access the internet are more likely to access news for free online (87 per cent) than those aged 45 and over (52 per cent).²⁶

2.4 Communications apps

At May 2018, 75 per cent of Australian internet users had used an app to communicate via messages, voice or video calls in the last six months. Using an app to send messages was the most popular (68 per cent) and 34 per cent did all three (Figure 2.15). Two in five (39 per cent) used an app to track mobile phone usage and spend.²⁷

Figure 2.15 Use of communications apps in the last six months, by activity, May 2018 (percentage)



Base: Australians aged 18 and over who accessed the internet.

Note: 'Don't know' and 'Prefer not to say' responses are excluded from analysis.

Source: ACMA-commissioned survey, May 2018.

Communications apps in use

Younger Australians were the most active users of communications apps, with 93 per cent of those aged 18–24 using an app to send messages. Australians aged 18–44 are more likely to make voice and video calls over apps, with 63 per cent using an app to make a voice or video call, compared to 29 per cent of those aged 45 and over.²⁸

While the use of apps continues to rise, they are not always the preferred method of communication. Australian adults who sent messages (70 per cent) and made voice calls (83 per cent) in the six months to May 2018 preferred to make calls over their mobile phone plan rather than use an app. For video calls, however, most preferred to use an app (76 per cent) rather than their mobile phone plan (24 per cent).²⁹

At May 2018, Facebook Messenger was the most preferred communications app, with 67 per cent of online Australian adults using it to either send messages or make voice or video calls. WhatsApp is the second most used communication app, with 33 per cent using it to send messages, followed by FaceTime (29 per cent), Instagram (26 per cent) and Skype (25 per cent).

The reasons Australian adults mostly prefer to use an app rather than their mobile phone plan to send messages or make voice or video calls has not changed between years, with the main reason being that they are used by family and friends (67 per cent). Other popular reasons were getting a better experience (54 per cent) and making international calls at lower costs (52 per cent). There has been an increase in the number of Australians who prefer apps because they receive 'read receipt' notifications for their messages (from 35 per cent in 2017 to 47 per cent in 2018) but a decrease in those who give the reason that it saves mobile credit.³⁰

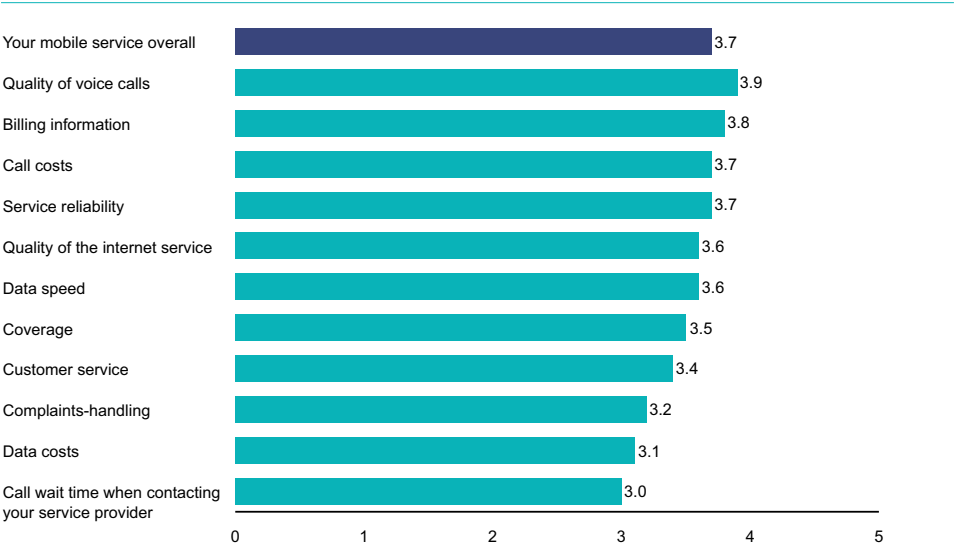
Australian adults are not using apps in isolation—rather, apps seem to complement existing communication services. In the six months to May 2018, five out of 10 text messages from Australian adults were sent using mobile phone credit, and four using an app. More voice calls were made using mobile phone credit (six out of 10), compared with an app (two out of 10), and only one out of 10 calls was made using a fixed-line phone. Apps were popular for video calls—eight out of 10 were made using an app at May 2018.³¹

2.5 Consumer satisfaction with communications services

Australian adults were generally satisfied with their communications services. The highest average levels of overall satisfaction were with mobile phone services (average 3.7 out of five), followed by fixed-line phone services (3.5 out of five) and internet (3.3 out of five). Consumers were satisfied most with the quality of calls for both mobile and fixed-line services (3.9 and 3.8 out of five, respectively) and internet consumers were most satisfied with their billing information (3.5 out of five). Call wait time when contacting service providers was the service that received the lowest satisfaction levels across mobile, fixed-line and internet (3.0, 2.8 and 2.9 out of five, respectively) (see figures 2.16, 2.17 and 2.18).

For their mobile phone services, Australian consumers were most satisfied with the quality of voice calls (3.9 out of five), followed by billing information (3.8 out of five). The lowest levels of satisfaction were recorded for data costs (3.1 out of five) and call wait time when contacting service provider (3.0 out of five) (Figure 2.16).

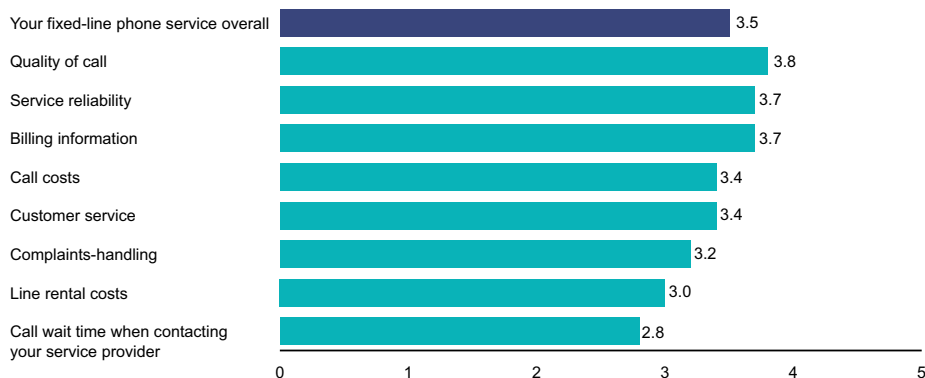
Figure 2.16 Consumer satisfaction with aspects of their mobile phone service (average out of five)



Base: Australians aged 18 years and over who have used a mobile phone in the last six months (n=2,054).
Note: Numbers may not add up due to rounding. 'Don't know' and 'Prefer not to say' responses are excluded from analysis.
Source: ACMA-commissioned survey, May 2018.

For their fixed-line phone services, Australian consumers were most satisfied with the quality of call, service reliability and billing information, with an average score of 3.8 and 3.7 out of five respectively. Line rental costs and call wait time received the lowest levels of satisfaction (3.0 and 2.8 out of five, respectively) (Figure 2.17).

Figure 2.17 Consumer satisfaction with aspects of their fixed-line phone service (average out of five)



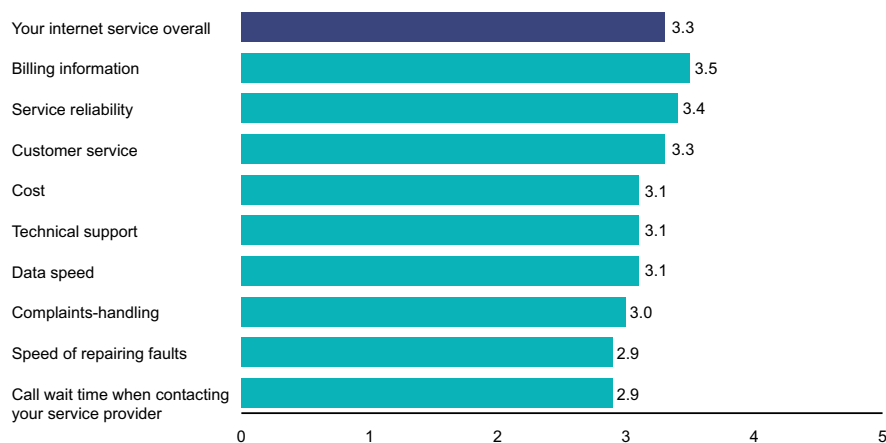
Base: Australians aged 18 years and over who have used a fixed-line phone in the last six months (n=1,174).

Notes: Numbers may not add up due to rounding. 'Don't know' and 'Prefer not to say' responses are excluded from analysis.

Source: ACMA-commissioned survey, May 2018.

For their internet services, Australian consumers were most satisfied with the billing information provided (3.5 out of five), followed by service reliability (3.4 out of five). Complaints-handling, speed of fault repairs, and call wait time when contacting a service provider recorded the lowest levels of satisfaction (3.0, 2.9 and 2.9 out of five, respectively) (Figure 2.18).

Figure 2.18 Consumer satisfaction with aspects of their internet service (average out of five)



Base: Australians aged 18 years and over who have internet access in their household (n=1,947).

Note: 'Don't know' and 'Prefer not to say' responses are excluded from analysis.

Source: ACMA-commissioned survey, May 2018.

Technical experience

Seventy-eight per cent of Australians aged 18 and over were satisfied with the technical quality of online video, including picture quality and pauses caused by buffering (in the last seven days to May 2018). Respondents' average satisfaction with the technical quality was 4.1 out of five. Thirty-four per cent were very satisfied, compared to one per cent who were very dissatisfied.³²

2.6 Audio content access and engagement

Reach of radio remains stable

Listening to the radio remains popular, with 86 per cent of Australian adults listening to some radio in an average seven-day period in the 12 months to June 2018. Radio listening is consistent with the previous four years (Figure 2.19).

Figure 2.19 Listening to radio, last seven days (percentage)



Base: Australians aged 18 and over who listened to the radio in the previous seven days (over the 12-months to June for each year).
Note: Changes to Roy Morgan weighting methodology in 2014 may have resulted in some differences to 2014-15 data reported in previous Communications reports.
Source: Roy Morgan Single Source.

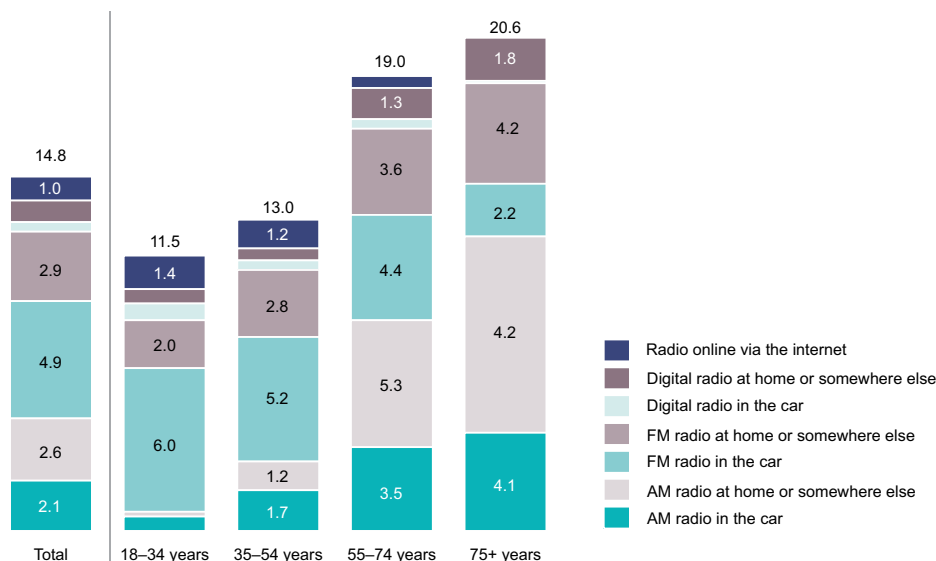
ACMA research found that 67 per cent of Australian adults had a radio at home and 90 per cent had one in their car at May 2018. People living in regional areas were more likely to have a radio in their car (93 per cent) than those living in metropolitan areas (88 per cent). Younger Australians aged 18-34 were less likely to have a radio at home or in the car (90 per cent) than Australians 35 and over (97 per cent), but were more likely to have a digital radio at home or in the car (75 per cent), compared to those aged 35 and over (63 per cent).

Time spent listening to radio

Australian adults spend more time listening to traditional radio (AM and FM) than digital or online. At May 2018, in the previous week, 80 per cent had listened to FM radio, 37 per cent to AM radio, 19 per cent to digital radio (DAB+) (metropolitan areas only) and 15 per cent to radio online.³³
The average time spent listening to FM (in the car or at home) was 7.8 hours, compared to 4.7 hours listening to AM radio. Less time was spent listening to digital radio (1.3 hours) and online radio (1 hour).

Radio listening increased with age, with Australians aged 75 and over listening to the radio the most, for an average of 20.6 hours a week, compared to only 11.5 hours for those aged 18-34 years. Older Australians were more likely to listen to AM radio (especially at home), while younger Australians were more likely to listen to radio online (Figure 2.20).

Figure 2.20 Average time spent listening to the radio (AM, FM, DAB+ and online) in the previous seven days, May 2018



Base: Australians aged 18 and over who listened to the radio in the previous seven days ($n=1,957$); 18–34 years ($n=316$), 35–64 years ($n=1,014$), 65+ years ($n=627$).

Note 1: Numbers may not add up to category total due to rounding.

Note 2: Data label for values <1 per cent are not displayed.

Note 3: Time spent listening to digital radio was only asked of those who live in metropolitan areas.

Source: ACMA-commissioned survey, May 2018.

Digital and online radio

The use of digital radio has become more prevalent. At May 2018, 49 per cent of people (living in metropolitan areas) had a DAB+ radio at home (53 per cent) or in their car (33 per cent), with those aged 45–64 more likely to have digital radio at home or in the car.³⁴

Commercial Radio Australia (CRA) reported that throughout 2017, more than 3.6 million people listened each week to DAB+ digital radio in the five metropolitan capitals, showing nearly double the number of people listened via DAB+ than via online streaming.³⁵

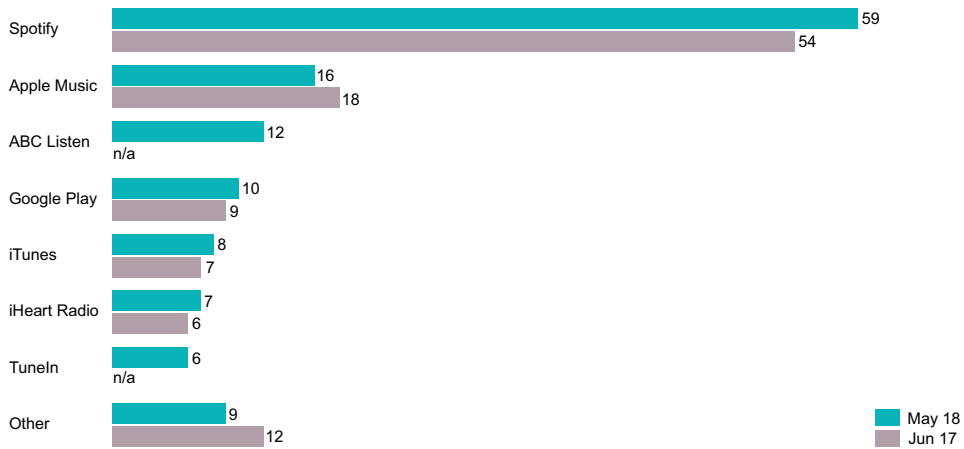
Online radio streaming is more prevalent for Australians under 45, with 20 per cent listening to the radio online in the last seven days, compared to only 11 per cent aged 45 and over. Australians who have a digital radio at home or in the car were more likely to have streamed music online in the last seven days (48 per cent) than those who did not have a digital radio (40 per cent).³⁶

Music streaming services

At May 2018, 46 per cent of Australian adults had used a music streaming service such as Spotify or Apple Music in the previous seven days, an increase from 37 per cent in 2017.³⁷

Spotify remained the most used music streaming service (59 per cent), with Apple Music second (16 per cent) (Figure 2.21).

Figure 2.21 Music streaming services used in the last seven days (percentage)



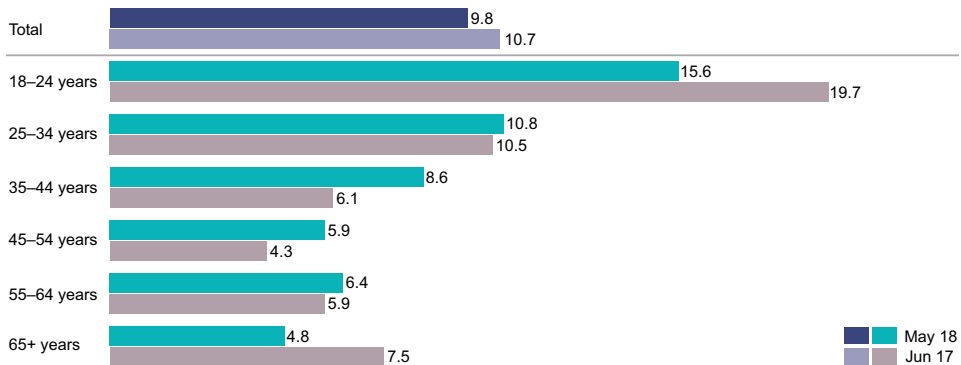
n/a=not available.

Base: Australians aged 18 and over who used music streaming services in the last seven days; 2018 (n=843), 2017 (n=727).

Source: ACMA-commissioned survey, June 2017 and May 2018.

Australians spent an average of 9.8 hours a week streaming online music services, compared to 10.7 in 2017. While those aged 18–24 spend the most time at 15.6 hours, this has declined from 19.7 hours in 2017. Older Australians are spending the least time listening to music streaming services—an average of 4.8 hours per week, compared to 7.5 hours in 2017 (Figure 2.22).

Figure 2.22 Time spent listening to music streaming services by age in the last seven days (hours)



Base: Australians aged 18 and over who used a music streaming service in the last seven days; 2018 (n=843), 2017 (n=727).

Source: ACMA-commissioned survey, May 2018.

