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Smart everything, everywhere

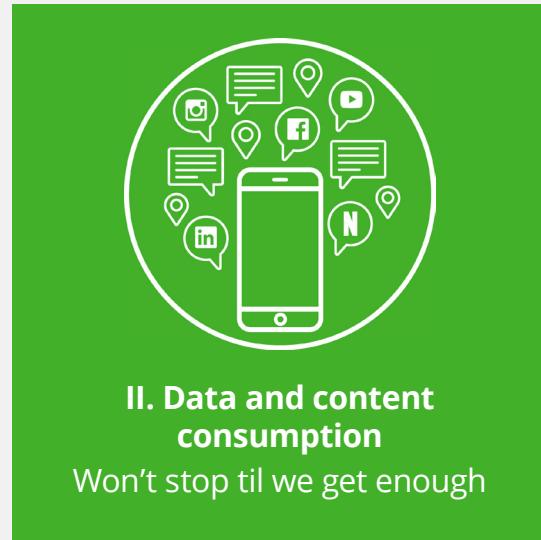
Mobile Consumer Survey 2017

The Australian cut



I. Device landscape

Trading up, trading in,
trading places



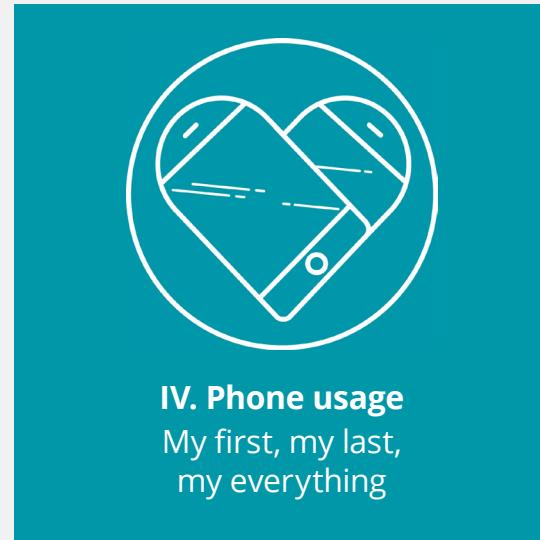
II. Data and content consumption

Won't stop til we get enough



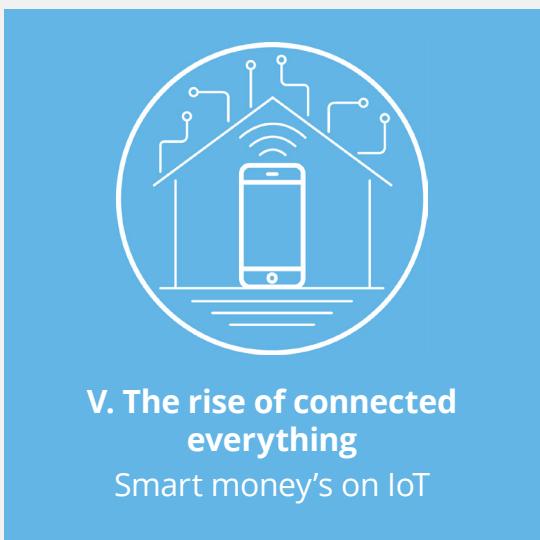
III. Networks, operators and churn

Shopping around for speed and value



IV. Phone usage

My first, my last,
my everything



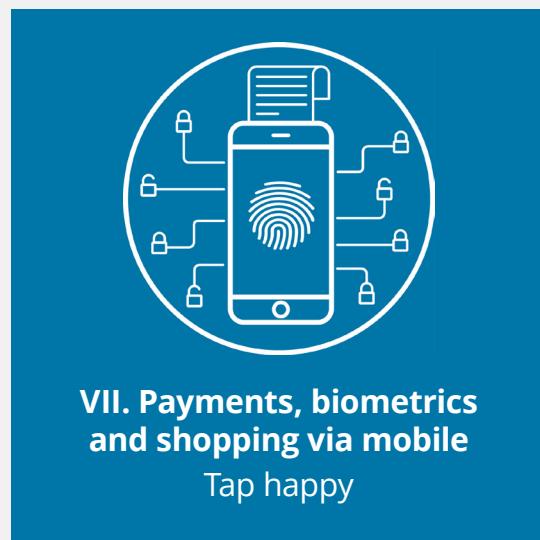
V. The rise of connected everything

Smart money's on IoT



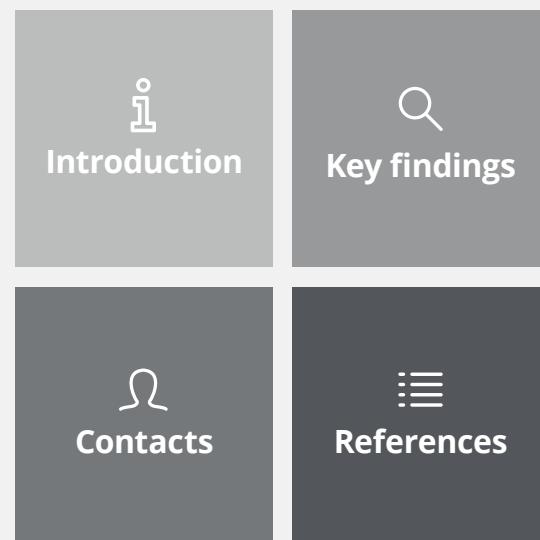
VI. Machine learning in our phones

Slow rise of the machines



VII. Payments, biometrics and shopping via mobile

Tap happy





Introduction

What did we ever do before smartphones?

From the moment our fingertips touched the screen, Australians have enthusiastically embraced the smartphone and its myriad and multiplying uses. This disruptive innovation, which started out as the technological Swiss Army knife, has gone on to enable radical changes in not only the global communications landscape but across almost all facets of life and the economy.

Whether it's the parent trying to separate teens from their screens to the busy exec going from a mindfulness meditation app to a conference call in the kitchen – our phones are indisputably indispensable.

Consumers and businesses are the beneficiaries of what has become the smartphone space-race. And as device manufacturers compete to outdo one another by launching even smarter features and in-built intelligence, our beloved devices are also becoming essential workplace tools, be it to a tradie, teacher or technician. The smartphone and smart devices are helping to redefine the future of work.

About the survey

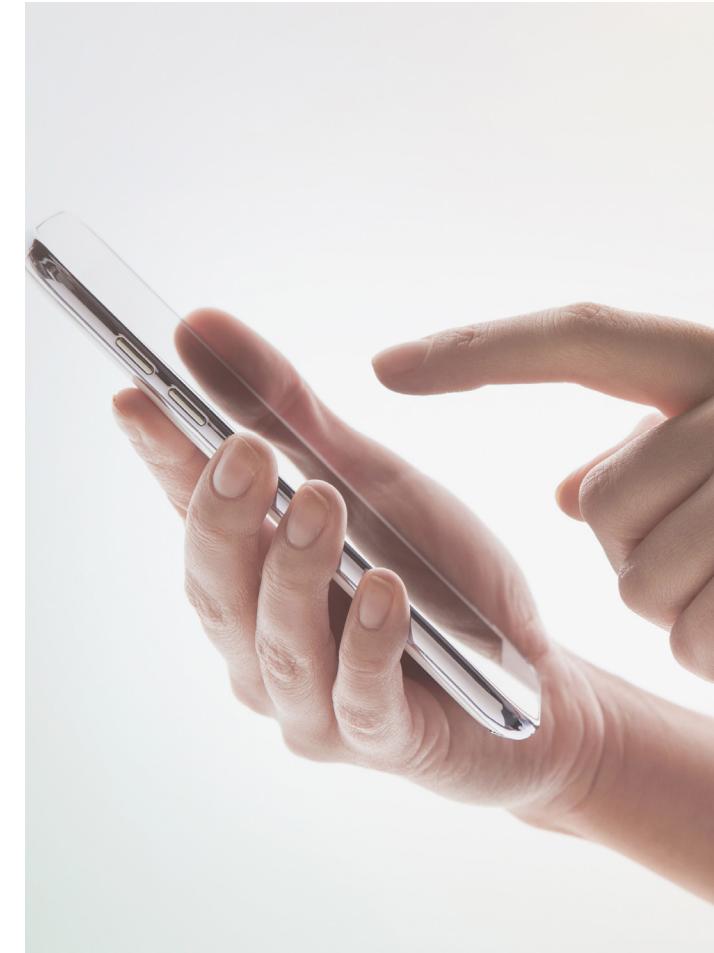
The Mobile Consumer Survey, now in its fourth year, is a multi-country study of mobile phone users around the world. The 2017 study comprises more than 51,500 responses across 33 countries. Australian findings are based on a nationally representative sample of over 2000 consumers aged 18-75, polled online during May and June 2017.