Podcasts

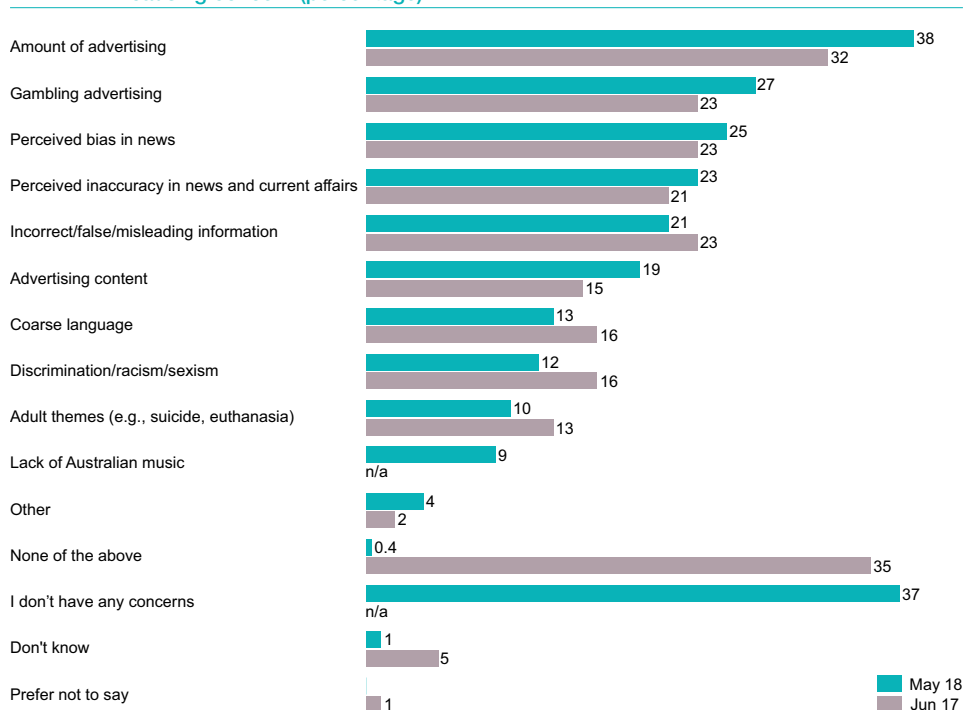
Podcast awareness, frequency and time spent listening are continuing to increase. Industry reporting showed that in the first quarter of 2018, 78 per cent of Australians aged 12 and over were familiar with the term 'podcasting', an increase from 72 per cent in 2017. Weekly listening has also increased from 10 per cent in 2017 to 13 per cent in 2018. Those who listened to podcasts weekly, listened to an average of five per week.³⁸

Research conducted by the ABC showed that the average time spent listening to a podcast episode was 48 minutes (for those who listened beyond the first five minutes), with 79 per cent of podcasts listened to in the last week listened to the whole way through. Three-quarters (78 per cent) listened to podcasts at home, while a third (35 per cent) listened while riding public transport. The research also found that 59 per cent of podcast listeners indicated they were listening to more podcasts compared to the previous year.³⁹

Concern with traditional and online radio content

The most common type of radio content causing concern was the amount of advertising (38 per cent), an increase from 32 per cent in 2017. Gambling advertising (27 per cent) was the second most common type, increasing from 23 per cent in 2017 to 27 per cent in 2018. Concern over advertising content also increased (from 15 per cent to 19 per cent), while concern over coarse language, discrimination/racism/sexism and adult themes all decreased between 2017 and 2018. Thirty-seven per cent did not have any concerns (Figure 2.23).

Figure 2.23 Types of radio content (traditional, analog, digital and online radio) causing concern (percentage)



n/a=not available.

Base: Australians aged 18 and over; 2017 (n=2,277), 2018 (n=2,106).

Source: ACMA-commissioned survey, June 2017 and May 2018.

2.7 Video content

Australians are consuming more video content than ever before, both traditional and online. The TV set is still the preferred device to watch, mainly for traditional and subscription TV services; however, other online content, such as user-generated content, is more frequently watched on other devices.

Traditional broadcast TV

Time spent watching traditional live free-to-air (FTA) broadcast television (viewed on the day of broadcast) is declining, but the use of the TV set for other screen use in Australian households is increasing.

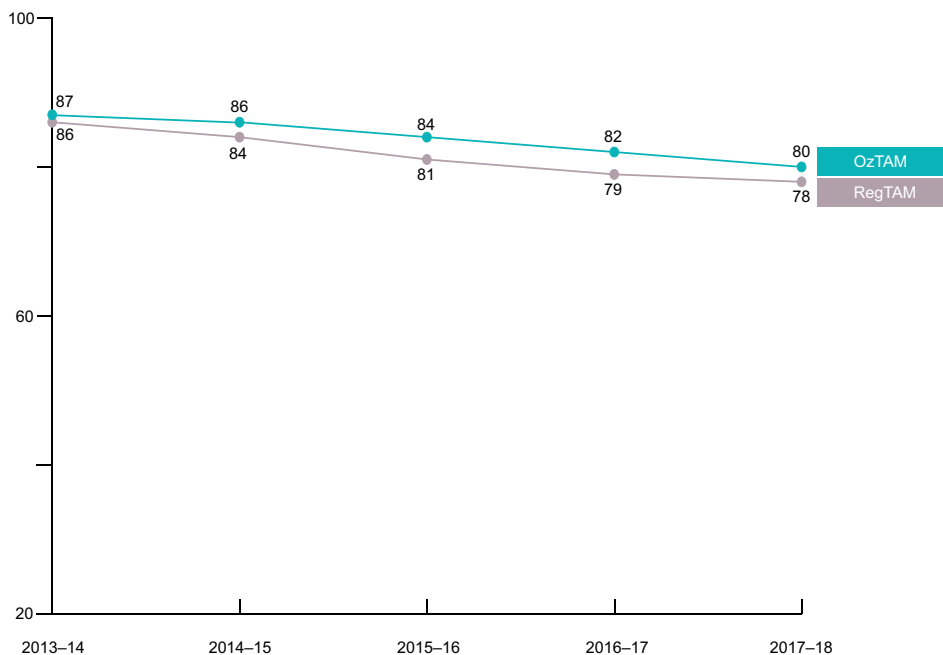
In the last quarter of 2017, the average time spent watching live FTA TV was 74 hours and 58 minutes per month, compared to 81 hours and 18 minutes during the comparable period in 2016.⁴⁰

Australians are increasingly using their TV set for other activities such as gaming, watching catch-up TV or DVDs, streaming music or watching online streaming services. In quarter four of 2017, the TV set was used for other activities for an average of 34 hours and 15 minutes per month, an increase from 30 hours and 56 minutes in the same period of 2016. The time spent using the TV set for both live TV and other uses remained steady at approximately 110 hours.⁴¹

The decline in audience reach of FTA TV has continued, with four in five (80 per cent) Australian adults in the five major cities watching at least five minutes of FTA TV in an average week in 2017–18, compared to 87 per cent in 2013–14. FTA TV is reaching fewer people in regional television markets, with 78 per cent watching weekly, a decline of eight percentage points from 2013–14 (Figure 2.24).⁴²

However, FTA broadcast programs remain the most watched of any type of content (see Figure 2.29), and more viewers are using broadcasters' online catch-up services (see figures 2.30 and 2.31).

Figure 2.24 FTA television viewing—average weekly cumulative reach (five minutes consecutive), five-city metropolitan and consolidated regional markets (percentage)



Base: People aged 18 and over in the five mainland metropolitan markets (Sydney, Melbourne, Brisbane, Adelaide and Perth) for OzTAM, and for the combined regional markets (RegionalTAM).

Note 1: Definition of reach—the cumulative percentage or total (usually expressed in thousands) of a population that has been counted as viewers at least once during a specified interval. From 27 December 2015, figures were consolidated to 28 days.

Note 2: Data in graph is only representative of those who are watching traditional FTA TV and does not include viewing of broadcasters online catch-up services or other online video viewing.

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Subscription TV

Australians' appetite for subscription video on demand (SVOD) and pay-as-you-go services is continuing to increase. Industry research shows an annual increase of 54 per cent, from 5.9 million to 9.1 million subscriptions (paid and non-paid) at June 2018.⁴³

Netflix increased their subscriptions (paid and non-paid) by 29 per cent in the last year to 3.9 million. Streaming service Stan has seen the biggest growth year-on-year, with an increase of 34 per cent to 1.05 million subscribers. New services launched in Australia—such as Amazon Prime (June 2018), Foxtel Now (June 2017) and a growing number of sport and special interest services—are fuelling consumers' desire for content. Subscribers for other SVOD services have increased by 98 per cent year-on-year, making up the remaining 4.15 million subscribers.⁴⁴ Telstra reported that Foxtel subscriptions had increased (marginally) up to approximately 2.8 million at June 2018. The increase has been attributed to the launch of Foxtel Now.⁴⁵

Industry estimates that 43 per cent of Australian households subscribed to SVOD services at the end of June 2018, an increase from around 30 per cent year-on-year. Australians' love for sport has been reported to be the biggest driver for the increase.⁴⁶ Pay TV subscription has remained steady at 31 per cent, with the number one reason cited for continued subscription being access to sporting content (22 per cent).⁴⁷

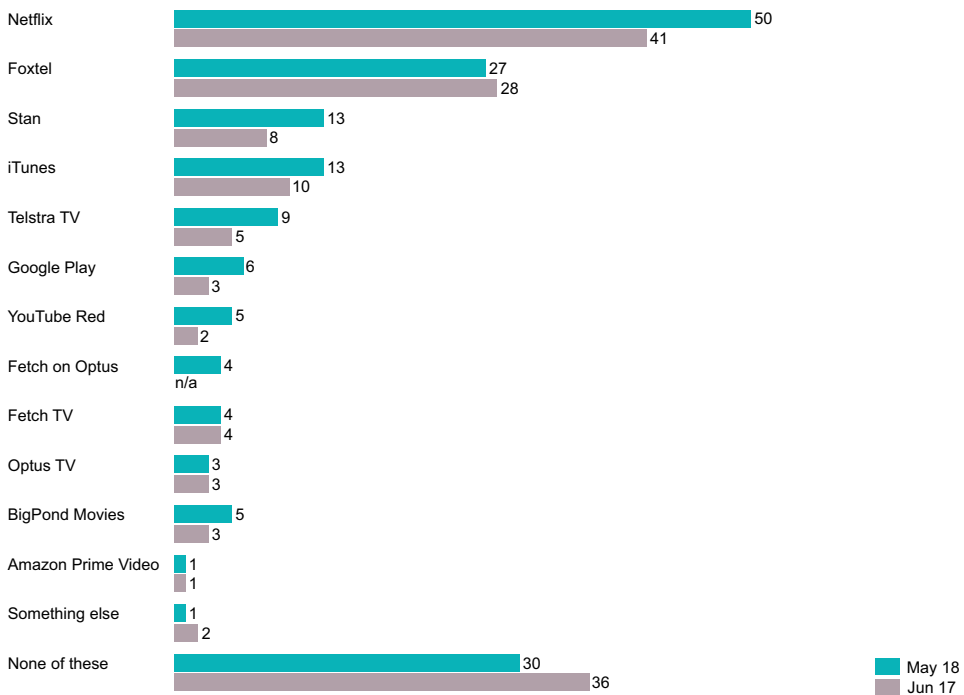
In 2017, Pay TV via traditional box delivery generated greater consumer revenue (\$2.6 billion) than SVOD (\$850 million). By 2022, it is forecast that SVOD will surpass premium box-delivered Pay TV and will generate approximately \$3.2 billion in consumer revenue, while Pay TV via a box will remain stable at \$2.7 billion.⁴⁸

Consumer survey data shows that 76 per cent of Australians who have a TV set at home have at least one video subscription or pay-as-you-go service in their household, an increase from 71 per cent in 2017.

Figure 2.25 shows there are fewer Australians without a subscription or pay-as-you-go service than there were in 2017—30 per cent do not have any, down from 36 per cent in 2017. Of the subscription and pay-as-you-go services:

- > half of Australian adults (50 per cent) had access to Netflix in the home in May 2018, up from 41 per cent from the same period in 2017
- > 27 per cent had a Foxtel subscription. The number of people reporting they have any type of Foxtel subscription has remained stable year-on-year.

Figure 2.25 Subscriptions or pay-as-you-go services Australians have in their household (percentage)



Base: Australians aged 18 and over who have a television set in the home; 2017 (n=2,198), 2018 (n=1,805).

Note: Optus TV and Telstra TV were asked as Optus and Telstra in 2017. For 2018, Foxtel includes Foxtel Play and Foxtel Now, which launched in June 2017.

Source: ACMA-commissioned survey, June 2017 and May 2018.

Online streaming

Australians played an average 5.8 million hours of broadcasters’ online content weekly on connected devices in the fourth quarter of 2017.⁴⁹ This comprised 4.3 million hours of catch-up (or on demand) viewing, and 1.5 million hours of live streamed material each week.⁵⁰

In an average week, Australians are watching 13.5 hours of streamed content online, with 28 per cent of this time watching SVOD content—more than any other type of video streaming content.⁵¹

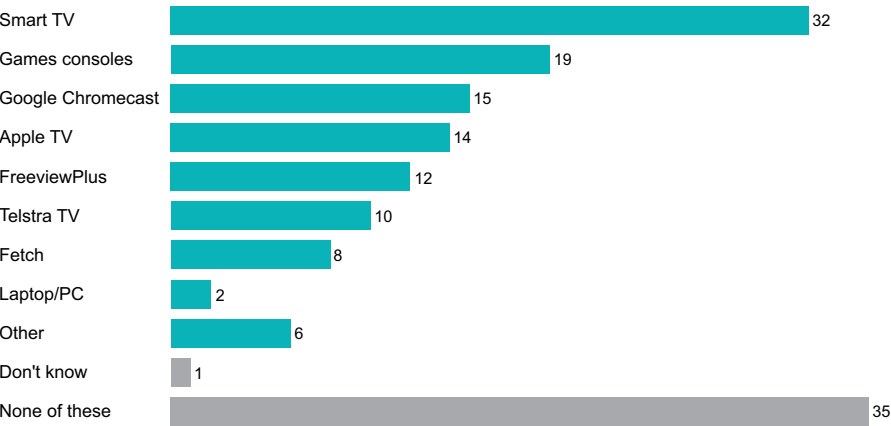
Devices and services used to access video content

The number of devices per household continues to increase as demand and appetite for online viewing grows. In the second quarter of 2018⁵², Australian homes had an average of 7.1 devices⁵³, compared to 6.4 in quarter four of 2016, and 6.1 at the end of the 2015 calendar year.⁵⁴

ACMA research showed that 64 per cent of Australians have access to a device or service to stream video content in their home. The number of households with a smart TV—the most commonly used device for streaming video content—increased from 29 per cent in 2017 to 37 per cent in 2018.⁵⁵

However, 35 per cent of Australians aged 18 and over do not have access to a device or service to stream video in their home (Figure 2.26).

Figure 2.26 Devices or services used for streaming video (percentage)



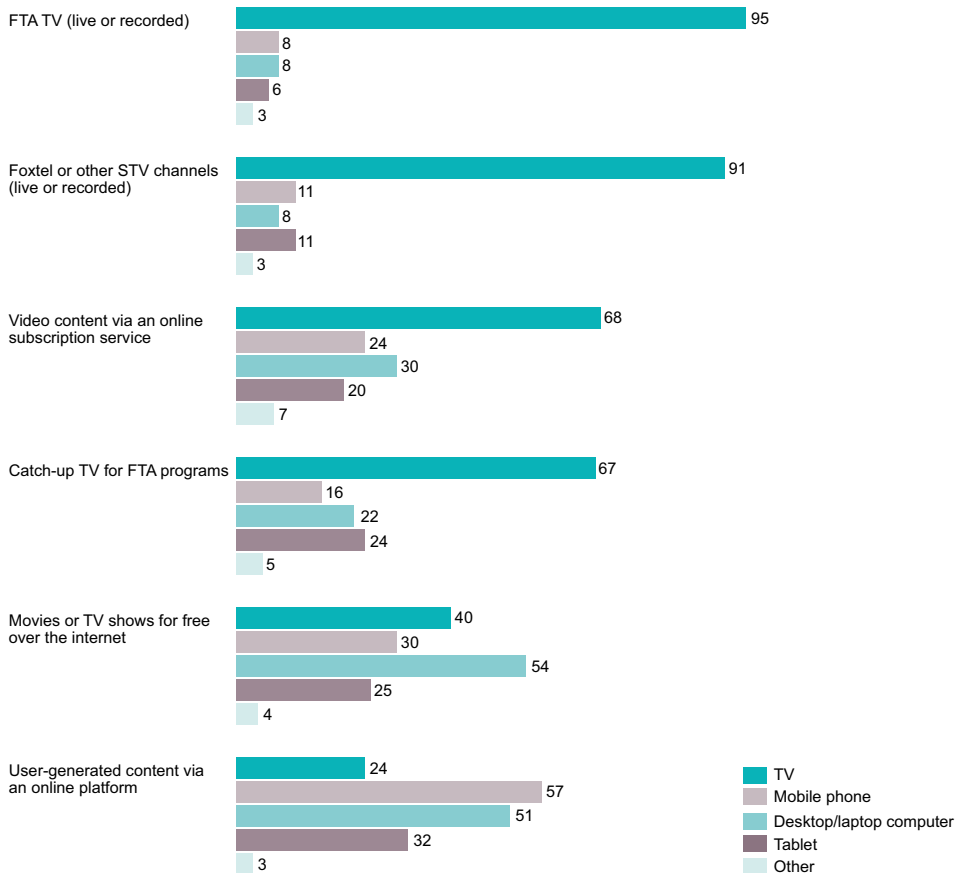
Base: Australians aged 18 and over who have a television set in the home, (n=2,106).

Note: Game consoles such as PlayStation, Xbox and Wii.

Source: ACMA-commissioned survey, May 2018.

For Australian adults, the TV set remains the main way to watch video content, including online content. However, free video content (such as YouTube) and user-generated content is more likely to be watched on computers or mobile devices (Figure 2.27).

Figure 2.27 Devices used for viewing different types of content (percentage)



FTA=Free-to-air TV

STV=Subscription TV

Base: Australians aged 18 and over who in the last six months watched: FTA TV live or recorded (n=1,474), Foxtel or other STV channels live or recorded (n=551), video content via an online subscription service (n=720), catch-up TV for FTA programs (n=496), movies or TV shows for free over the internet (n=304), user-generated content on an online platform (n=715).

Note: Data includes multiple responses. 'Other free online video content' excludes user-generated content. 'Don't know' and 'Prefer not to say' responses are excluded from analysis.

Source: ACMA-commissioned survey, May 2018.

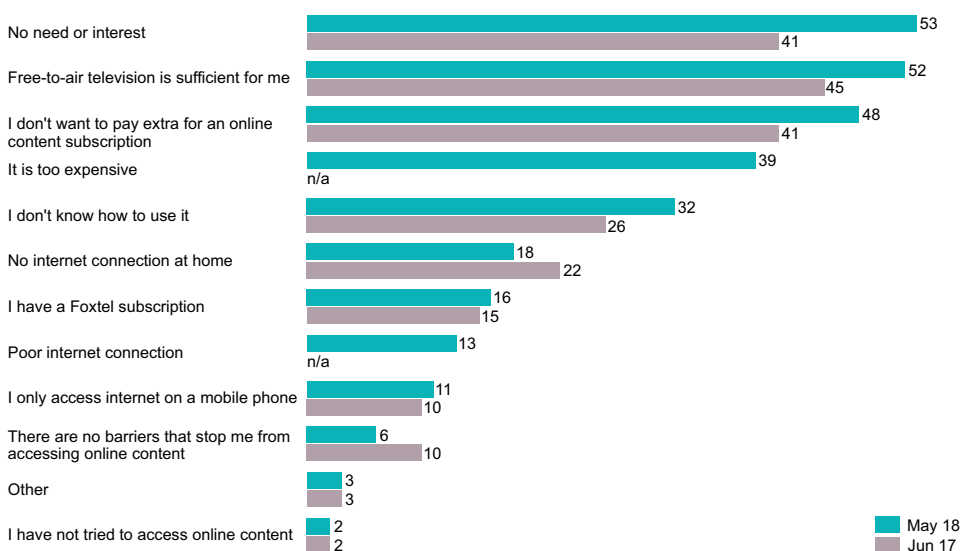
Multi-tasking while watching TV

Increasingly, more Australians are multi-tasking in front of the TV, accessing other platforms simultaneously. Industry research reported that in 2018, 91 per cent of respondents multi-tasked while watching TV, an increase from 79 per cent in 2014. The smartphone is the most used other device (58 per cent), followed by laptops (29 per cent) and tablets (28 per cent). Social media and browsing the internet are the most performed activities (27 and 26 per cent respectively).⁵⁶

Barriers to accessing online video content

The most common reason for Australian adults not accessing online video content is that there is no need or interest (53 per cent), followed by the opinion that FTA TV is sufficient (52 per cent). Forty-eight per cent cited that they did not want to pay extra for online content and 32 per cent reported that it was too expensive. Of the Australian adults who do not access online video content, six per cent reported that there was no barrier to accessing this content (Figure 2.28).