Key findings

1. Australia remains one of the leading global adopters of the smartphone and 88 percent of Australians now own one, with market growth being driven by older generations.
2. It's all about content; the number of us streaming TV and video and watching live TV on our smartphones has tripled since last year. 4G networks and bigger data packages are enabling this constant consumption – but not sufficiently. Forty-three percent of consumers regularly exceed their data limits, and it's costing us – close to \$313m per year for extra data.
3. We're consuming everywhere, at any time. Thirty-five percent of us check our phone within five minutes of waking up in the morning, with 70 percent using phones during mealtimes with family and friends.
4. Machine learning is making our phones smarter, but we're not paying much attention – yet. Awareness of virtual assistants on smartphones is good, at 43 percent, but we're ignoring Siri for the moment – usage is low, at 14 percent.
5. The use of fingerprint authentication on smartphones has surged, with a 35 percent rise from 2016. Mobile payment technologies are becoming increasingly available and easier payment has enabled significant growth (25 percent) in mobile purchasing.

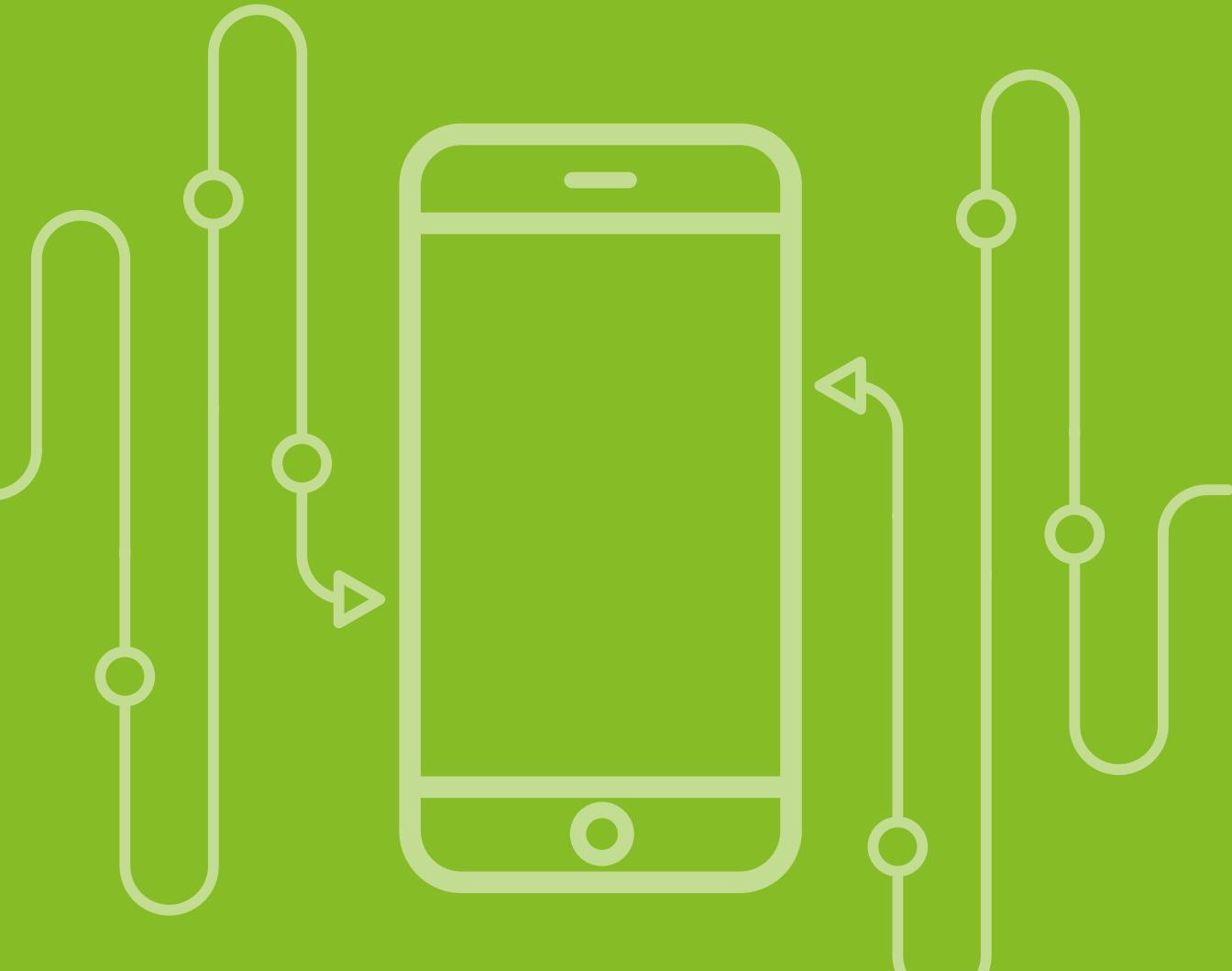




Device landscape

Trading in, trading up, trading places

Smartphone penetration continues to rise, but it's no longer all about the younger generations. Seniors are getting in on the game, driving growth in penetration, and silver surfers are a new and growing market for mobile phone providers and operators.





Device landscape: *Trading in, trading up, trading places*

Australians are buying, trading, advocating and everyone is getting involved. The rise of the smartphone continues and we remain one of the leading global adopters of the technology. Eighty-eight percent of Australians now own a smartphone, up from 84 percent last year. We are approaching the peak – maximum penetration rates for smartphones will likely be 90-95 percent. Globally, Norway, Netherlands, Ireland, and Luxembourg have surpassed the 90 percent threshold, with Norway topping the bunch at 92 percent. UK penetration rates are up four percent from 2016 to 85 percent and Canadian rates increased from 73 to 79 percent.

Smartphones, tablets and smart watches had the highest increases in market penetration over the year. The VR hype remains just that, with rates at just six percent. Desktop/tower computers, e-readers, portable games players and standard (non-smart) mobile phones all lost ground this year.

Australia remains, as a nation, attached to Apple and Samsung handsets, with 75 percent of smartphone owners having one or the other. We're enthusiastic promoters of both, with Net Promoter Score (NPS) exceeding the global average.

Australians are finally realising the potential of cashing in their old devices, becoming increasingly likely to sell them, with a 55 percent increase over 2016. But Australia still lags behind the healthy second hand sales market globally.