Figure 2.28 Barriers in accessing online video content (percentage)



n/a=not available.

Base: Australians aged 18 and over who did not stream video content; 2017 (n=845), 2018 (n=744).

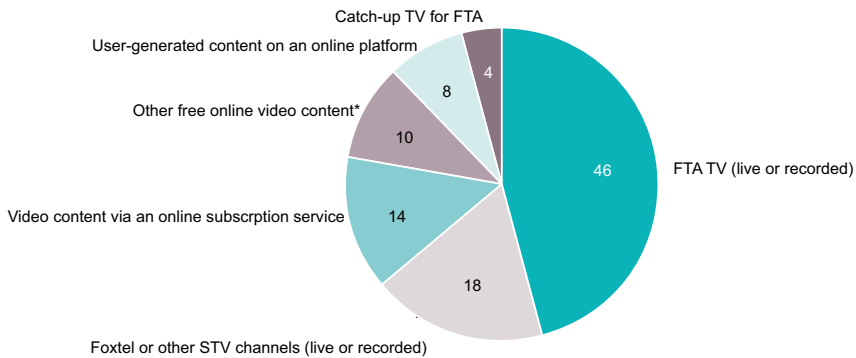
Source: ACMA-commissioned survey, June 2017 and May 2018.

2.8 Video content engagement

Australian adults are continuing to spend most of their time viewing video content via live FTA TV, despite the increasing number of additional online and catch-up services available. In May 2018, 46 per cent of the weekly average time spent watching television or video content (excluding pre-recorded DVDs) was spent watching FTA TV (live or recorded), 18 per cent was spent watching Foxtel or other subscription channels (live or recorded), and 14 per cent was spent watching video content via an online subscription service.

Watching other online content such as movies or TV shows for free, pay-per-view, and watching or playing games online, accounted for 10 per cent of Australian adults' total viewing time. Watching user-generated content accounted for eight per cent and watching broadcasters' catch-up TV content accounted for four per cent (Figure 2.29).

Figure 2.29 Time spent watching TV (live or recorded) or professional online video content, in the last seven days (percentage)



FTA=Free-to-air

STV=Subscription TV

*Excludes user-generated content.

Base: Australians aged 18 and over who watched any FTA TV or online video content in the last seven days (n=1,891).

Note: Numbers may not add up to 100 per cent due to rounding. 'Other online' includes watching movies or TV shows for free over the internet, watching pay-per-view services, and watching or playing games online.

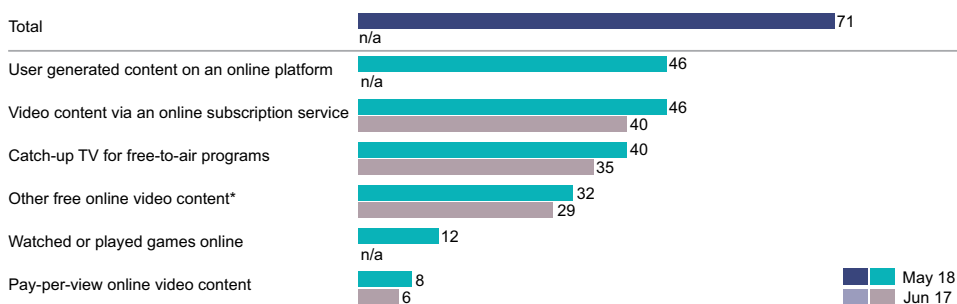
Source: ACMA-commissioned survey, May 2018.

Engagement with online content

ACMA research shows that 71 per cent of Australian adults (approximately 13.7 million) watched some online TV or online video content in the six months to May 2018, while 65 per cent (approximately 12.5 million) watched professionally-produced content online.⁵⁷

User-generated content and online subscription services were the most regularly watched content, with 46 per cent of Australian adults regularly watching both types in the last six months. Watching content via an online subscription service such as Netflix increased from 40 per cent in 2017, to 46 per cent in 2018 (Figure 2.30).

Figure 2.30 Online content watched in the last six months (percentage)



n/a=not available prior to May 2018.

FTA=Free-to-air

*Excludes user-generated content.

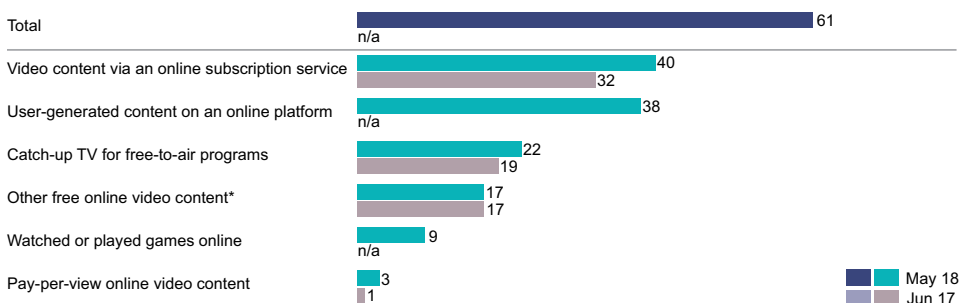
Base: Australians aged 18 and over; 2017 (n=2,277) and 2018 (n=2,106).

Note: New categories were introduced in 2018 and therefore the total for 2017 is not comparable and has not been included.

Source: ACMA-commissioned survey, June 2017 and May 2018.

For Australian adults who have watched online content in the last six months, 61 per cent have also watched in the last seven days. Video content via an online subscription service is the most popular online content (40 per cent) and has increased in popularity since 2017 (32 per cent) (Figure 2.31).

Figure 2.31 Online content watched in the last seven days (percentage)



n/a=not available prior to May 2018.

FTA=Free-to-air

*Excludes user-generated content.

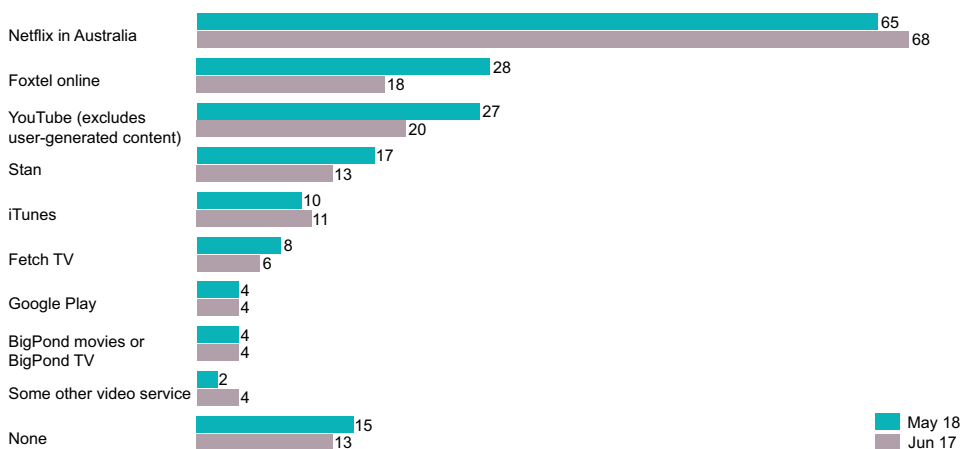
Base: Australians aged 18 and over who watched online content in the last six months; 2017 (n=2,127), 2018 (n=1,973).

Note: New categories were introduced in 2018 and therefore the total for 2017 is not comparable and has not been included.

Source: ACMA-commissioned survey, June 2017 and May 2018.

Netflix is the most popular online source for viewing professional video content. Sixty-five per cent of Australian adults who watched online video (excluding catch-up TV) in the last six months watched Netflix—a comparable number to 2017 (68 per cent). YouTube viewing has increased since 2017 (Figure 2.32). While Foxtel online also increased, this coincides with the launch of Foxtel Now in June 2017, diversifying Foxtel's online offering with flexible packages and no lock-in contracts.⁵⁸

Figure 2.32 Online video services used in the last six months (percentage)



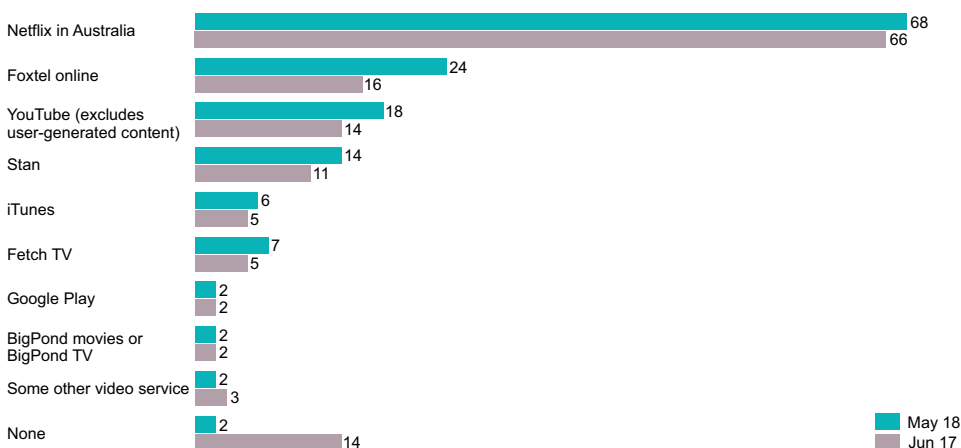
Base: Australians aged 18 and over who had watched online video, excluding catch-up, in the last six months; 2017 (n=1,122), 2018 (n=1,395).

Note: Foxtel online includes only online services Foxtel GO and Foxtel Now, and does not include those watching via a set-top box.

Source: ACMA-commissioned survey, June 2017 and May 2018.

A greater number of Australian adults (who have used an online service to stream video) are watching Netflix at least once a week (68 per cent), compared to other services such as Foxtel (24 per cent) and YouTube (18 per cent). With the launch of the additional online service Foxtel Now in 2017, the number of people streaming Foxtel online (24 per cent) has increased since 2017 (16 per cent) (Figure 2.33).

Figure 2.33 Online video services used in the last seven days (percentage)



Base: Australians aged 18 and over who used an online service to stream video, excluding catch-up, in the last six months; 2017 (n=947) and 2018 (n=1,166).

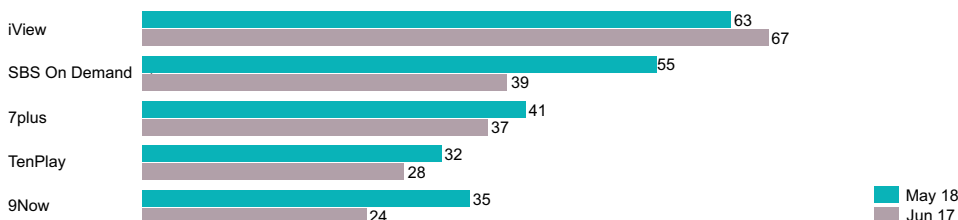
Note: Foxtel online includes only online services Foxtel GO and Foxtel Now, and does not include those watching via a set-top box.

Source: ACMA-commissioned survey, June 2017 and May 2018.

At May 2018, ABC iView was the most watched catch-up service for FTA programs, with 63 per cent of catch-up video users watching in the last seven days, compared to 67 per cent in 2017. SBS On Demand is the second most-watched service and has seen an increase from 39 per cent in 2017 to 55 per cent in 2018. 9Now has also seen an increase, from 24 per cent to 35 per cent (Figure 2.34).

The growth in use of SBS On Demand has been driven by younger Australians, with the proportion of viewers aged between 18 and 44 increasing from 36 per cent in 2017 to 51 per cent in 2018.⁵⁹

Figure 2.34 Catch-up TV services used in the last seven days (percentage)



Base: Australians aged 18 and over who watched catch-up TV for FTA programs in the last seven days; 2017 (n=464), 2018 (n=498).

Source: ACMA-commissioned survey, June 2017 and May 2018.

Esport—online entertainment

Esports have gained increased popularity in recent years as an entertainment source. In the six months to May 2018, 2.3 million (12 per cent) Australian adults watched or played games online, including esports and fantasy sports.⁶⁰ The increase in popularity is being driven by younger Australians, using an appealing format that combines social, streaming and gaming, and the appeal of the sports genre and 'event factor'. Mixing digital with physical entertainment, audiences can attend in-person or stream events live.⁶¹

Industry research showed that 14 per cent of respondents have attended or streamed an esports event in the last 12 months. Australians aged 14–34 are the heaviest users (26 per cent), but more so males aged 14–34 (33 per cent) who watched an average of 20 esports events in the last year. The most popular digital platform for viewing esports is YouTube (58 per cent), followed by TV broadcasts (35 per cent), Twitch (28 per cent) and websites of individual game developers (22 per cent).⁶²

ACMA data showed that Australian adults are mainly using a desktop or laptop (53 per cent) to watch or participate in games online, followed by a mobile phone (30 per cent), TV (24 per cent) and tablet (21 per cent).⁶³

Online viewer profile

Australian adults watched a total of 22.9 hours of TV and online content in the last seven days (at May 2018). Thirty-six per cent of time spent viewing all video content is spent viewing online content (Figure 2.35).

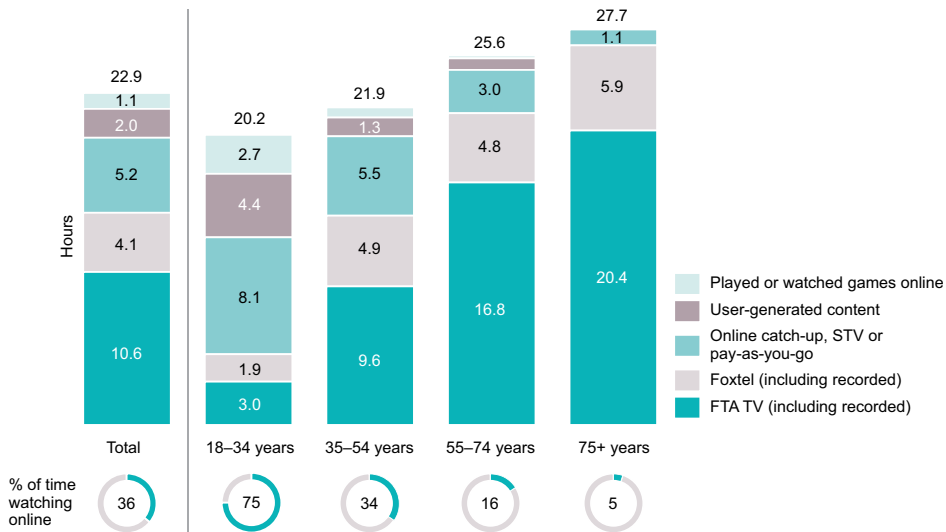
The total viewing hours across platforms increase with age, ranging from 20.2 hours for younger adults (aged 18–34) and 21.9 hours for those aged 35–54, to more than 25 hours for older Australians aged 55 and over.

Younger Australians aged 18–34 are spending most of their total time watching online video content⁶⁴ (75 per cent) and the least time watching catch-up TV services and Foxtel (live or recorded). In contrast, older Australians aged 55–74 spend only 16 per cent watching online video, further decreasing to five per cent for those aged over 74.

User-generated content is most watched by those aged 18–34 (4.4 hours). The viewing habits of Australians aged 35–54 is more evenly spread over free-to-air TV, Foxtel and online catch-up services.

For Australians aged 55 and over, FTA TV occupied most of their viewing time—16.8 hours on average per week, increasing to 20.4 hours for those aged 75 and over.

Figure 2.35 Time spent watching TV (live or recorded) and online video content by age in the last seven days (average hours)



STV=Subscription TV

FTA=Free-to-air TV

Base: Australians aged 18 and over who watched any FTA TV or online video content in the last seven days (n=1,891); 18–34 years (n=326), 35–54 years (n=592), 55–74 years (n=800), 75+ years (n=173).

Note 1: Numbers may not add up to category totals due to rounding. 'Other online' (catch-up TV, movies or TV shows for free, pay-per-view and online games) excludes user-generated content.

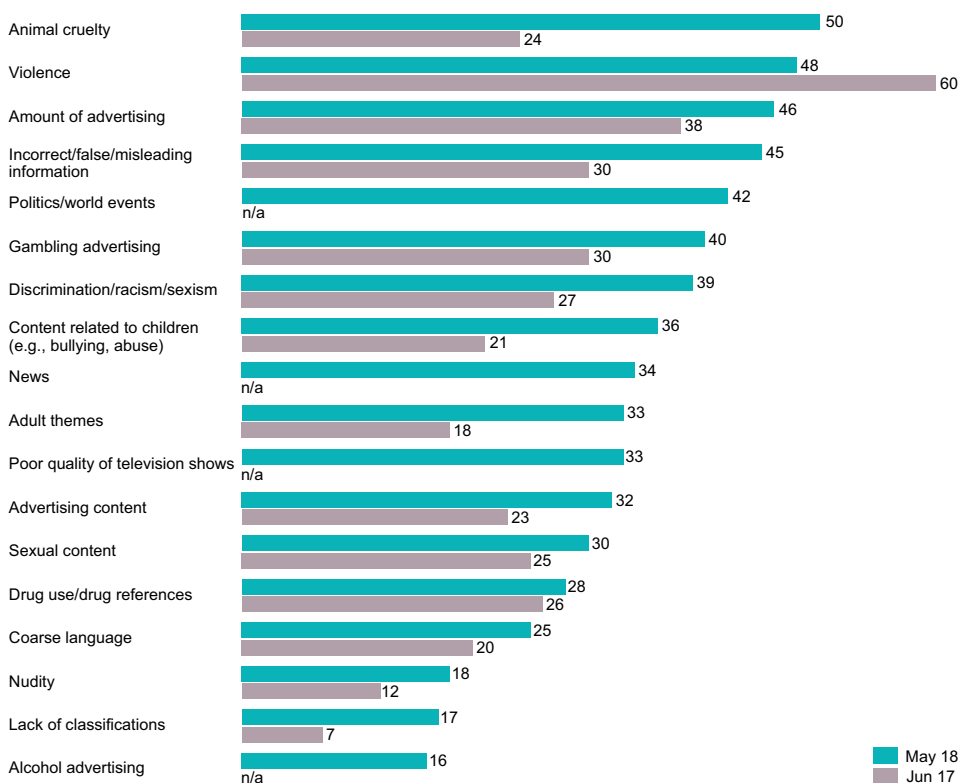
Note 2: Data label for values <1 per cent are not displayed.

Source: ACMA-commissioned survey, May 2018.

Concerns about content viewed online and via TV

Twenty per cent of adult Australians who watched TV or online content in the six months to May 2018, had seen content on TV that caused concern, while 17 per cent had viewed online content that had caused concern. Thirty-five per cent of these Australians are equally concerned about both TV and online content, while 31 per cent are more concerned about online content than content seen on the TV (26 per cent).⁶⁵ For adults who recently viewed concerning content, animal cruelty was of greatest concern, increasing from 24 per cent in 2017 to 50 per cent in 2018. Violence was of most concern in 2017, but has since decreased from 60 per cent to 48 per cent in 2018. Other types of content that have increased in the level of concern includes: incorrect, false or misleading content; politics and world events; adult themes and poor quality of television shows (Figure 2.36).

Figure 2.36 Types of content viewed online or on TV that caused concern (percentage)



n/a=data not available prior to May 2018.
Base: Australians aged 18 and over who were concerned about content viewed recently online or on television (n=515).
Source: ACMA-commissioned survey, June 2017 and May 2018.

Online content investigations—interactive gambling

The ACMA administers the *Interactive Gambling Act 2001* (IGA), which makes it an offence to provide or advertise certain gambling services to Australians. These include online casino-style games, slot machines and wagering services that accept ‘in-play’ betting or are provided without a licence issued by an Australian state or territory. The ACMA received a total of 283 complaints and enquiries during 2017–18, resulting in 80 breach findings (Table 2.1).

Table 2.1 Interactive gambling complaints and enquiries per financial year

Interactive gambling	2017–18
Complaints and general enquiries	252
Investigations completed	53
Total number of breach findings	80
Formal warnings issued to providers	17
Notifications issued to international licensing authorities	13

*Under the IGA, the ACMA only investigates interactive gambling advertisements broadcast on television or radio.
Source: Interactive gambling complaints to the ACMA.

The *Interactive Gambling Amendment Act 2017*, which amended the IGA and other legislation, was passed in August 2017, with the majority of amendments coming into effect on 13 September 2017. The amendments introduced a range of measures, including a civil penalty regime, prohibited ‘click-to-call’ in-play betting services and placed restrictions around offering lines of credit, or facilitating lines of credit from third parties such as ‘payday’ lenders. The credit betting prohibitions came into effect on 17 February 2018.

Notes

- ¹ ACMA-commissioned survey, May 2018.
- ² *ibid.*
- ³ Roy Morgan Single Source, Australians aged 18 and over.
- ⁴ ACMA-commissioned survey, May 2018.
- ⁵ NBN co, 'Monthly Progress Report June 2018', 17 July 2018.
- ⁶ ACMA-commissioned survey, May 2018.
- ⁷ Roy Morgan Single Source, Australians aged 18 and over.
- ⁸ ACMA-commissioned survey, June 2016, June 2017 and May 2018.
- ⁹ ACMA-commissioned survey, June 2017 and May 2018.
- ¹⁰ ACMA-commissioned survey, May 2018.
- ¹¹ *ibid.*
- ¹² Deloitte, *Media Consumer Survey 2018, Australian media and digital preferences—seventh edition*, August 2018.
- ¹³ Commercial Radio Australia, 'Hey Siri, play my favourite radio station', [media release], 19 September 2018.
- ¹⁴ This excludes computers, tablets and mobile phones.
- ¹⁵ ACMA-commissioned survey, May 2018.
- ¹⁶ ABS, *8153.0—Internet Activity, Australia*, June 2018.
- ¹⁷ *ibid.*
- ¹⁸ Wireless broadband subscribers include an estimated 116,000 satellite internet subscribers, based on ABS figures.
- ¹⁹ ACMA-commissioned survey, May 2018.
- ²⁰ *ibid.*
- ²¹ *ibid.*
- ²² *ibid.*
- ²³ News & Media Research Centre, *Digital news report: Australia 2018*, University of Canberra, accessed 23 August 2018.
- ²⁴ *ibid.*
- ²⁵ *ibid.*
- ²⁶ ACMA-commissioned survey, May 2018.
- ²⁷ *ibid.*
- ²⁸ *ibid.*
- ²⁹ *ibid.*
- ³⁰ *ibid.*
- ³¹ *ibid.*
- ³² *ibid.*
- ³³ *ibid.*
- ³⁴ *ibid.*
- ³⁵ Commercial Radio, 'Record numbers listen to commercial', [media release], accessed 15 August 2018.
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- ³⁷ *ibid.*
- ³⁸ Edison Research, *The Infinite Dial Australia 2018*, Commercial Radio Australia, accessed 16 August 2018.
- ³⁹ ABC Audience Insights, *ABC Podcast Research 2018*, accessed 11 December 2018.
- ⁴⁰ Based on television ratings quarters, not calendar year quarters.
- ⁴¹ OzTAM, Regional TAM & Nielsen, *Australian Video Viewing report Q4 2017*, March 2018.
- ⁴² OzTAM Pty Limited and Regional TAM.
- ⁴³ Telsyte, 'SVOD feeds Australians' insatiable appetite for streaming content', [media release], 30 July 2018.
- ⁴⁴ *ibid.*
- ⁴⁵ News Corp, News Corporation reports fourth quarter and full year results for fiscal 2018, 15 August 2018.
- ⁴⁶ Telsyte, 'SVOD feeds Australians' insatiable appetite for streaming content', [media release], 30 July 2018.
- ⁴⁷ Deloitte, *Media Consumer Survey 2018, Australian media and digital preferences—seventh edition*, August 2018.
- ⁴⁸ PwC, *Entertainment and Media Outlook 2018–2022*, June 2018.
- ⁴⁹ Based on television ratings quarters, not calendar year quarters.
- ⁵⁰ OzTAM, Regional TAM & Nielsen, *Australian Video Viewing report Q4 2017*, March 2018.
- ⁵¹ Deloitte, *Media Consumer Survey 2018, Australian media and digital preferences—seventh edition*, August 2018.
- ⁵² Based on television ratings quarters, not calendar year quarters.

⁵³ Think TV, *Is that a connected TV in your pocket? Fact pack, Broadcaster VOD*, edition Jan-Jun 2018.

⁵⁴ OzTAM, Regional TAM & Nielsen, *Australian Video Viewing report Q4 2017*, March 2018.

⁵⁵ ACMA-commissioned survey, May 2018.

⁵⁶ Deloitte, *Media Consumer Survey 2018, Australian media and digital preferences—seventh edition*, August 2018.

⁵⁷ ACMA-commissioned survey, May 2018.

⁵⁸ A. Dawson, 'Foxtel releases new campaign to launch Foxtel Now', *Mumbrella*, 14 June 2017.

⁵⁹ ACMA-commissioned survey, May 2018.

⁶⁰ *Ibid.*

⁶¹ Deloitte, *Media Consumer Survey 2018, Australian media and digital preferences—seventh edition*, August 2018.

⁶² *Ibid.*

⁶³ ACMA-commissioned survey, May 2018.

⁶⁴ Online video—subscription video on demand, catch-up TV, movies or other free video content, pay-per-view, watching or paying games and user-generated video content.

⁶⁵ ACMA-commissioned survey, May 2018.



Chapter 3

National interest issues

This chapter reports on the performance of the emergency call service, national interest issues, cooperation with law enforcement agencies and cost of compliance with the requirements of Part 14 of the Telecommunications Act and Part 5-1A of the *Telecommunications (Interception and Access) Act 1979* (TIA Act).

It includes information about the communications industry's support for law enforcement and national security agencies through the maintenance of communications interception capabilities and the authorised disclosure of information. This chapter addresses the statutory requirements under paragraph 105(5A) of the *Telecommunications Act 1997*.

At a glance—in the national interest

Emergency service calls



Calls to Triple Zero and 112

Increased by 415,844 (4.8%) to 8,995,963 calls

Telstra's time taken to answer emergency service calls

Performance exceeded the benchmarks—of calls answered, 98.5% within 10 seconds, 96.3% within 5 seconds

Interception capabilities



Cost to industry of providing interception capabilities decreased by 2.3% to \$21.5 million

Integrated Public Number Database (IPND)



70.9 million connected services at 30 June 2018, an increase of just over 1% on the 69.9 million records held in 2016–17

Emergency suspension of carriage services



CSPs reported the suspension of 14 carriage services, up from 6 in 2016–17

3.1 Emergency call service

The emergency call service is an operator-assisted service that connects callers to an emergency service organisation (ESO)—police, fire or ambulance—in life-threatening or time-critical situations. Under the Telecommunications (Emergency Call Service) Determination 2009 (the Emergency Call Service Determination), CSPs are required to provide free access to the emergency call service from standard telephone and mobile services.

The emergency call service is provided by the emergency call persons (ECPs):

- > Telstra—for calls made to the primary emergency service number (Triple Zero) and to the international emergency number 112 from mobile phones
- > Australian Communication Exchange (ACE)—for calls made to the 106 text service for people who are deaf or have a hearing or speech impairment.

This section outlines the volume and type of calls to the emergency call service, along with the performance of the ECPs in answering emergency calls.

Triple Zero and 112

When dialling Triple Zero, a recorded voice announcement (RVA) provides callers who have inadvertently dialled Triple Zero with the opportunity to hang up before the call is connected to the ECP. In 2017–18, 3.8 per cent of calls to Triple Zero were from callers who hung up after hearing the RVA before connection to the ECP, leaving 96.2 per cent of calls to be connected to the ECP.

ECP data shows the number of calls to the Triple Zero and 112 emergency service numbers increased by 415,844 (4.8 per cent) to 8,995,963 calls in 2017–18 (see Table 3.1).

In 2017–18, 73.3 per cent of emergency calls (6,592,499) were made from mobile phones (Table 3.1). Calls from fixed-line phones represented 26.5 per cent of emergency calls, while 2.2 per cent were made from public payphones.¹

Telstra's performance in answering emergency calls

Section 32 of the Emergency Call Service Determination sets out performance criteria for the ECPs' answering of calls to Triple Zero and 112:

- > 85 per cent of emergency calls answered within five seconds
- > 95 per cent of emergency calls answered within 10 seconds.

Telstra performed above the regulatory requirement in the reporting period (see Table 3.1).

Calls connected to ESOs

The ECP for Triple Zero and 112 transfers emergency calls to the relevant state or territory emergency service answering point that is responsible for arranging the dispatch of an emergency response. In 2017–18, 6,456,103 calls were transferred to an ESO, an increase of 1.9 per cent on the previous year (see Table 3.1).

Calls identified by the ECP as being non-emergency calls are not connected to an ESO. Non-emergency calls include misdials, automatically-generated calls from incorrectly programmed fax machines or modems, callers reporting matters that are not emergencies, and hoax and malicious calls.

The proportion of ECP-answered calls that were transferred to an ESO was 74.8 per cent in 2017–18, a decrease from 77.1 per cent in the previous year (see Table 3.1).

The ACMA is continuing to monitor the results of an escalated warning process that was introduced in July 2009 and is managed by Telstra and the three mobile network carriers. This process can lead to a mobile handset being blocked from making most calls if it is used to make repeated non-emergency calls to Triple Zero. Experience is showing that the risk of account suspension and police referral is acting as a significant deterrent. On average, 99 per cent of callers making repeated non-emergency calls are deterred from further misuse after receiving a warning from the ECP.

Table 3.1 Call volumes to emergency service numbers Triple Zero and 112, and call answering times

	2013–14	2014–15	2015–16	2016–17	2017–18
Calls offered from mobile phones (%)	66.5	66.9	68.7	69.7	73.3
Calls offered from public payphones (%)	2.4	2.4	2.4	2.3	2.2
Calls answered (%)	96.0	96.0	96.0	96.0	96.0
Of calls answered, those that wait five seconds or fewer (%)	95.4	97.3	94.9	93.2	96.3
Of calls answered, those that wait 10 seconds or fewer (%)	99.3	98.7	98.4	97.9	98.5
Total number of calls offered	8,481,470	8,377,394	8,350,745	8,580,119	8,995,963
Answered calls transferred to an ESO (%)	70.6	73.2	77.2	77.1	74.8
Calls transferred to an ESO	5,738,061	5,888,050	6,178,484	6,335,601	6,456,103

Note 1: The term 'calls offered' refers to the number of calls received by the ECP after the RVA.

Note 2: The RVA gives people who have inadvertently or otherwise dialled Triple Zero the opportunity to hang up before being connected to the ECP. Calls answered refers to the percentage of these calls that were answered.

Source: ECP (Telstra).

Investigation

On 7 May 2018, the ACMA commenced an investigation under section 510 of the Telecommunications Act into the disruption to the Triple Zero service on 4 May 2018.

As a result of this investigation, Telstra has given the ACMA a range of enforceable undertakings.²

National Relay Service

The relay service provider for the National Relay Service (NRS) is specified as an ECP in the Emergency Call Persons Determination. ACE is contracted by the Commonwealth as the NRS relay service provider and operates a text emergency service accessed by calling 106. The 106 text emergency service is available for users with a teletypewriter (TTY). There were 94 genuine calls to ESOs via the 106 text emergency service in 2017–18, compared to 75 in 2016–17.

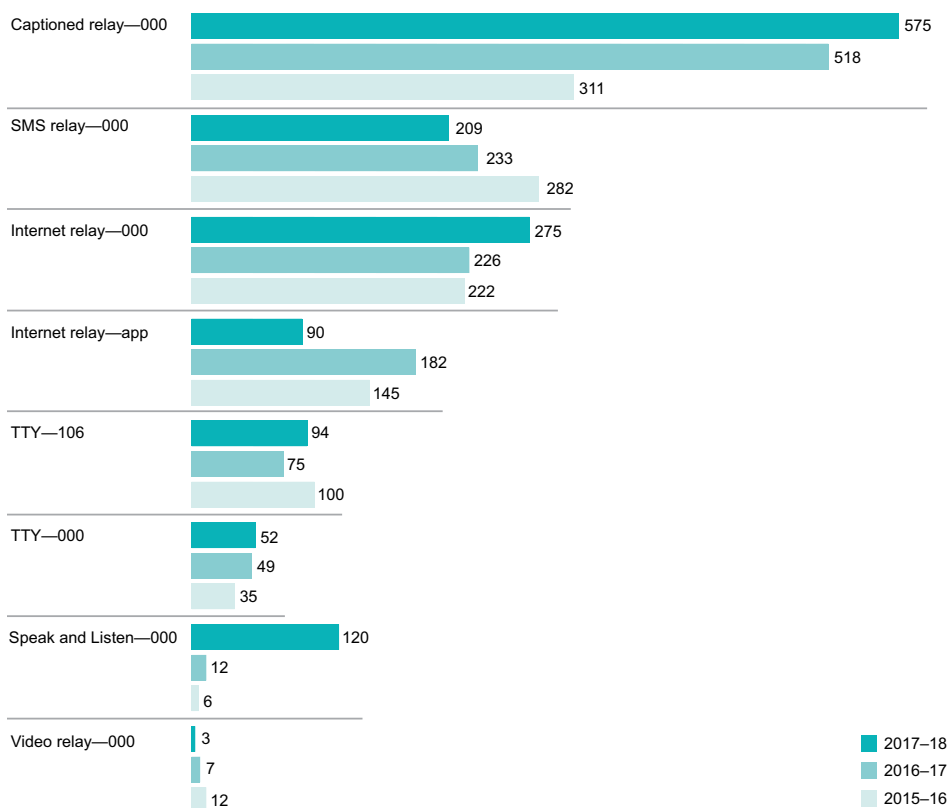
As shown in Figure 3.1, a significant number of genuine calls were also relayed by the NRS to ESOs via the Triple Zero emergency services number. In these circumstances, TTY users contacted the NRS via normal access numbers and requested the call be relayed to Triple Zero, rather than dialling the 106 text emergency service number from their TTY. Calls to Triple Zero can also be relayed through the NRS for its internet relay and Speak and Listen (speech-to-speech relay) callers, as these users are unable to access the 106 number through these services.

A total of 787 calls were made to Triple Zero using SMS relay (web browser), video relay and captioned relay in 2017–18, compared to 758 calls using these three services in 2016–17. This represents a 3.8 per cent increase in the use of these technologies, with the use of the captioned relay alone increasing by 11 per cent in the year to June 2018.

Internet relay and Speak and Listen users can also make calls via a mobile app, rather than an internet browser. The app also allows the caller to insert the location into the call using the GPS function of the device. There were 90 calls made via the app in 2017–18, compared to 182 calls in 2016–17.

A total of 1,418 genuine emergency calls were made via the NRS across all modes (captioned relay, SMS relay, internet relay, TTY, Speak and Listen, and video relay), compared to 1,302 calls in 2016–17.

Figure 3.1 Number of genuine emergency calls via the NRS



Base: Number of calls.

Source: NRS provider (ACE).

3.2 Supporting law enforcement and national security agencies

Carriers and CSPs are obliged to provide reasonably necessary assistance to law enforcement and national security agencies under section 313 of the Telecommunications Act. This assistance most commonly involves providing information about consumers of telecommunications services and their communications, for the purposes of:

- > enforcing the criminal law
- > enforcing laws that impose a pecuniary penalty
- > assisting the enforcement of the criminal laws in force in a foreign country
- > protecting the public revenue
- > safeguarding national security.

During the reporting period, the Communications Access Co-ordinator—located in the Attorney-General's Department prior to 31 May 2018, and now in the Department of Home Affairs—did not refer any carriers or CSPs to the ACMA for enforcement action for refusing to provide any agency with such assistance.

Providing assistance

Section 314 of the Telecommunications Act applies if a carrier or CSP is required to provide help to an officer or authority of the Commonwealth, a state or a territory. A person providing information must not profit from, nor be charged for the cost of providing that information.

Disclosure of customer information

Customer information provided to telecommunications carriers, CSPs and telecommunications contractors is protected under Part 13 of the Telecommunications Act and cannot be disclosed to other parties except in certain limited and restricted circumstances. Those circumstances include:

- > where it is required or authorised by a warrant or under law
- > where the disclosure may assist the ACMA, ACCC, Telecommunications Industry Ombudsman (TIO) or the Office of the eSafety Commissioner to carry out their functions or powers or, in the case of the TIO, assist in the consideration of a complaint
- > where there is an imminent threat to someone's life or health
- > satisfying the business needs of other carriers and CSPs, where the customer is or was a customer of a carrier or CSP.

Carriers and CSPs are required to report to the ACMA on any disclosures authorised under either Part 13 of the Telecommunications Act or Chapter 4 of the TIA Act.

During 2017–18, the number of disclosures, as reported to the ACMA under section 308 of the Telecommunications Act, was 2,268,796, an increase of 1,630,425 from 2016–17. Of these, approximately 60 per cent were made with the knowledge or consent of the person concerned under section 289 of the Telecommunications Act. Section 289 disclosures increased by 1,187,104 in the 2017–18 reporting year. This was largely due to the way one provider used customer information to perform data analytics on new commercial offerings. In relation to the rise in section 284(1) from 479 to 248,913, this was the result of investigations which are part of the ACMA's compliance work (see Table 3.2).

Carrier and CSP data also indicates that:

- > 21 per cent of disclosures were covered by an authorisation-in-force to access existing information or documents for the enforcement of the criminal law under section 178 of the TIA Act
- > 11 per cent of disclosures were made under subsection 284(1) of the Telecommunications Act to assist the ACMA.

The number and reason for disclosures made during 2016–18, as reported to the ACMA under section 308 of the Telecommunications Act, are in Table 3.2.

Table 3.2 Disclosures of customer information by carriers and CSPs

Reason for disclosure		(Sub) section	Number of disclosures*	
			2016–17	2017–18
Under Part 13 of the Telecommunications Act				
Authorised by or under law		280	10,327	11,976
Made as a witness under summons		281	669	520
To assist the ACMA		284(1)	479	248,913†
To assist the Office of the eSafety Commissioner		284(1A)	0	0
To assist the ACCC		284(2)	2	9
To assist the TIO		284(3)	8,262	55,843
Calls to emergency service number		286	18,540	17,305
To avert a threat to a person’s life or health		287	13,839	17,014
Communications for maritime purposes		288	6	1
With the knowledge or consent of the person concerned		289	58,701	1,353,545‡
In circumstances prescribed in the Telecommunications Regulations 2001		292	0	0
Subtotal			110,825	1,705,126
Under the TIA Act				
Voluntary disclosures		177	367	327
Authorisations for access to existing information or documents	Enforcement of the criminal law	178	504,944	482,800
	Locating missing persons	178A	3,073	3,602
	Enforcement of a law imposing pecuniary penalty or protection of the public revenue	179	3,191	1,005
Authorisations for access to prospective information or documents		180	15,950	75,794
Enforcement of the criminal law of a foreign country	Existing information	180A	16	138
	Prospective information	180B	5	4
Subtotal			527,546	563,670
Total			638,371	2,268,796

*Data previously reported erroneously as '000s'. Numbers provided are actual.