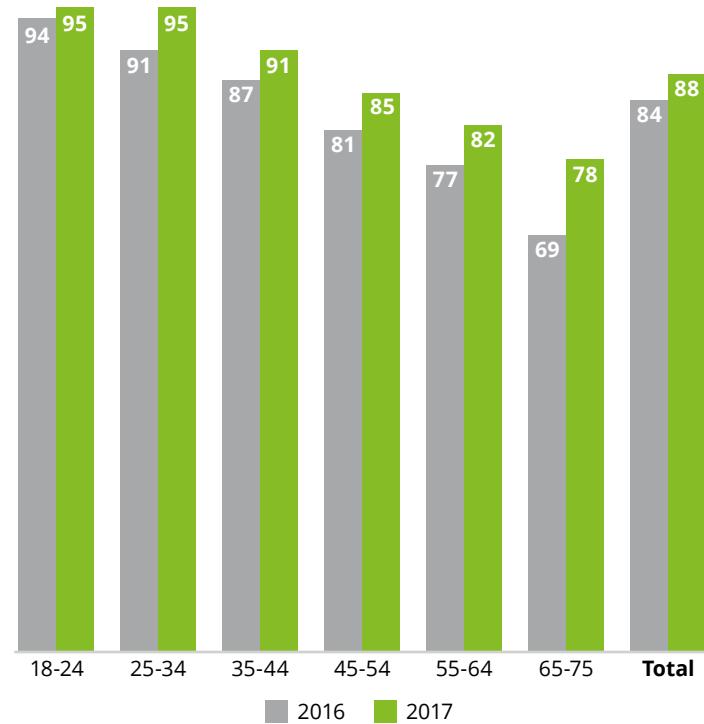




Silver surfers power smartphone swell

Graph 1: Smartphone ownership by age

Which, if any, of the following devices do you own or have ready access to? Smartphone responses below.



Smartphone ownership continues to grow in Australia, with 88 percent owning one in 2017, and smartphones remain the most owned technology device. 'Peak smartphone' is approaching for 18-34 year olds at 95 percent penetration. The biggest growth in 2017 comes from older users, with a five point increase for 55-64 year olds and a nine point increase for 65-75 year olds.

Standard phone ownership has dropped from 17 percent to 14 percent, driven by the decommissioning of the 2G network, as was discussed in last year's report. This was particularly evident in the 65-75 age bracket with a drop from 31 percent to 21 percent. The figure is a smaller decrease than expected, indicating stronger penetration of 3G feature phones.

Respondents' desire to buy a smartphone in the next 12 months has increased from 32 percent to 39 percent. This has reversed the trend from 2015-2016, where the device replacement cycle extended, meaning consumers held on to existing phones for longer. This suggests consumers are interested in new features promised by the latest models. As smartphones become even more crucial to our everyday lives, these new features (particularly ones like improved battery life or more storage – those that extend the utility of the phone) become increasingly important to users.

As Australia moves towards peak smartphone penetration, device manufacturers will need to continue to develop exciting new products in order to maximise profit through device replacement and market share, rather than adoption of new users.

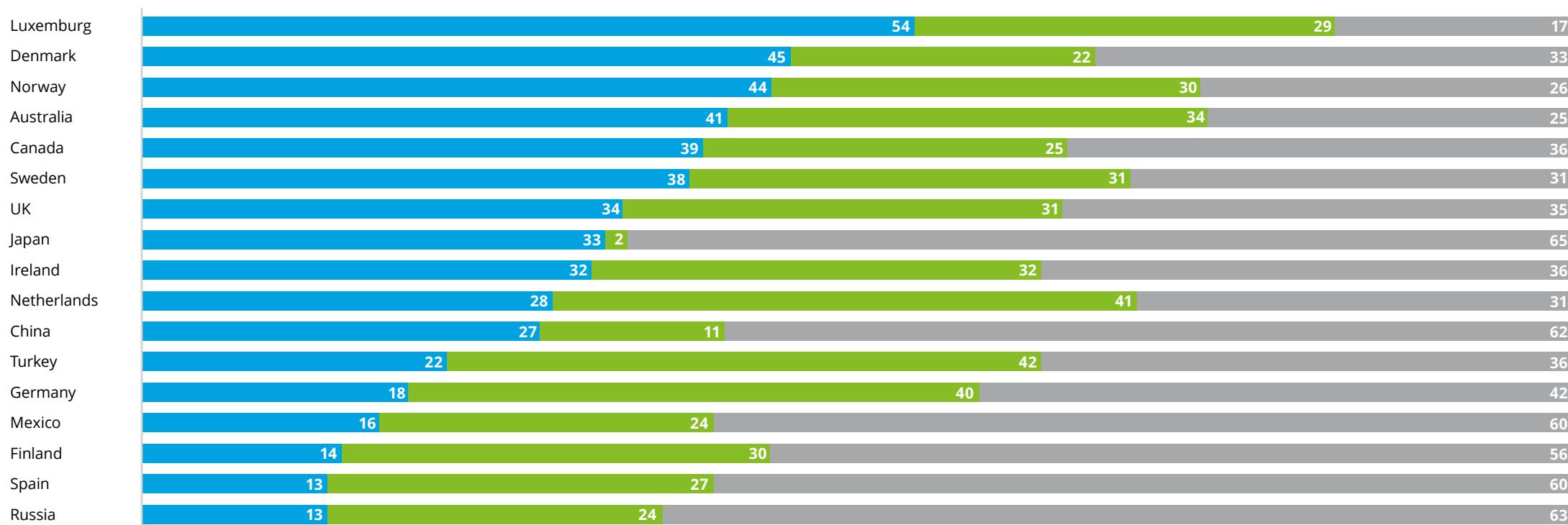




A slice of Apple's pie

Graph 2: Apple vs. Samsung globally

What is the brand of your current smartphone handset?



■ % Apple ■ % Samsung ■ % Other



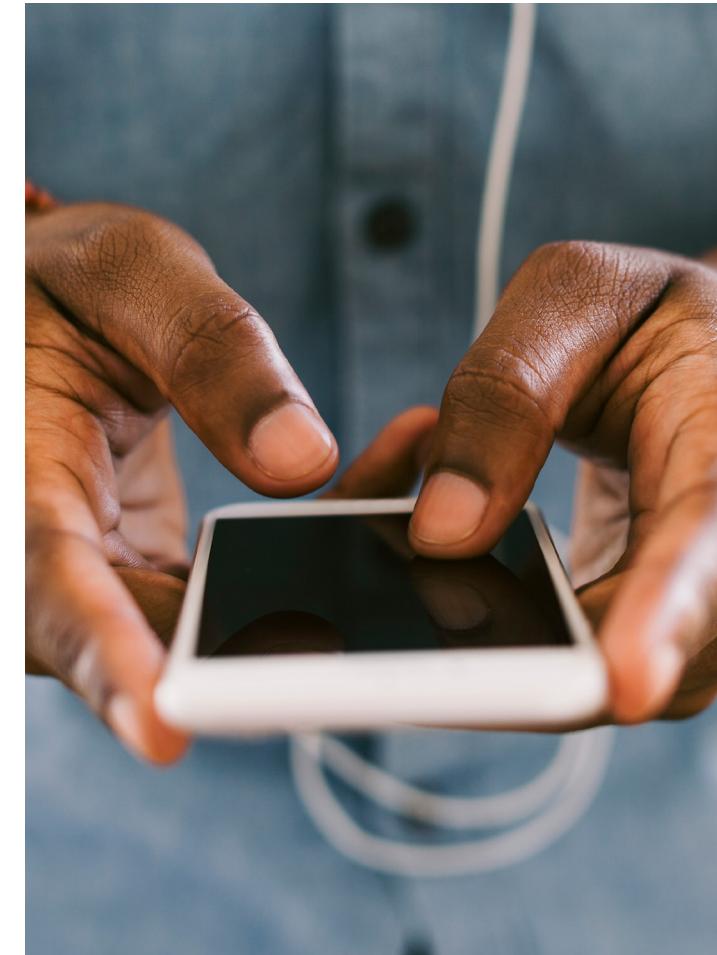
Australian mobile phone owners continue to maintain their loyalty to two manufacturers – Apple and Samsung. These brands make up 75 percent of all smartphones sold, largely locking other providers out of the market. Globally, only Luxemburg sees a greater domination of the duo at 83 percent, with Norway close behind Australia at 74 percent.

This year, despite the Galaxy Note safety recall¹, Samsung grew in market share from 33 percent to 34 percent. This increase closed the gap with Apple, which declined by two points to 41 percent in the same period.

Samsung's share has increased in the crucial 18-24 demographic as Apple have lost ground. This trend continues in the battle of the new handsets, where Samsung's Galaxy S6-8 models have a NPS of 47 compared to 40 for Apple's 6-7 models.

Apple's traditional dominance in the Australian market can be traced to more promotion of their devices from users. Overall, the iPhone family of devices have a superior NPS of 33, two points ahead of Samsung's Galaxy family at 31. Google still dominates the global OS market with their Android OS, and have a 65 percent market share in Australia compared to Apple's iOS at 35 percent².