[†]This increase was the result of investigations which are part of the ACMA's compliance work.

[‡]This increase was the result of the way one provider used customer information to perform data analytics on new commercial offerings.

Source: Carriers.

Information about enforcement agency use of powers under the TIA Act to obtain information from carriers and CSPs is contained in annual reports prepared by the Department of Home Affairs, under subsection 186(2) of the TIA Act.

For disclosures made under sections 177, 178, 178A, 179, 180, 180A and 180B of the TIA Act, law enforcement agencies (civil and criminal) must be satisfied that the information they request is reasonably necessary to perform their law enforcement functions. An authorised officer must also consider whether any interference with the privacy of any person that may result from the disclosure is justifiable, considering the likely relevance and usefulness of the information or documents, and the reason why the disclosure concerned was authorised.

Emergency suspension of carriage services

Under section 315 of the Telecommunications Act, a senior police officer or service person who holds a rank not lower than Assistant Commissioner can request the suspension of a carriage service, if there is an imminent threat to someone's life or health. CSPs reported the suspension of 14 carriage services in 2017–18, an increase from six carriage services in 2016–17.

3.3 Interception

The content of communications between users of telecommunications services is protected in Australia as a crucial area of telecommunications privacy protection. Interception may only be authorised by law enforcement and national security agencies in accordance with a warrant under the TIA Act. Interception for other purposes is prohibited, with criminal penalties applicable for breaches of the TIA Act.

Interception capability

Chapter 5 of the TIA Act obliges carriers and CSPs to ensure that their networks, facilities and carriage services are capable of enabling communications to be intercepted upon presentation of an interception warrant.³ This obligation includes a requirement to develop, install and maintain an interception capability. Under section 207 of the TIA Act, carriers and CSPs are responsible for the capital and ongoing costs associated with providing interception capability in their networks.

In 2017–18, the cost to industry of providing interception capability was reported to the ACMA as approximately \$21.5 million, a reduction of 2.3 per cent from 2016–17 (Figure 3.2).

Figure 3.2 Cost of providing interception capabilities (\$ million)



Source: ACMA annual industry data request.

Interception capability plan compliance

Under sections 196 and 197 of the TIA Act, carriers and nominated CSPs⁴ must lodge an interception capability plan (ICP) by 1 July each year with the Communications Access Co-ordinator (CAC) in the Department of Home Affairs. The ACMA's role is to enforce this obligation.

During the reporting period, the CAC referred 36 carriers to the ACMA for enforcement action. Of these referrals:

- > 23 failed to submit an ICP by 1 July 2017, as required by subsection 196(1) of the TIA Act
- > 11 failed to submit an ICP within 90 days of receiving a carrier licence, as required by subsection 196(3)
- > two failed to respond to a request to amend an ICP within the response period of 30 days, as required by subsection 198(4).

The ACMA engaged with these carriers to facilitate compliance with their obligation to submit an ICP. As at 30 June 2018:

- > 23 carriers had submitted their ICP to the CAC
- > two carriers had surrendered their carrier licence
- > two carriers were under administration, with their ongoing status being monitored.

The ACMA is continuing to engage with nine carriers to facilitate compliance.

3.4 Data retention

Since 13 October 2015, carriers and service providers have been subject to data retention obligations under Part 5-1A of the TIA Act. The obligations are enforced by the ACMA under the applicable enforcement mechanisms set out in the Telecommunications Act.

Paragraph 105(5A)(b) of the Telecommunications Act requires the ACMA to report to the minister on the cost of compliance with the requirements of Part 5-1A of the TIA Act (about data retention).

Table 3.3 sets out costs (administrative⁵ and substantive⁶) of complying with the data retention obligations in 2017–18 for those industry participants that provided cost information. Table 3.3 also sets out the costs recovered from criminal law enforcement agencies (CLEAs) for the purpose of responding to requests for data. These recovered costs partially offset the administrative costs reported.

Total data retention compliance costs are further offset by funding via grants that was provided during the 2017–18 reporting year. The provision of industry grants delivers on the Australian Government's commitment to assist industry with the upfront costs of implementing the mandatory data retention regime. Table 3.4 shows that funding of \$2,508,370.21 was provided to 27 industry participants during 2017–18.

Table 3.3 Reported cost of complying with the data retention obligations and costs recovered from CLEAs

Financial year	Data retention compliance cost (exclusive of data retention industry grants)	Costs recovered from CLEAs
2017–18	\$35,355,577*	\$12,515,681

Note: The data represents the administrative and substantive compliance costs reported to the ACMA by industry participants. Industry participants were permitted to report on behalf of subsidiary organisations.

** Lycamobile reported its administrative costs as £237,478. The data retention compliance costs reported include the Australian dollar equivalent of this amount at the date it was reported to the ACMA.*

Source: Carriers and carriage service providers. The Department of Home Affairs provided information relating to the funding of grants.

Table 3.4 Funding provided under the Data Retention Industry Grants Programme

Funding round	Number of recipients	Total grants funded
2017–18	27	\$2,508,370.21

Source: Carriers and service providers.

Data retention compliance and enforcement

During the reporting period, the Department of Home Affairs did not refer any CSPs to the ACMA for failing to submit an amended data retention implementation plan to the Department of Home Affairs.

3.5 Identity-checking requirements for prepaid mobile carriage services

The ACMA enforces compliance with the Telecommunications (Service Provider – Identity Checks for Prepaid Mobile Carriage Services) Determination 2017 (the Prepaid Determination), which sets out the identity-checking regulatory requirements that mobile providers must undertake before activating prepaid mobile services.

During the reporting period, the ACMA approved two compliance plans under Part 5 of the Prepaid Determination.

The ACMA also raised compliance issues with two CSPs, including requesting information on the systems and processes they have in place for checking identity at the time of sale. Both CSPs have implemented, or are implementing, modifications to their processes following contact by the ACMA.

One investigation under Part 26 of the Act was finalised in 2017–18. The investigation found that Vodafone Network Pty Limited (Vodafone) had failed to verify the identity of at least 1,028 customers before activating their prepaid mobile services. The breaches resulted from changes to Vodafone's IT systems that allowed customers to self-select online that their identity had been verified in store, without any further check that this had actually occurred.

The ACMA accepted a court-enforceable undertaking from Vodafone, with the purpose of improving its processes for verifying the identity of prepaid mobile customers.

3.6 Role of the Integrated Public Number Database (IPND)

The Integrated Public Number Database (IPND) is a telecommunications industry-wide database of all listed and unlisted public numbers and their associated customer data. Law enforcement agencies and emergency services regularly access customer data from the IPND, making it critical that the data is accurate. The IPND is managed by Telstra.

Telstra reported that the IPND contained 70.9 million connected services at 30 June 2018, an increase of just over one per cent on the 69.9 million records held in 2016–17.

CSP compliance with IPND requirements

CSPs have regulatory obligations to improve the quality, accuracy and completeness of IPND data.

The ACMA compliance program seeks to improve CSP compliance with these obligations and in 2017–18, the ACMA undertook preparatory work for the fifth complete audit of IPND records. It has been nine years since the last audit and many new data providers have started uploading data to the IPND in this time. The audit is scheduled to begin in early 2019.

IPND code

In November 2017, the ACMA registered industry code C555:2017 *Integrated Public Number Database*, which delivers on recommendations arising from a review of the IPND by DoCA. Specifically, it:

- > addresses the quality and accuracy of IPND data through enhancing feedback processes from the IPND Manager to data providers
- > improves access arrangements for customers
- > raises awareness of the IPND with customers.

The new customer access arrangements began in May 2018.

IPND Scheme

The Telecommunications Integrated Public Number Database Scheme 2017 (IPND Scheme) allows the ACMA to authorise access to strictly limited IPND data to conduct permitted research and publish public number directories.

During the reporting period, the ACMA granted a research authorisation to the Australian Bureau of Statistics (ABS).

At 30 June 2018, eight authorisations under the IPND Scheme were in operation (Table 3.5).

Table 3.5 Authorisations under the IPND Scheme

Person/entity	Authorisation granted
The Local Phone Book Company Pty Ltd	November 2008
Local Directories Pty Ltd	August 2009
Geoffrey Mark Harris	September 2009
Veda Advantage Limited*	February 2010
Perceptive Communications Pty Ltd	August 2010
Acceleon Pty Ltd	April 2011
Notable Imprint Pty Ltd	October 2016
ABS	October 2017

*Veda Advantage was purchased by Equifax Pty Ltd in 2016.
Source: ACMA.

3.7 Handling of life-threatening and unwelcome communications

The C525:2017 *Handling of Life Threatening and Unwelcome Communications Code* sets out obligations on carriers, CSPs and the NRS provider in responding to requests from customers and police to resolve life-threatening situations and unwelcome communications.

During the reporting period, the TIO received 651 new complaint issues relating to life-threatening or unwelcome communications, a 54 per cent increase on the 422 complaints received in the previous year.

Notes

- ¹ The total of emergency call percentages does not equate to 100 per cent. Public payphones are a subset of fixed calls.
- ² See ACMA, Enforceable undertaking by Telstra Corporation Limited, 19 October 2018.
- ³ The definition of a carrier under section 5 of the TIA Act includes CSPs for these provisions.
- ⁴ Nominated CSPs are CSPs covered by a declaration in force under subsection 197(4) of the TIA Act.
- ⁵ Administrative costs are costs incurred by regulated entities primarily to demonstrate compliance with the regulation (for example, making, keeping and providing records).
- ⁶ Substantive compliance costs are the costs incurred to deliver the regulated outcomes being sought (for example, plant, equipment, training employees).



Chapter 4

Telecommunications consumer safeguards and quality of service

This chapter reports on the efficiency of the supply of telecommunications services, the adequacy and quality of these services, and carrier and CSP obligations for codes and standards.

It also presents analysis and information about the telecommunications industry's performance in meeting key regulatory obligations, including the Customer Service Guarantee (CSG) Standard, the Network Reliability Framework (NRF), provision of priority assistance to customers, number portability, telemarketing investigations, industry compliance with telecommunications codes and trends in TIO complaints. This chapter addresses the statutory requirements under paragraphs 105(3)(a), (b), (c), (d), (e) and (ea), and subsection 105(4) of the Telecommunications Act.

At a glance—our telco safeguards

Payphones



Total number of payphones fell by 2.2% from 23,226 to 22,716 (510 fewer)

Total number of Telstra payphone sites up by 3.6 per cent (552 sites)

CSG Standard



Services subject to CSG Standard

5.78 million at 30 June 2018 vs 6.11 million at 30 June 2017—5% decline

Compensation payments made by CSPs to customers for failing to meet CSG Standard time frames

\$14.66 million for 2017–18, vs \$20.82 million during 2016–17—30% decrease

Complaints



Complaints to the TIO

167,831 new complaints—6.2% increase on 2016–17

Complaints about services delivered over the NBN

Complaints about quality fell from 4.1 per 1,000 premises to 3.2

Complaints about NBN connections or changing service providers fell to 5,878 in second half of 2017–18—down from 8,711 in the first half

Telemarketing complaints to the ACMA

40,098 complaints received—a 42 per cent increase

4.1 Telecommunications Industry Levy and public policy outcomes

The Telecommunications Industry Levy (TIL) funds the residual costs (after government funding) of contractors and grant recipient payments, and eligible administrative costs, to ensure continuity of key telecommunications safeguards. In particular, the TIL provides funding for:

- > reasonably accessible standard telephone services and payphone services to all Australians on an equitable basis, wherever they reside or carry on business (the universal service obligation or USO)
- > a national telephone service to enable people who are deaf or have a hearing and/or speech impairment to make and receive phone calls (the National Relay Service or NRS) wherever they reside or carry on business
- > end-users of standard telephone services in Australia to have free-of-charge access to an emergency call service
- > delivery of other public policy telecommunications outcomes, for example, untimed local calls.

The ACMA is responsible for the billing and collection of the TIL and DoCA manages contractual arrangements and service provider payments.

Industry levies and payments

Carriers with eligible revenue of \$25 million or more ('participating persons') are required to pay the TIL. The TIL amount for a licensed telecommunications carrier is the amount that carrier must contribute to the cost of funding the activities described above. Contributions are, in general, proportionate to the participating person's share of the industry's total eligible revenue for the relevant period.

Final TIL assessment

In November 2018, 282 licensed telecommunications carriers were invoiced the amount of \$253,887,000 for the 2017–18 eligible levy period (ELP), an increase of 26 carriers and \$26.7 million on the 2016–17 ELP figures (Table 4.1).¹

The 2017–18 eligible revenue period saw the number of telecommunications carriers increase to 302, with the amount of TIL payable to be advised by DoCA in October 2019.

Table 4.1 Compliance statistics for industry levies and payments—eligible revenue submissions

Eligible revenue period	Eligible levy period	Levy payment period	Number of carriers	Eligible revenue submissions received late (after 31 October)	TIL payment amount
2017–18	2018–19	2019–20	302	27	TIL amount is received from DoCA in Oct. 2019
2016–17	2017–18*	2018–19	282	15	\$253,887,000
2015–16	2016–17	2017–18	256	43	\$227,220,389*
2014–15	2015–16	2016–17	235	39	\$217,744,000
2013–14	2014–15	2015–16	223	13	\$215,488,000

*Comprises \$226,985,000 to be collected for the 2016–17 ELP plus \$235,389, the previous deficit.

Source: ACMA.

4.2 Public payphones

Payphone services in Australia are provided on either a commercial basis or as part of the USO. Telstra, as the current primary universal service provider for payphones, must comply with payphone performance standards and benchmarks made by the minister under the *Telecommunications (Consumer Protection and Service Standards) Act 1999* (TCPSS Act).

The ACMA monitors Telstra's payphone performance and also receives information about the number of payphones supplied or operated on a commercial basis by other providers.

Numbers of payphones and payphone sites

During 2017–18, the total number of payphones (both Telstra-operated and privately operated) in Australia fell by 2.2 per cent, from 23,226 to 22,716. This comprised a:

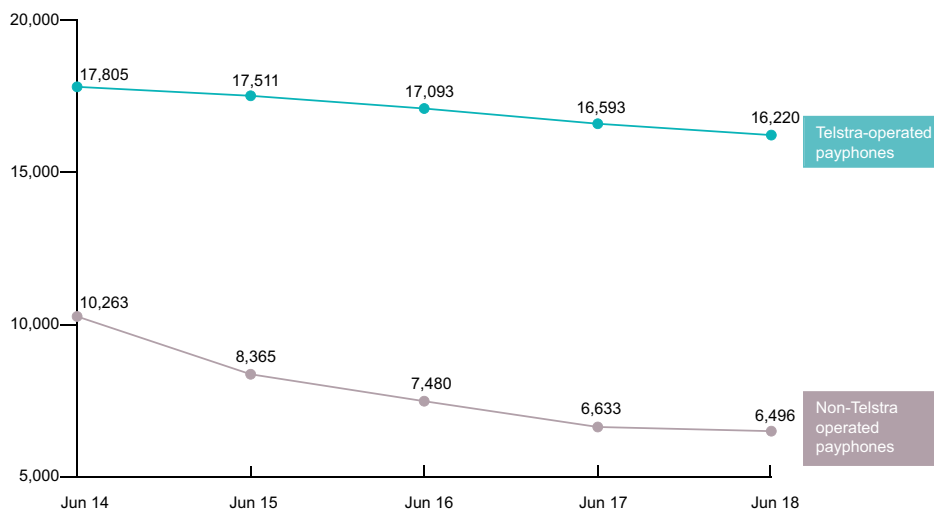
- > net decrease of 2.2 per cent for Telstra-operated payphones, from 16,593 to 16,220
- > net decrease of 2.1 per cent for privately-operated payphones, from 6,633 to 6,496.

During the reporting period, there was an increase of 3.6 per cent in the number of Telstra-operated payphone sites, from 15,176 to 15,728 sites (noting some sites have more than one payphone). At 30 June 2018, 71.4 per cent of payphones were operated by Telstra.

The remaining payphones were provided by other companies, such as hotels, clubs and convenience stores.

Figure 4.1 shows that the total number of Telstra-operated and non-Telstra-operated payphones has decreased over the past five reporting periods. There were 510 fewer payphones at 30 June 2018, compared to 30 June 2017.

Figure 4.1 Number of payphones in operation at 30 June 2018



Note: Includes TriTel payphones until June 2014 and payphones provided via Telstra access lines. June 2015–18 data includes Telstra access lines only, as the number of TriTel payphones was not available.

Source: Telstra and TriTel.

Tables 4.2 and 4.3 provides the geographic distribution of Telstra payphones and payphones provided via Telstra access lines as at 30 June 2018.

Table 4.2 Distribution of Telstra payphones by geographical category, 30 June 2018

	Urban	Rural	Remote*	RIC
Telstra-operated payphones (% of total)	11,402 (70.3)	3,974 (24.5)	844 (5.2)	579 (3.6)
Other payphones (provided via Telstra access lines)	4,873	1,300	323	248

*Includes remote Indigenous communities.

Note: 'Urban' is defined as communities with 10,000 or more people, 'rural' is defined as communities with between 200 and 10,000 people, 'remote' is defined as communities with up to 200 people.

Source: Telstra.

Table 4.3 Distribution of Telstra payphones by state and territory, 30 June 2018

State	Number of payphones
New South Wales	4,861
Queensland	3,948
Victoria	3,033
Western Australia	1,726
South Australia	1,376
Northern Territory	675
Tasmania	487
Australian Capital Territory	114
Total	16,220

Source: Telstra.

Payphone fault repair performance

Timely repair of payphone faults is an important component of the equitable provision of payphone services under the USO.

Telstra's performance in remediating faults is measured against benchmarks specified in the Telecommunications Universal Service Obligation (Payphone Performance Benchmarks) Instrument (No. 1) 2011 (Payphone Performance Benchmarks). The benchmarks refer to time frames for remediation and vary according to the location of the service—one working day for urban locations, two for rural and three for remote locations (including remote Indigenous communities). Failure to meet a benchmark may result in the ACMA taking compliance action.

Table 4.4 shows that Telstra met the national payphone performance benchmarks in 2017–18.

Table 4.4 Telstra payphone fault repair performance, 2017–18 (percentage)

	Urban	Rural	Remote*
Payphone fault repair benchmark	90	90	80
Fault repair performance	92.0	91.4	86.9

*Includes remote Indigenous communities.

Source: Telstra.

Payphones for people with disabilities

At 30 June 2018, Telstra had 151 teletypewriter payphones in operation in metropolitan and regional areas, the same number as at 30 June 2017.

4.3 Customer Service Guarantee Standard

The Telecommunications (Customer Service Guarantee) Standard 2011 (CSG Standard) sets minimum service standards for CSPs to install, repair and attend appointments for standard phone services for residential and small-business customers. The CSG Standard allows for exemptions from meeting service standards under certain circumstances. If a CSP fails to meet the minimum performance standards, compensation may be payable to the customer.