Samsung's superior NPS ratings for their latest models may provide the first indicators for turbulence in the market share and the potential to take a big bite out of Apple.



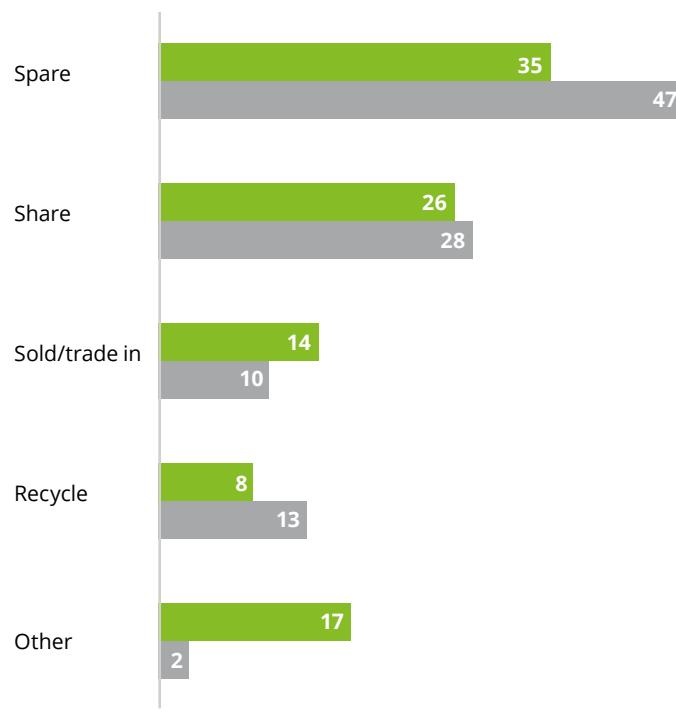
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Trading in to trade up

Graph 3: Device second life

What happened to your previous mobile phone when you bought or received your current phone?



Australia is a nation of 'savers' and 'sharers', choosing to either pass on old phones to friends or family or keep them as a spare. However 2017 saw a sizeable jump (from 10 to 14 percent) in consumers that either sell or trade-in their used phone.

What's caused this shift? Potentially consumers are realising the resale value of old handsets, or with new devices becoming more expensive, users are trading in to subsidise the purchase. In 2016 alone, more than 154,000 pre-loved handsets and 421,000 mobile accessories were sold on eBay, who estimate that Australians are sitting on a further \$8.6billion of smartphones³.

Globally, Australia lags behind in the second-hand device market. Twenty-seven percent of Japanese smartphone owners sell or trade-in their device, with 70 percent of these doing it through the device manufacturer. The 22 percent of UK sellers on the other hand predominately deal through online resellers, while 30 percent recycle their smartphone, a positive act for the environment that Australians are missing out on.

Apple devices appear to be more attractive in the second hand marketplace, with 26 percent of Apple devices sold or traded in, compared to 15 percent of all Samsung Galaxy S models.

Ever-increasing prices of new phone models might tip people into participating in the second-hand marketplace. Operators may be able to capitalise on the opportunity to purchase and reuse used devices from their customer base.