At 30 June 2018, there were 5.78 million services subject to the CSG Standard, compared to 6.11 million at 30 June 2017—a decrease of five per cent (Table 4.5).

Table 4.5 Services subject to the CSG Standard, by provider, at 30 June (thousands)

	2014	2015	2016	2017	2018
iiNet	443	473	427*	280 [†]	174
Optus	799	808	977	1,079	1,199
iPrimus	95	49	57	42	19
Telstra	5,038	4,757	4,361	4,489	4,281
Dodo	159	249	283	223	111
Total	6,534	6,336	6,105	6,113[†]	5,784

*TPG acquired iiNet in September 2015.

[†]Figure revised due to iiNet submitting updated data. This followed the ACMA requiring iiNet to commission an independent audit of its 2016–17 compliance report under the Telecommunications (Customer Service Guarantee) Record-Keeping Rules 2011.

Source: CSP data.

CSG performance benchmarks are established by the Telecommunications (Customer Service Guarantee—Retail Performance Benchmarks) Instrument (No. 1) 2011 and apply to ‘qualifying carriage service providers’ (QCSPs). QCSPs are those that have 100,000 CSG services or more, as at the last day of the preceding financial year. For 2017–18, the QCSPs were Telstra, Optus, iiNet, and Dodo.

The national CSG performance benchmarks set minimum compliance levels with the CSG Standard time frames (Table 4.6) for:

- > installing new connections in urban, major rural, minor rural and remote areas
- > installing in-place connections in all areas
- > fault rectifications in urban, rural and remote areas
- > appointment-keeping in all areas.

Table 4.6 CSG Standard time frames (working days)

	New service connection		In-place connection	Fault repair
	Close to infrastructure	Not close to infrastructure		
Urban	5	20	2	1
Major rural	10	20	2	2
Minor rural	15	20	2	2
Remote	15	20	2	3

Note: 'Urban' is defined as communities with 10,000 or more people, 'major rural' are communities with between 2,500 and 10,000 people, 'minor rural' are communities with between 200 and 2,500 people, 'remote' is communities with up to 200 people.

Source: CSG Standard.

The CSG Standard time frames vary according to the location of the customer and, in the case of connections, whether infrastructure is readily available and if there is an existing in-place connection. There are nine benchmarks, each requiring QCSPs to achieve minimum service standards for at least 90 per cent of connections, fault rectifications and appointment keeping.

If a QCSP fails to meet any of the annual CSG performance benchmarks, the ACMA may take compliance action.

At 30 June 2018, there were 1,768,419 occasions nationally where customers of the major CSPs waived their rights under the CSG Standard, compared to 1,445,945 at 30 June 2017—an increase of 22.3 per cent. TPG accounted for 49 per cent of waivers, and iiNet for 32.3 per cent.

New service and in-place connections

Table 4.7 shows QCSP performance in 2017–18 in meeting CSG Standard time frames for new service connections and in-place service connections.

A 'new service connection' is the connection of a standard phone service to premises where there is the need for additional work to be completed (for example, cabling) before a service can be connected. This excludes in-place service connections where there has been a previous working CSG service that is available for reconnection or reactivation by the CSP.

Table 4.7 Percentage of new service and in-place connections provided within CSG Standard time frames, 2017–18 (percentage)

	New service*				In place service*
	Urban areas	Major rural areas	Minor rural areas	Remote areas	All areas
iiNet	99.7	99.3	100	100	99.4
Optus	97.7	98.5	98.3	NQCSP	n/a
Dodo	100	100	100	NQCSP	100
Telstra	93.0	95.5	94.3	92.9	95.4

n/a=not applicable.

*Service connections.

Note 1: Location-specific thresholds are met if a QCSP supplied 10,000 or more CSG services in urban areas, 1,000 or more CSG services in major rural areas, 1,000 or more CSG services in minor rural areas, or 500 or more CSG services in remote areas. A QCSP that does not meet a location-specific threshold is listed in the table as NQCSP (Not a qualifying CSP).

Note 2: Urban areas are those with a population equal to or greater than 10,000 people. Major rural areas are urban centres or other recognised community grouping with a population greater than 2,500 but less than 10,000. Minor rural areas are an urban centre, locality or other recognised community grouping with a population of greater than 200 but not more than 2,500. Remote areas are geographic areas that are not an urban area, major rural area or minor rural area.

Source: CSP data.

Appointments and fault repairs

Table 4.8 shows CSP performance in 2017–18 in meeting the CSG Standard for fault-repair time frames and appointment keeping.

Table 4.8 Percentage of faults repaired within CSG Standard time frames and appointment-keeping performance, 2017–18 (percentage)

	Fault repairs			Appointments*
	Urban areas	Rural areas	Remote areas	All areas
iiNet	98.7	99.1	100	100
Optus	94.3	97.2	NQCSP	97.6
Dodo	100	100	NQCSP	100
Telstra	92.8	91.7	92.0	97.0

*New service connections and fault repairs.

Note 1: Location-specific thresholds are met if a QCSP supplied 10,000 or more CSG services in urban areas, 1,000 or more CSG services in rural areas, or 500 or more CSG services in remote areas. A QCSP that does not meet a location-specific threshold is listed in the table as NQCSP (Not a qualifying CSP).

Source: CSP data.

Table 4.9 shows the number of new service and in-place connections, fault repairs and appointments for iiNet, Optus, Telstra and Dodo over the previous two financial years (2016–17 and 2017–18).

Table 4.9 Number of new service connections, in-place connections and fault repairs requested, and appointments made at the national level

	iiNet*		Optus		Dodo		Telstra	
	2016–17	2017–18	2016–17	2017–18	2016–17	2017–18	2016–17	2017–18
New service connections	29,073	9,336	315,318	396,242	20,460	21,076	274,013	235,723
In-place connections	8,495	1,391	n/a	n/a	58,309	42,143	206,904	183,028
Fault repairs	47,614	28,743	158,562	119,906	58,692	26,733	555,429	394,913
Appointments†	24,653	9,406	203,613	161,176	137,461	80,784	507,329	416,814

n/a=not applicable.

*iiNet's 2016–17 figures were revised because it submitted updated data. This followed the ACMA requiring iiNet to commission an independent audit of its 2016–17 compliance report under the Telecommunications (Customer Service Guarantee) Record-Keeping Rules 2011.

†New service connections and fault repair.

Source: CSP data.

CSG Standard payments

As a result of failing to meet CSG Standard time frames during 2017–18, CSPs made compensation payments to customers, as shown in Table 4.10.

Table 4.10 Volume and value of compensation payments made by CSPs to customers

	2016–17		2017–18	
	Volume	\$ (million)	Volume	\$ (million)
iiNet	11,964	1.11	5,462	0.34
Optus	27,625	4.10	30,307	4.64
iPrimus	2,692	0.12	524	0.04
Telstra	198,514	14.58	84,156	9.37
Dodo	13,934	0.91	5,244	0.27
Total	254,729	20.82	125,693	14.66

Source: CSP data.

Compensation payments totalled \$14.66 million for 2017–18, compared to \$20.82 million during 2016–17, a decrease of 30 per cent.

There was an overall reduction of CSG services (seven per cent) over 2017–18.

Changes to NBN Co Wholesale Broadband Agreement

In September 2018, NBN Co entered a court enforceable undertaking relating to the automatic payment of rebates if it misses appointments. NBN Co will incorporate these measures into its Wholesale Broadband Agreement (WBA).² The changes to the WBA will include a requirement that retailers take reasonable steps to ensure that affected homes and businesses receive a fair value benefit from the rebates, though not through CSG payments.

Exemptions from the CSG Standard

A CSP may claim an exemption during periods when circumstances beyond its control affect its ability to comply with the CSG Standard. Similarly, a CSP may also claim an exemption if there is a need to move staff or equipment to an area affected by circumstances beyond its control. Many exemptions are the result of extreme weather events or natural disasters.

In 2017–18, the major CSPs claimed a total of 177 exemptions (Table 4.11), a 22 per cent decrease on 2016–17 (226 exemptions). The median duration for which CSG exemptions applied decreased from 33 to 28 days over the past year.

Table 4.11 Numbers of CSG exemptions for the major CSPs, 2017–18

Reason for exemption	iiNet	Optus	Telstra	Vocus Communications*
Extreme weather conditions	34	37	37	36
Natural disasters	6	5	5	5
Other	3	3	3	3
Total	43	45	45	44

*Formerly M2 Group. Exemption notifications for iPrimus, Dodo, Eftel, Commander, aaNet, engin and ClubTelco have been included in Vocus Communications notifications.

Source: CSP data.

4.4 Network Reliability Framework (NRF)

The ACMA monitors the reliability of Telstra’s fixed-line phone service network under the NRF. The NRF applies only to services that Telstra provides to its CSG Standard-eligible customers. Telstra is required to report to the ACMA on the performance of its network and to fix poorly performing cable runs and individual services.

The NRF requires monitoring and/or remedying network reliability performance at three levels:

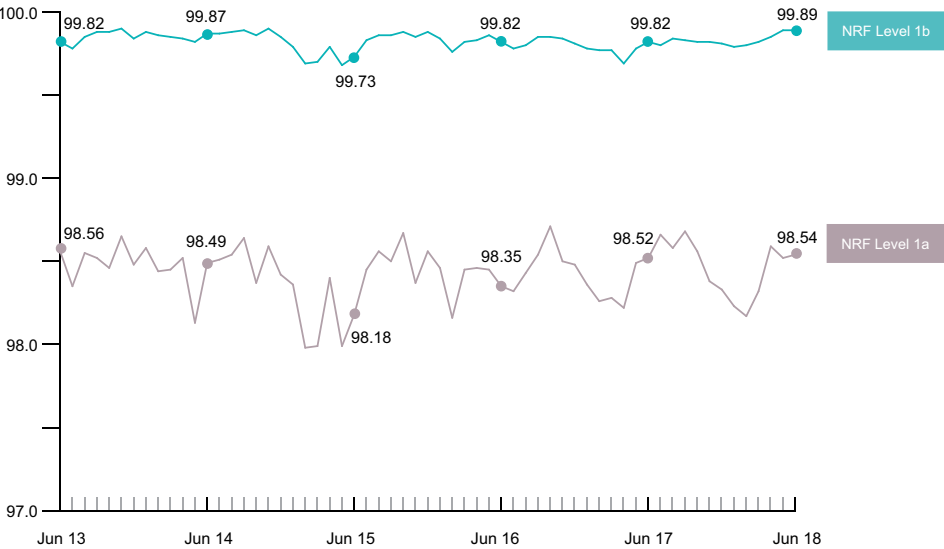
- > Level 1 —national and geographical area level, based on Telstra’s field service areas (FSAs)
- > Level 2—local-level cable runs
- > Level 3—individual service level that includes all Telstra services covered by the CSG Standard.

Level 1 is designed to inform the public about overall network reliability performance. Under levels 2 and 3, Telstra is required to remediate poorly performing parts of its network as a priority.

Level 1 —national and field service area performance

Telstra’s national performance data is presented in Figure 4.2. Level 1a shows the percentage of CSG Standard services that did not experience a fault during the month reported. Level 1b shows the percentage of time in a month that CSG Standard services, on average, are available.

Figure 4.2 Telstra’s level 1a and 1b performance, based on monthly reports (percentage)



Base: Number in each category.

Source: ACMA, Telstra.

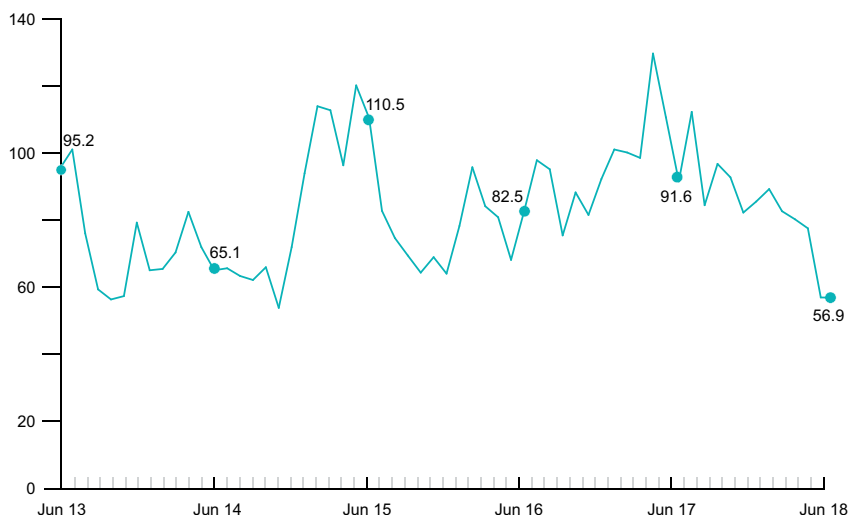
Figure 4.2 shows the seasonal nature of the percentage of Telstra’s CSG Standard services that did not experience a fault during the month (NRF Level 1a performance). Small changes in this figure represent relatively large changes in the number of faults occurring on the network.

Level 1b measures the percentage of time in a month that services (on average) are available; that is, not awaiting repair. In 2017–18, services were available nationally on a monthly average, 99.83 per cent of the time (99.79 per cent in 2016–17).

The ACMA also uses data provided under Level 1 of the NRF to calculate the average number of hours Telstra took to restore fault-affected services in the month (Figure 4.3). While Level 1b takes into account all services, Level 1c only considers services that experienced a fault.

In terms of elapsed time, it took an average of 83 hours to restore services that had a fault in 2017–18, compared to an average of 97 hours in 2016–17.

Figure 4.3 Level 1c—average time for Telstra to restore fault-affected services (hours)



Base: Number in each category.

Source: ACMA, Telstra.

Level 2—local cable run remediation

Level 2 of the NRF requires Telstra to report on the 40 poorest-performing cable runs each month (480 annually), and then undertake remediation work on those runs.

During 2017–18, Telstra identified the required 480 cable runs to be remediated and completed remediation and monitoring of 464 cable runs, some of which had been identified for remediation in the previous year. Telstra also remediated an additional 410 cable runs for operational reasons. Telstra estimated that remediation work undertaken as part of Level 2 of the NRF in 2017–18 improved the reliability of 21,430 services (21,690 in 2016–17).

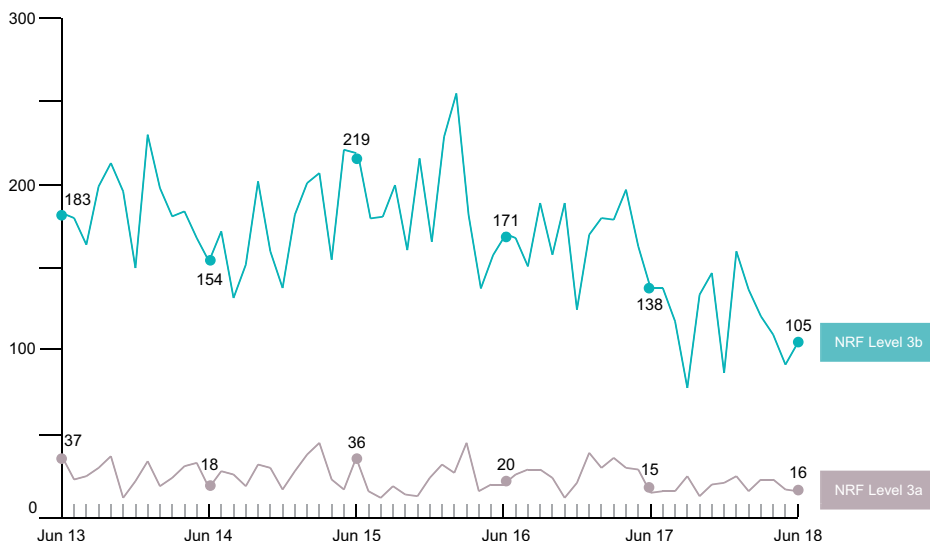
Level 3—individual service performance

Telstra is required to take action to prevent an individual CSG Standard-eligible service from experiencing more than either three faults in a rolling 60-day period (NRF Level 3a) or four faults in a rolling 365-day period (NRF Level 3b).

Telstra reports to the ACMA on any services that breach these thresholds, investigates the performance of the service, and undertakes necessary remediation.

Figure 4.4 shows that the number of services experiencing four or more faults in a rolling 60-day period (Level 3a) or five or more faults in a rolling 365-day period (Level 3b).

Figure 4.4 Telstra CSG Standard services with more than three faults in a rolling 60-day period (Level 3a) and more than four faults in a rolling 365-day period (Level 3b)



Base: Number of services.

Source: Telstra.

Telstra has reported a decrease in the number of services experiencing breaches of the 60-day threshold, with 19 breaches per month (on average) and a total of 231 for 2017–18. In 2016–17, Telstra reported an average of 27 breaches per month and a total of 320 for the year.

Telstra reported a decrease in the number of services experiencing breaches of the 365-day threshold, with 119 breaches per month (on average) and a total of 1,427 for 2017–18. In 2016–17, Telstra reported an average of 167 breaches per month and a total of 2,007 for the year.

Telstra is required to remediate any service that breaches the fault thresholds and then monitor that service for an eight-month period. If a service experiences another fault (known as a monitoring-period fault) during the monitoring period, Telstra must report this to the ACMA, together with an assessment of whether the fault is related or unrelated to the original fault(s) that caused the contravention. In 2017–18, Telstra reported 593 monitoring-period faults (across 482 individual services) and assessed eight faults as related to the original contravention. This compares to 836 monitoring-period faults (across 643 individual services) and 11 faults assessed as related to the original contravention in 2016–17.

Additionally, Telstra is required to report to the ACMA quarterly any services where remediation has not been completed within the expected time frames. In 2017–18, Telstra reported 142 delays to remediation, compared to 186 delays in 2016–17.

4.5 Priority assistance

Priority assistance is a priority phone connection and repair service for people with a diagnosed life-threatening medical condition, who are at risk of suffering a rapid and life-threatening deterioration in their condition. Telstra is required to provide the service under its carrier licence condition.

Other CSPs may offer priority assistance services but are not obliged by regulation to do so.

iPrimus voluntarily offered priority assistance services in line with industry code ACIF: C609:2007 *Priority Assistance for Life Threatening Medical Conditions*. However, it is understood that iPrimus does not support priority assistance for new customers or for customers who do not already have priority assistance active on their fixed-line service. FuzeNet Pty Ltd also started offering priority assistance services during 2017–18.

During 2017–18, Telstra asked those customers requiring priority assistance service levels (referred to in the Table 4.12 as ‘provisional’) to formally register for it. During the year, the number of validated priority assistance customers increased by 19.3 per cent, while the number of provisional priority customers decreased by 71.8 per cent.

Table 4.12 Number of priority assistance customers, at 30 June

	2014	2015	2016	2017	2018
Provisional	49,679	63,505	94,290	116,178	32,712
Validated	154,940	123,240	116,969	124,164	148,185
Total	204,619	186,745	211,259	240,342	180,897

Source: Telstra, iPrimus.

Priority assistance customers are given faster connections and fault repairs for their fixed-line phone service than the connection and fault-repair time frames mandated in the CSG Standard. A service must be connected, or a fault repaired within 24 hours in urban and rural areas, or within 48 hours in remote areas. However, Telstra is not required to meet these time frames in circumstances where the service is supplied over a local access network where it is not in a position to exercise control, such as the NBN.

Tables 4.13 and 4.14 provide information about the performance of Telstra in meeting priority assistance time frames for connections and fault repairs on the Telstra network. These tables exclude services provided on the NBN.

Table 4.13 Telstra priority assistance—number of connection requests and percentage completed on time

	Total		Urban		Rural		Remote	
	%	Volume	%	Volume	%	Volume	%	Volume
2017–18	90.9	4,091	91.2	3,088	90.2	998	80	5
2016–17	91.2	39,587	91.2	30,865	91.3	8,585	99.3	137
2015–16	90.8	41,418	90.2	31,995	92.8	9,229	89.9	178
2014–15	92.4	34,185	92.3	26,495	92.6	7,504	93.1	175
2013–14	93.2	34,675	93.3	26,980	92.9	7,467	88.8	222

Note: 'Urban' is defined as communities with 10,000 or more people, 'rural' is defined as communities with between 200 and 10,000, 'remote' is defined as communities with up to 200.

Source: Telstra.

Table 4.14 Telstra priority assistance—number of fault restoration requests and percentage completed on time

	National		Urban		Rural		Remote	
	%	Volume	%	Volume	%	Volume	%	Volume
2017–18	92.9	36,266	94.8	24,691	88.8	11,419	90.4	156
2016–17	93.9	102,466	94.6	75,005	91.8	27,108	91.8	353
2015–16	94.6	127,618	95.3	96,977	90.8	29,692	90.1	399
2014–15	94.6	133,563	95.7	102,803	91.1	30,348	94	425
2013–14	95.1	116,552	96.1	89,205	92.1	26,988	90.9	390

Note: 'Urban' is defined as communities with 10,000 or more people, 'rural' is defined as communities with between 200 and 10,000, 'remote' is defined as communities with up to 200.

Source: Telstra

4.6 Number portability

Number portability allows customers to retain their existing phone number when changing from one service provider to another. Number portability is available for:

- > mobile numbers
- > local numbers (beginning with the area codes 02, 03, 07 and 08)
- > freephone (1800 numbers) and local rate numbers (13 and 1300 numbers).

Mobile number portability

During 2017–18, there were 2.27 million mobile numbers ported, an increase of 21 per cent on the 1.87 million mobile numbers ported in 2016–17. Most mobile ports are completed within a few hours, with 99 per cent of ports completed in two days. The operational procedures for porting mobile numbers are set out in the C570:2009 *Mobile Number Portability Code*.

Local number portability

During 2017–18, 1,249,142 local numbers were ported, a 5.4 per cent decrease on the 1,320,313 local numbers ported in 2016–17. Communication with service providers suggests that this decline might stem from the rise of internet-based voice technologies such as VoIP. The C540:2013 *Local Number Portability Code* sets out carrier/CSP operational procedures for porting local numbers.

Freephone and local rate number portability

The portability of freephone and local rate numbers (FLRNs) is referred to as Inbound Number Portability. Industry Number Management Services facilitates FLRN portability on behalf of industry. There were 11,082 FLRNs ported during 2017–18, a 3.5 per cent increase on the 10,710 FLRNs ported during 2016–17. The C657:2015 *Inbound Number Portability Code* sets out operational requirements for porting inbound numbers (Table 4.15).

Table 4.15 Number portability—local, freephone and local rate, and mobile numbers ported, by financial year

Numbers ported	2013–14	2014–15	2015–16	2016–17	2017–18
Mobile	1,668,163	1,721,284	1,733,834	1,871,233	2,271,593
Local	865,522	1,223,599	991,011	1,320,313	1,249,142
Freephone and local rate	11,088	12,495	11,991	10,710	11,082

Source: ACMA.

4.7 Telecommunications policy: development and review

Under Part 6 of the Telecommunications Act, the ACMA may register codes developed by industry bodies. During 2017–18, two codes were revised by Communications Alliance (CA), which were then registered by the ACMA:

- > C525:2017 *Handling of Life Threatening and Unwelcome Communications Industry Code*—revised in June 2018. The code was revised to introduce greater consistency between the processes set out for handling unwelcome communications generally, and those that are received by a helpline; clarify the obligations of suppliers when communicating with a customer; and to make other minor changes.
- > C555:2017 *Integrated Public Number Database (IPND) Industry Code*—revised in November 2017. The key revisions to the code delivered on recommendations from DoCA's IPND Review to:
 - > address the quality and accuracy of IPND data through enhancing feedback processes
 - > improve access arrangements for subscribers
 - > raise awareness of the IPND with subscribers.

Other minor changes were made to ensure enforceability and improve clarity of the code.

NBN policy developments

In August 2017, the ACMA, in coordination with DoCA and the ACCC, announced an increased focus on the problems some consumers face when migrating to and using services delivered over the NBN. ACMA's comprehensive evidence-gathering program included industry information, consumer research and a review of consumer information, providing a strong justification for greater consumer protections during the NBN migration process.

On 20 December 2017³, the minister directed the ACMA to make industry standards under section 125AA of the Telecommunications Act, imposing requirements on certain carriers and carriage service providers in relation to the services they provide, in order to improve consumer experiences with services supplied using the NBN. In accordance with the direction, the ACMA was required to make three industry standards, dealing with:

- > the provision of information to consumers about services delivered over the NBN
- > the handling of complaints made by consumers to carriage service providers
- > promoting the continuity of voice and broadband services.

In June 2018, the ACMA made the:

- > Telecommunications (NBN Consumer Information) Industry Standard 2018—minimum information service providers must provide for services delivered over the NBN
- > Telecommunications (NBN Continuity of Service) Industry Standard 2018—service providers to provide an interim service, rollback to previous service, or other negotiated outcome (such as compensation) if connection to NBN services delivered over the NBN fail (for parallel migrations)
- > Telecommunications (Consumer Complaints Handling) Industry Standard 2018—the processes service providers must follow in handling complaints from their customers, not limited to NBN services.

The ACMA also created the following new rules using existing statutory powers to buttress these measures and to improve the consumer experience:

- > Telecommunications (Consumer Complaints) Record-Keeping Rules 2018—service providers to report data about complaints to the ACMA, not limited to NBN services
- > Telecommunications Service Provider (NBN Service Migration) Determination 2018—service providers to:
 - > conduct post-migration testing after a consumer is migrated to services delivered over the NBN
 - > provide an interim service or negotiate an alternative arrangement (such as compensation) if connection to NBN services delivered over the NBN fail (for sequential migrations using copper infrastructure)
 - > confirm the maximum attainable speed after migrating to an NBN service using copper infrastructure, and if this is below the maximum plan speed, offer appropriate remedies to the consumer.

Consumer safeguards review

In April 2018, DoCA announced the terms of reference for a three-part consumer safeguards review. Consultation on *Part A: Complaints handling and consumer redress*, commenced in July. The consultation paper on *Part B: Reliability of services*, was released in November 2018 and was open until 21 December 2018, while the consultation on Part C, Choice and fairness in the retail relationship between the customer and their provider, is to follow in 2019.⁴

4.8 Industry compliance with telecommunications codes

Compliance with the Telecommunications Consumer Protections Code

The TCP Code provides consumer safeguards in the areas of advertising and point-of-sale, billing, payment methods, complaints-handling and changing service providers.

During 2017–18, the ACMA undertook 212 preliminary enquiries into 131 providers to assess compliance with the TCP Code, and concluded 25 investigations into non-compliance with various code requirements, including:

- > critical information summaries (CIS)—suppliers are required to provide a CIS for each of their offers, to allow consumers to compare offers. The ACMA checked 131 providers that were selling services over the NBN and found that 97 per cent of them had one or more CIS readily available on their website, as required under the TCP Code. Engagement from the ACMA saw 75 providers amend their CIS to provide a better quality of information to consumers
- > consumer transfer—the ACMA investigated a provider's compliance with the requirement to ensure consumers that were the subject of a transfer had been properly notified of the transfer, and provided their consent
- > direct debit payments—the ACMA investigated a provider's compliance with the requirement to obtain appropriate customer authorisations for direct debit payments
- > complaints-handling—the ACMA investigated providers' compliance with the complaints-handling provisions of the TCP Code
- > compliance and monitoring—the ACMA investigated providers' compliance with the requirement to register with CA, and to lodge annual compliance attestation documents to Communications Compliance Ltd (CommCom). In 2017–18, the ACMA issued two directions and four formal warnings to providers who failed to lodge compliance attestations with CommCom by the due date
- > formal warnings and directions—in 2017–18, the ACMA issued nine formal warnings and four directions to telecommunications companies requiring compliance with the TCP Code (Table 4.16).

Table 4.16 ACMA TCP Code compliance activity

TCP Code obligation	TCP Code provision	Outcome	Telecommunications company
Lodge compliance attestation	Clause 9.4	Formal warning	BMP Australia Group Pty Ltd
			Central Connect (NSW) Pty Ltd
			Lynham Networks Pty Ltd
			Vostronet (Australia) Pty Ltd
		Direction	Globalgig Australia Pty Limited
			ReddeNet Pty Ltd
CIS to be readily accessible	Clause 4.1.1	Formal warning	Southern Phone Company Ltd
			Easy Internet Services Pty Ltd
			EHW Technology Pty Ltd
Complaints handling	Clauses 8.1.1, 8.2, 8.4	Formal warning	Your Call Telecom Pty Ltd
Direct debit arrangements and complaints-handling	Clauses 5.7, 8.1 and 8.4	Direction	FuzeNet Pty Ltd
Customer transfer practices	Clause 7	Formal warning	iTalkBB Australia Pty Ltd
			Crunch Tel Pty Ltd

Source: ACMA.

Customer service

A 2018 survey of five major service providers (Telstra, Optus, Vodafone, TPG Internet and iiNet) showed that while the phone remains the favoured contact method for consumers with an enquiry, its popularity is slowly declining as other methods, such as webchat, grow. Further information regarding these survey results is available on the ACMA website.

4.9 Cabling regulation

Registered cablers

Anyone who works on customer cabling connected to the telecommunications network (or intended for use on the customer side of the network boundary) must either be registered with an ACMA-accredited registrar as a cabling provider or supervised by someone who is registered. The ACMA's regulatory requirements for customer cabling work are set out in the Telecommunications Cabling Provider Rules 2014. The Cabling Provider Rules require customer cabling work to comply with the technical requirements in AS/CA S009:2013 *Installation Requirements for Customer Cabling* (Wiring Rules).

In 2017–18, there were five ACMA-accredited registrars providing registration and other associated services to cablers. The total number of registered cablers in the industry rose to 74,291 at 30 June 2018, from 73,306 in June 2017.

Cabling compliance

The ACMA investigates complaints about non-compliant cabling work or work performed by unregistered cablers. Where appropriate, the ACMA conducts investigations arising from these complaints. During 2017–18, the ACMA received 21 complaints, down from 47 in 2016–17. The ACMA issued two warning notices. No telecommunications infringement notices were issued.

4.10 Unsolicited communications—spam and telemarketing

The ACMA is responsible for the telemarketing and spam safeguards provided under the *Do Not Call Register Act 2006* (DNCR Act), Telecommunications (Telemarketing and Research Calls) Industry Standard 2017, Fax Marketing Industry Standard 2011 and *Spam Act 2003*. These safeguards place obligations on businesses and other entities that use telemarketing, fax marketing and email and SMS for commercial purposes.

In 2017–18, the ACMA received 40,098 complaints about telemarketing—an increase of 42 per cent on 28,197 from 2016–17. The growth in telemarketing complaints activity over recent years may reflect improved awareness of the DNCR, increasing scam activity and growing consumer concern about unsolicited marketing.

Email and SMS complaints reached 3,309—an increase of 39 per cent on the previous year. Most of this increase was due to complaints about SMS and email communication during the Australian Marriage Law Postal Survey, rather than indicative of any broader trend.

Given community concern about telemarketing and spam, in 2017–18 the ACMA implemented a priority compliance area program for unsolicited communications, which focused on telemarketing in the solar industry, consent-based marketing and registered charities. Details of these activities can be found in the ACMA's 2017–18 annual report.

Unsolicited communications compliance and enforcement

The ACMA deploys a range of graduated compliance activities depending on the risk of harm involved. This includes providing education and information to business, contacting entities directly about potential non-compliance and investigating where non-compliance is serious, systemic or ongoing. Where non-compliance is found, the penalties can be significant.

Key enforcement outcomes in 2017–18 included businesses paying the following infringement notices:

- > TPG Internet Pty Ltd: \$360,000 for sending SMS without consent (after consumers had attempted to unsubscribe)
- > Service Seeking Pty Ltd: \$50,400 for sending SMS without consent, without clear identification of the sender and without an unsubscribe statement
- > Eco Star Double Glazing Pty Ltd: \$25,200 for making telemarketing calls to numbers on the Do Not Call Register (DNCR) without consent
- > Allied Construction and Roofing Pty Ltd: \$21,600 for making telemarketing calls to numbers on the DNCR without consent (the ACMA also accepted a court-enforceable undertaking)
- > Instyle Solar Pty Ltd: \$10,800 for making telemarketing calls to numbers on the DNCR without consent.

Industry and consumer engagement

The ACMA engages directly with industry about complaints where enough information is available to identify who is responsible for the communication (this information may not always be available, particularly for telemarketing complaints). For telemarketing complaints, in 2017–18:

- > 38 per cent did not contain enough information to identify the caller—this includes when calls are not answered and/or there is no information provided about the calling number
- > 27 per cent related to scams, where information such as the calling-party name and calling number is often falsified.

Where the ACMA can identify the entity responsible for the communication, we make direct contact to provide an opportunity to rectify any compliance issues at an early stage. One compliance contact may cover multiple complaints. In 2017–18, the ACMA made:

> 1,517 spam compliance contacts

> 1,857 telemarketing compliance contacts.

In 2017–18, the ACMA also responded to 14,019 consumer and industry enquiries about telemarketing, and 1,414 enquiries about spam. The ACMA also made its unsolicited communications work more transparent by publishing quarterly reports with complaint trend data and key compliance and enforcement actions.

The ACMA continued its participation as a member of the Unsolicited Communications Enforcement Network (UCENet). Recognising that unsolicited communications is a global issue, the ACMA supports the work of UCENet to share intelligence and strategic approaches.

Table 4.17 summarises the number of complaints, reports and enquiries the ACMA received, and the compliance and enforcement action taken.

Table 4.17 Telemarketing, fax marketing and spam—summary of complaints, enquiries, compliance activities and enforcement

		2016–17	2017–18	Change (%)
Complaints	Spam email complaints	n/a	1,762	n/a
	Spam SMS complaints	n/a	1,547	n/a
	Total spam (email and SMS) complaints	2,389	3,309	38.5
	Telemarketing complaints	28,197	40,098	42.2
	Fax marketing complaints	62	36	–41.9
	Total	30,648	43,443	41.7
Enquiries [†]	Telemarketing and fax marketing	5,484	14,019	155.6
	Spam	1,458	1,414	–3.0
	Total	6,942	15,433	122.3
Compliance warnings	Telemarketing and fax marketing	2,280	1,857	–18.6
	Spam	2,769	1,517	–45.2
	Total	5,049	3,374	–33.2
Investigations	Telemarketing	2	8	300
	Fax marketing	0	0	0
	Spam	3	10	233
	Total	5	18	533

n/a=not available.

[†]The ACMA and DNCR operator receive enquiries from the public and businesses on compliance with the DNCR Act and Spam Act, such as the legitimacy of calls or messages received, how to stop receiving calls or messages, how requirements of these Acts affect their business, and whether particular marketing approaches are compliant with these Acts.

Source: ACMA.

4.11 Complaints to the TIO

There were 167,831 new complaints made to the TIO during 2017–18, representing an increase of 6.2 per cent from 2016–17 (158,016). Each new complaint to the TIO can involve multiple complaint issues.

Complaints generated in 2017–18:

- > mobile phone services: 51,328 complaints (30.6 per cent of total complaints)
- > internet services: generated 46,703 complaints (27.8 per cent)
- > fixed-line phone services: 18,736 complaints (11.2 per cent)
- > multiple services: 49,875 complaints (29.7 per cent)
- > property: 1,189 complaints (0.7 per cent).

Table 4.18 shows the top TIO new complaint issues for 2017–18.

Table 4.18: Top five TIO new complaint issues (percentage), 2017–18

Complaint issue	%
No action or delayed action by a service provider to resolve phone or internet issues	34.1
Disputed charges for service or equipment fees	25.5
Delays connecting to or changing service providers	12.8
No service, including no internet connection or no dial tone on a phone service	12.5
Service drop outs, or instances where the service works one day, but not the next	10.1

Source: TIO Annual Report 2017–18.

Complaints about services delivered over the NBN fell across several categories, with service-quality complaints falling from 4.1 per 1,000 premises to 3.2. In the second half of 2017–18, complaints relating to NBN connections or changing service providers fell to 5,878, down from 8,711 in the first half.

Notes

¹ On 26 October 2017, the Acting Secretary of DoCA determined that the amount of the TIL to be collected for the 2016–17 eligible levy period (ELP) was \$226,985,000 plus \$235,389.17, the previous levy deficit. This shortfall resulted from the decision by the Secretary under section 62 of the *Telecommunications (Consumer Protection and Service Standards) Act 1999* (TCPSS Act) to refund a \$235,389.17 overpayment of the levy by a carrier for the 2015–16 ELP.

² NBN Co, 'NBN commits to improved wholesale service standards', [media release] 12 September 2018.

³ ACCC, *Digital platforms Inquiry—Preliminary Report*, December 2018.

⁴ DoCA, Consumer Safeguards Review, accessed 20 November 2018.



Appendix

Research methodology

ACMA-commissioned survey

The 2018 ACMA-commissioned survey of consumers was conducted by the Social Research Centre. Data for the survey was collected using the probability-based Life in Australia (LinA) online panel. LinA includes people with and without internet access—those without internet access or who are not comfortable completing surveys over the internet are able to complete surveys by phone instead.

The 2018 survey comprised a total of $n=2,106$ respondents ($n=1,843$ online interviews with Australian adults plus $n=263$ computer-aided phone interviews (CATI) to reach the adult population who are not regularly online). The survey was representative of the Australian population aged 18 years and over.

Fieldwork was conducted from 14–27 May 2018.

Weighting

To ensure that results from the consumer survey are as representative as possible of the population of Australian adults, weights were calculated for each respondent and included in the final dataset.

The approach to deriving weights consisted of the following steps:

- > A base weight for each respondent as the product of two weights:
 - > their enrolment weight, accounting for the initial chances of selection and subsequent post-stratification to key demographic benchmarks
 - > their response propensity weight, estimated from enrolment information available for both respondents and non-respondents to the survey.
- > The base weights were then calibrated to match external population benchmarks of several demographic parameters including location, gender, phone status, home internet use and age by highest educational attainment.

Roy Morgan Single Source

Roy Morgan research data is taken from the Roy Morgan Single Source survey unless otherwise specified. This data covers changes occurring from July 2017 to June 2018 unless otherwise specified.

The Roy Morgan Single Source research sample sizes for the past five years are provided in Table A.1.

Changes to Roy Morgan database weighting

Roy Morgan data for 2014 and 2015 will differ to data reported in previous communications reports by one or two percentage points. This is due to changes to either weighting or whether the data was sourced from the establishment survey or product poll. Previously, Roy Morgan had weighted the data to ABS population estimates on a monthly basis. In 2015, Roy Morgan changed the frequency of weighting calculations to quarterly and included additional weighting criteria.

Australian population

For the 2018 Roy Morgan Single Source data, the total population estimate for Australian adults aged 18 and over is 18,864,000, based on *ABS data table 6202.0 Labour Force, Australia*.

Table A.1 Research sample subsets for Roy Morgan Single Source, Australians aged 18 and over

	Total	Mobile-only for phone	Mobile-only for internet
Jun 18	14,056	4,088	2,289
Jun 17	13,884	3,466	2,689
Jun 16	14,300	3,247	2,262
Jun 15	15,241	3,392	1,808
Jun 14	15,998	3,619	1,978

Note: Twelve months to June for each year.

Other sources

Endnotes to each chapter list other information sources used in this publication.

Data analysis

Results from both data sets were analysed using descriptive analysis techniques, and by socioeconomic and demographic factors, to identify areas with significant patterns or differences.

Data presented in tables and figures may not add up to 100 per cent (or the appropriate total) due to rounding. Percentage changes are calculated on non-rounded data.

Glossary

2G—second-generation mobile telecommunications

Mobile telecommunications services that use digital techniques, providing voice communications and a relatively low transmission rate for data. Denoted by the introduction of the digital encryption of phone conversations and of mobile data services with SMS text messaging. 2G networks stopped operating in Australia from 31 March 2018. See also *GSM*.

3G—third-generation mobile telecommunications

Broadband mobile telecommunications services with improved data rates over their 2G predecessors, providing for applications such as web-browsing, videoconferencing and location-based services.

4G—fourth-generation mobile telecommunications

Enhanced broadband mobile telecommunications services that provide increased bandwidth to support voice, video, data and high-quality streaming multimedia content over an all-IP network. See also *LTE*.

4.9G—advanced 4G

Also known as LTE-Advanced Pro, 4GX, 4G+ and 4.5G, 4.9G is an industry term that refers to a precursor technology to 5G. 4.9G implements functionality contained in 3GPP Release 13 and 14, including massive multiple-input and multiple-output (MIMO) and greatly increased spectral efficiency. This results in much faster download speeds than are available over 4G.

5G—fifth-generation mobile telecommunications

The next iteration of broadband mobile telecommunications services, 5G is expected to provide increased data rates and reduced latency to support greater connectivity and enable M2M services and the IoT. While trials of the technology are currently underway, 5G is anticipated to be commercially available in 2019.

AI—artificial intelligence

The ability of a digital program/computer systems to perform tasks commonly associated with human intelligence, including learning, problem solving and pattern recognition.

ABC—Australian Broadcasting Corporation

Free-to-air national broadcaster of ABC radio and television channels, as well as online services, funded by the Australian Government.

ABS—Australian Bureau of Statistics

Commonwealth body responsible for collecting, analysing and publishing Australian demographic data.

ACCC—Australian Competition and Consumer Commission

Commonwealth regulatory body with responsibilities derived from the *Competition and Consumer Act 2010*.

ACE—Australian Communication Exchange

National not-for-profit organisation that currently provides the relay component of the National Relay Service.

ACMA—Australian Communications and Media Authority

Commonwealth regulatory authority for broadcasting, radiocommunications, telecommunications and some online content, with responsibilities under the *Broadcasting Services Act 1992*, the *Radiocommunications Act 1992*, the *Telecommunications Act 1997*, the *Telecommunications (Consumer Protection and Service Standards) Act 1999* and related Acts. Established on 1 July 2005 following a merger of the Australian Communications Authority and the Australian Broadcasting Authority.

ADSL—asymmetric digital subscriber line

Transmission technology that enables high-speed data services to be delivered over a twisted-pair copper line. ADSL2+ is an enhanced ADSL technology that adds new features and functionality that may provide higher data rates.

AGD

Attorney-General's Department.

auDA—.au Domain Administration Ltd

Independent industry self-regulatory body responsible for the '.au' domain name space.

broadband

A class of high-speed internet access technologies, such as ADSL, ADSL2+, HFC cable and Wi-Fi, offering a data rate significantly higher than dial-up internet services.

cable—hybrid fibre coaxial (HFC) cable

Transmission links consisting of optical fibre on main routes, supplemented by coaxial cable closer to the end user's premises.

carrier

The holder of a telecommunications carrier licence in force under the Telecommunications Act.

catch-up TV

Internet service typically provided on free-to-air and subscription broadcasters' websites that enables users to watch a recent episode of a television program over the internet for a limited period of time.

CAT-M1—Category M1

Cellular technology built for IoT applications that is compatible with existing LTE networks and uses low bandwidth and low power. Also referred to as LTE Cat M1 or Cat M.

CEASA—Commercial Economic Advisory Service of Australia

An information research company specialising in media, economic, marketing and advertising research, surveys and publications.

cloud computing

Internet-based computing where data and applications are hosted online, stored on remote servers and available to clients on demand through broadband internet-enabled devices.

Communications Alliance (CA)

Telecommunications industry organisation formed on 1 September 2006 from the merger of the Australian Communications Industry Forum (ACIF) and the Service Providers Association Network (SPAN).

CSG—Customer Service Guarantee

Under the CSG, carriage service providers (CSPs) are required to meet performance standards and provide customers with financial compensation when these standards are not met.

CSG Standard—Customer Service Guarantee Standard

The CSG Standard establishes performance standards that phone service providers must meet or exceed for appointments and the connection and repair of standard phone services (and certain enhanced call-handling features).

CSP—carriage service provider

Person supplying or proposing to supply certain carriage services to a customer, including a commercial entity acquiring telecommunications capacity or services from a carrier for resale to a third party. Under the Telecommunications Act, internet and subscription TV service providers fall within the definition of CSPs.

DAB/DAB+—digital audio broadcasting

A digital radio broadcasting standard. Australia is using an upgraded version of this standard called DAB+ to broadcast digital radio in Adelaide, Brisbane, Melbourne, Perth and Sydney. DAB+ uses the same spectrum currently used to deliver both analog and digital television services.

data traffic

Volume of data transferred in both directions between a customer and their ISP. Data traffic is measured in bytes.

dial-up internet service

Service in which subscribers connect to the internet via a modem and dial-up software utilising the PSTN or an ISDN connection, with speeds limited to 56 Kbps. Dial-up internet services have largely been replaced by broadband services.

digital radio broadcasting

Digital radio broadcasting is a method of assembling, transmitting and receiving audio broadcasts using digital technology.

digital television

The transmission of television (audio and video) via digital signals, serving as a replacement technology for analog services.

DNCR—Do Not Call Register

Register established by the ACMA that allows individuals to register their home and mobile numbers to opt out of receiving most unsolicited telemarketing calls and faxes, with limited exemptions for public interest organisations.

DoCA—Department of Communications and the Arts

Since September 2015, Commonwealth department responsible for, among other things, communications policy and programs; formerly known as Department of Communications.

DSI—domestic systems interference

Interference to the reception of radio or television broadcasting, usually in domestic premises.

ECP—emergency call person

Nominated organisation responsible for handling emergency calls. For calls made to Triple Zero (the primary emergency call number) and 112 (the international emergency number for GSM and WCDMA mobile phones), the ECP is Telstra. For calls made to the 106 text service (for people who are deaf or have a hearing or speech impairment), the ECP is Australian Communication Exchange (ACE).

ESO—emergency service organisation

Organisation providing an emergency service—police, ambulance or fire service.

esport

Organised, competitive video gaming, typically played between professional or sponsored gamers in professional or sponsored events such as league competitions and tournaments.

fixed-line phone service

Covers the delivery of voice services over a copper pair-based PSTN access network or fixed-line broadband networks. Includes fixed VoIP services.

FLRN—freephone and local rate number

Telephone numbers commencing with the digits 1800 (freephone) or 13 (local rate).

Free TV Australia

Industry body that represents Australia's commercial free-to-air television licensees, and is responsible for developing and reviewing the Commercial Television Industry Code of Practice.

FSA—field service area

One of 44 broad geographic regions in Telstra's fixed phone network.

FTA TV—free-to-air television

Broadcast television services where the signal is delivered without charge to the viewer.

FTTB—fibre to the building

A type of broadband access network deployment where optical fibre is deployed to a communications cabinet in the basement of each building, which is typically a multi-dwelling unit. The final connection to each individual premises within the building is made by alternative technologies, typically using the building's existing copper cabling.

FTTdp—fibre to the distribution point

A type of broadband access network deployment where the optical fibre line typically runs to a distribution point located at the street lead-in pit of a small number of end-user premises (typically four). From this distribution point, the final connection to each of the individual premises is provided by existing copper lead-ins.

FTTN—fibre to the node

A type of broadband access network deployment where the optical fibre line runs to a node (cabinet) located in the street. From this street cabinet, individual premises are connected via existing copper cabling networks.

FTTP—fibre to the premises

A type of broadband access network deployment where the optical fibre line extends directly to individual premises. Compared to other fibre-optic connections types, this type of connection results in the fibre-optic line running as close as possible to the end-user and subsequently results in the least reliance on existing copper cabling networks.

GB—gigabyte

One billion bytes. Each byte is eight bits.

Gbps—gigabits per second

Data transfer rate of a billion bits per second.

geographic numbers

Numbers used to provide access to local phone services, and related voicemail and facsimile services. Also known as local numbers.

G.mgfast

An ITU-T project to address functionality beyond G.fast, including aggregate data rates of five and ten Gbit/s over single twisted pair and coaxial cable.

GSM—global system for mobile communications

The second-generation mobile digital technology originally developed for Europe, but now used globally. The GSM network ceased to operate in Australia from 31 March 2018.

interception

The interception of telecommunications services for the purpose of law enforcement and national security.

internet telephony

See *VoIP*.

IoT—Internet of Things

The interconnection of many devices and objects utilising internet protocols, with or without the active involvement of individuals. This may include laptops, routers, tablets and smartphones, which are integral to operating, reading and analysing the state of IoT devices.

IP—internet protocol

The main routing protocol used in the internet—it operates at the logical network layer and is a code used to label packets of data sent across the internet, identifying both the sending and receiving hosts. IP is also used to designate data, traffic, services and equipment supported by or used in the internet.

IPND—Integrated Public Number Database

Database of number, name and address information about customers of telecommunications services in Australia, for all carriers and CSPs.

ISDN—integrated services digital network

A high-speed network for carrying voice and data services in digital format over the PSTN. Can be considered an evolutionary step between dial-up and today's broadband internet services.

ISP—internet service provider

A carriage service provider offering internet access to the public or another service provider.

local numbers

See *geographic numbers*.

low-impact facilities

Communications facilities that are considered to have a low impact on their environment. They include underground cabling, small radiocommunications antennas and dishes, in-building subscriber connections and public payphones. The Telecommunications Act provides carriers with immunity from state and territory planning laws for the installation of 'low-impact' facilities.

LoRa

LoRa Technology is a low-power wide area network wireless data communication technology that permits inexpensive connectivity for the Internet of Things.

LoRaWAN—long-range wide area network

The LoRaWAN protocol is a network specification governed by the LoRa Alliance, characterised by its very long range, long battery life and low cost. Unlike Sigfox, can be used for bidirectional communications.

LPWAN—low-power wide area network

A wireless communications network that is used to transport non-constant, small amounts of data over a wide area using very little power. LPWAN is one of the basic protocols for the implementation of the IoT.

LTE—Long Term Evolution

A suite of radio and core network specifications for the enhancement of mobile networks beyond 3G capabilities. Generally regarded as fourth-generation mobile telecommunications. See 4G.

LTE-B—Long Term Evolution Broadcast

A technique of efficiently distributing the same content over the LTE network to users. Rather than individual users downloading their own stream of data, the technique allows content to be provided to multiple users via a single stream of data, thus reducing data demands on networks.

M2M—machine-to-machine

M2M communications are used for automated data transmission and measurement between mechanical or electronic devices using wired and wireless networks. Much of the M2M information is delivered in the form of sparse data, which can come from sensors and other non-IT devices.

MHz—megahertz

One million hertz.

minister—Minister for Communications and the Arts

Minister responsible for the ACMA and its governing legislation, and the legislation that the ACMA administers.

MVNO—mobile virtual network operator

A mobile service operator that does not have its own licensed spectrum and does not own the wireless network infrastructure over which it provides services to its customers.

NBN Co—NBN Co Limited

The company established to design, build and operate the NBN.

NBN—National Broadband Network

The national wholesale-only open access data network in Australia offering high-speed broadband to all Australian premises using a multi-technology mix constructed by NBN Co Limited.

NB-IoT—Narrowband Internet of Things

A narrowband radio technology designed for the IoT. NB-IoT technology is intended for applications that require a large number of devices that are low cost and have a long battery life.

NCD—nominated carrier declaration

Declaration made by the owner of a telecommunications network unit (facilities or infrastructure for delivery of telecommunications services) nominating a licensed carrier that will be responsible for the specified network unit.

NG-PON2—Next Generation Passive Optical Network 2

A telecommunications network standard for a passive optical network, capable of total network throughput of 40 Gbit/s, corresponding to up to 10 Gbit/s symmetric upstream/downstream speeds available at each subscriber.

Notifiable Data Breaches—NDB

A data breach occurs when personal information held by an organisation is lost or subjected to unauthorised access or disclosure. Under the Notifiable Data Breach scheme, an NDB refers to data breaches involving personal information that are likely to result in serious harm to any individual affected.

NQCSP—Not a QCSP

See *QCSP—qualifying carriage service provider*.

NRF—Network Reliability Framework

Requirement on Telstra (since January 2003) to provide regular reports to the ACMA on the reliability of its fixed-line services, and to remediate the network in areas with particularly poor performance.

NRS—National Relay Service

Provides access to the standard phone service for people with a hearing or speech impairment through the relay of voice, modem or TTY communications. Operates as a translation service between voice and non-voice users of the standard phone service.

number portability

Arrangements allowing customers to transfer their telecommunications service from one service provider to another without changing their number. Number portability is available for local numbers, freephone and local rate numbers, and mobile numbers.

ODC—Office of the Data Commissioner

Established in August 2018, the Office of the National Data Commissioner is responsible for implementing a simpler data sharing and release framework to improve social and economic outcomes for Australians while safeguarding data.

OTT—over-the-top services

A general term for services delivered over a network that ride on top of the infrastructure service and are provided independently of the network operator.

pay-per-view

A television service in which viewers are required to pay a fee to watch a specific program.

pay TV

See *subscription television*.

payphone

A public phone where calls may be paid for with coins, phone cards, credit cards or reverse charge facilities.

portability

See *number portability*.

postpaid

A contract under which a user is charged on a periodic basis, depending on service usage during the previous billing period.

prepaid

A contract system by which users pay an amount upfront to buy a certain amount of usage or credit.

podcast

Digital audio or video files made available for online download to a computer or mobile device.

PSTN—public switched telecommunications network

Public telecommunications network to provide traditional analog phone services to subscribers.

PUSP—primary universal service provider

A universal service provider (USP) is a nominated provider that receives government subsidies to provide a necessary service. Telstra is the primary universal service provider and is responsible for fulfilling the universal service obligation throughout Australia.

PVR—personal video recorder

A device for recording and replaying television programs and video content.

RSP—retail service provider

See *CSP—carriage service provider*

QCSP—qualifying carriage service provider

CSPs that have 100,000 or more services covered by the CSG Standard as at the last day of the preceding financial year.

RVA—recorded voice announcement

A pre-recorded audio message played to listeners; for example, the message now played to all callers to the Triple Zero emergency service.

SBS—Special Broadcasting Service

Free-to-air national radio and television broadcasting service providing multilingual and multicultural programs that inform, educate and entertain all Australians and, in doing so, reflect Australia's multicultural society. The SBS Online service also provides additional multilingual content through the internet.

Sigfox

An IoT technology that uses a simple modulation scheme, low bit rate and Ultra Narrow Band technology to send very small amounts of data, achieving a more extended range than some other IoT technologies. With a low data rate of 100 or 600 bps (depending on the region), Sigfox is suited to simple applications that need small, infrequent bursts of data, such as parking sensors, basic alarm systems or water meters.

SIO—services in operation

The number of services provided by a phone company at a particular time. The term is used in the context of both fixed-line and mobile services.

smartnumbers

Specified freephone (1800) or local rate (13 or 1300) numbers that are considered desirable because they can be translated to a phoneword or they have a memorable pattern.

smartphone

A mobile phone built on a mobile operating system, with more advanced computing capability and connectivity.

SMS—short message service

A mobile telecommunications data transmission service that allows users to send short text messages to each other using a mobile handset.

spam

Unsolicited commercial electronic messages that are sent by email, SMS, MMS and/or instant messaging.

standard telephone service

The telecommunications service defined as a carriage service providing voice telephony or an equivalent service that meets the requirements of the *Telecommunications (Consumer Protection and Service Standards) Act 1999* and *Disability Discrimination Act 1992*.

subscribers

ABS subscriber statistics measure the number of 'subscriber lines' rather than the number of 'users'. Counts of subscribers are not the same as counts of people/organisations with internet access. This is because some subscribers may have accounts with more than one ISP or multiple accounts with a single ISP.

subscription television

Service providing access, for a fee, to television channels transmitted using cable, satellite or terrestrial microwave.

SVOD—subscription video on demand

An internet service that gives users unlimited access to a range of online video content at any time, for a flat monthly fee. Users can start and stop the program they are watching when they choose.

take-up

Adoption of a service or product by users.

TB—terabyte

One thousand gigabytes.

TIO—Telecommunications Industry Ombudsman

Industry-funded independent dispute resolution agency, established in December 1993, for consumers unable to resolve complaints with their telecommunications carrier or CSP (including ISPs).

Trial certificate

A trial certificate may be issued by the ACMA to enable industry participants to trial the technical and commercial feasibility of their networks and services for a period of up to six months without the need to acquire a carrier licence. This period can be extended for a further six months on application. Following the conclusion of the trial certificate period, the owner of the network unit(s) is required to either comply with the standard carrier licensing requirements by acquiring a carrier licence or decommissioning the network unit(s).

TTY—teletypewriter

Telephone typewriter that allows communication to be typed after a call is connected, enabling people with a hearing or speech impairment to use voice telecommunications. Calls can be connected to another TTY user or relayed and translated to voice by the NRS.

ULL—Unconditioned Local Loop

The unconditioned communications wire between the boundary of a telecommunications network at an end-user's premises and a point on a telecommunications network that is a potential Point of Interconnection (POI), located at or associated with a customer access module and located on the end-user's side of the customer access module.

USO—universal service obligation

Obligation under the *Telecommunications (Consumer Protection and Service Standards) Act 1999* to ensure that standard phone services, payphones and prescribed carriage services are reasonably accessible to all people in Australia on an equitable basis, wherever they reside or carry on business.

VoIP—voice over internet protocol

Delivery of voice communications over the internet or some other connected network, instead of the PSTN.

voice-enabled device

An internet-connected device that uses voice recognition to assist users with tasks such as requesting information, search queries and playing music. Devices include Google Home, Amazon's Alexa and Apple's HomePod. The software that powers these devices includes Google Assistant, Amazon Alexa and Apple Siri.

VoLTE—voice over LTE

A standard allowing voice calls to be placed over an LTE network. In the absence of VoLTE, LTE networks generally only support a data service, with 2G or 3G networks used to support voice and other services such as SMS. With VoLTE, voice calls (and SMS text messages) are integrated into the 4G LTE data stream rather than the previous arrangement of reverting back to 3G. VoLTE allows for multi-tasking, with simultaneous voice calls and 4G data connections. VoLTE also supports improved voice quality (HD Voice).

Wi-Fi

A type of wireless local area network (WLAN) technology that uses radio waves to provide wireless high-speed internet and network connections using specifications in the IEEE 802.11 series of standards for WLAN.

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