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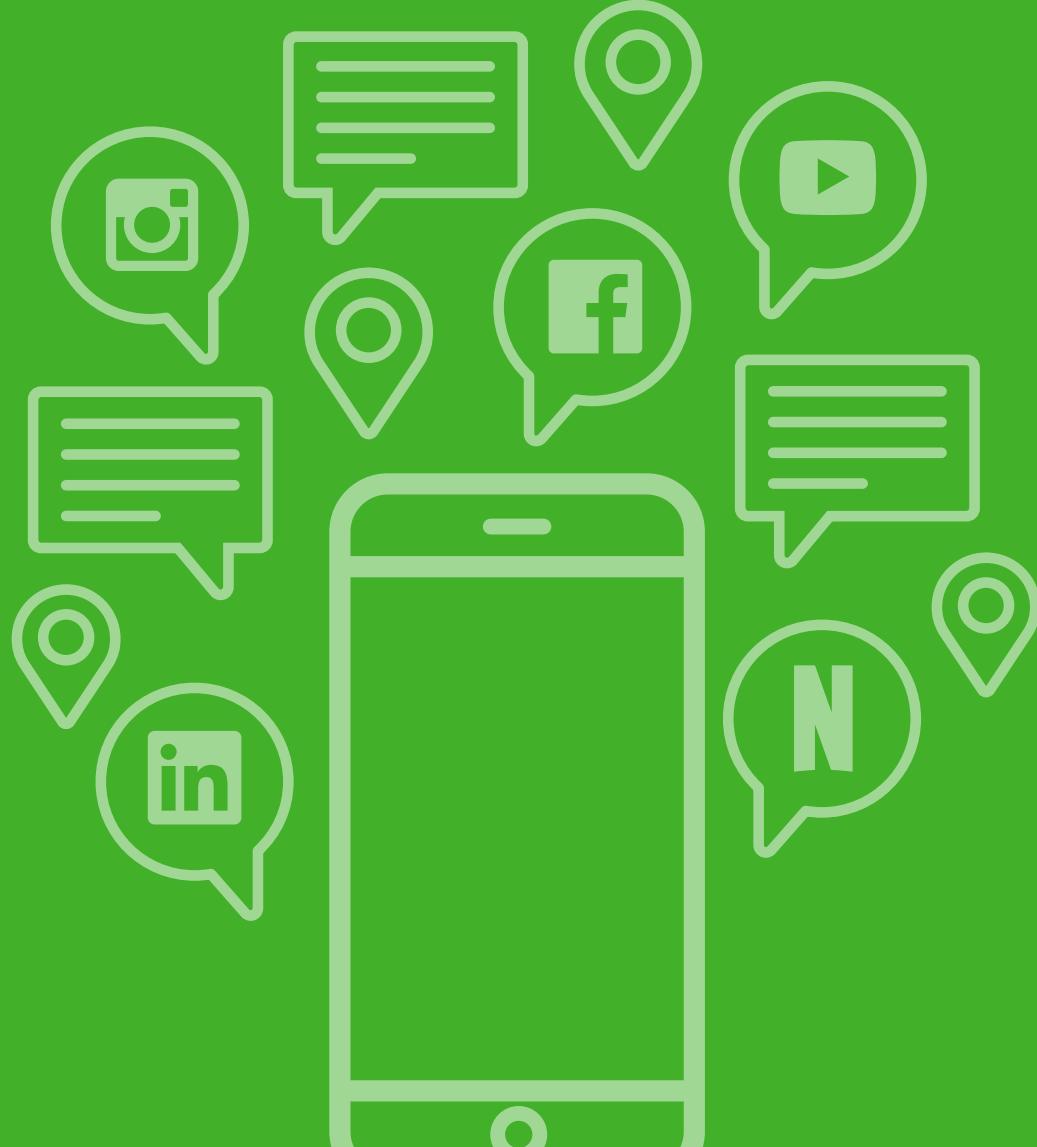


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Data and content consumption

Won't stop til we get enough

We've never had more data, but we've never used more either. The thirst for bigger data packages is real. Where is all our data going? Content, content, content. Our phones have become our personal pocket entertainment systems.





Data and content consumption: *Won't stop til we get enough*

Data usage is up, demand and exceeding limits is up, video watching is up, and most of all – streaming video on demand and live TV is up. Consuming our favourite content on our smartphone is the new norm. And with the size of our screens increasing and providing higher quality images, the variety of content available increasing, and operators offering better value data packages, some including live streaming and SVOD packages, this trend will continue its upward surge.

Though there are operators who are offering packages to deal with some of this increased demand for data, overall, the fact that 43 percent of Australians fairly or very often exceed their data packages, and 56 percent of those aged 25-34 have exceeded their limit at least once, would indicate there is a distance to go on providing packages to keep up with consumer data demands.

Around 70 percent of 18-34 year olds watch videos on their smartphone weekly and those watching live TV has tripled over the past year. With this increase in watching online, something had to give. Use of social media platforms has decreased this year, particularly amongst 18-24 year olds where there has been a two base point decline. Communication through private messenger apps is on the rise, especially for those aged 35-44.

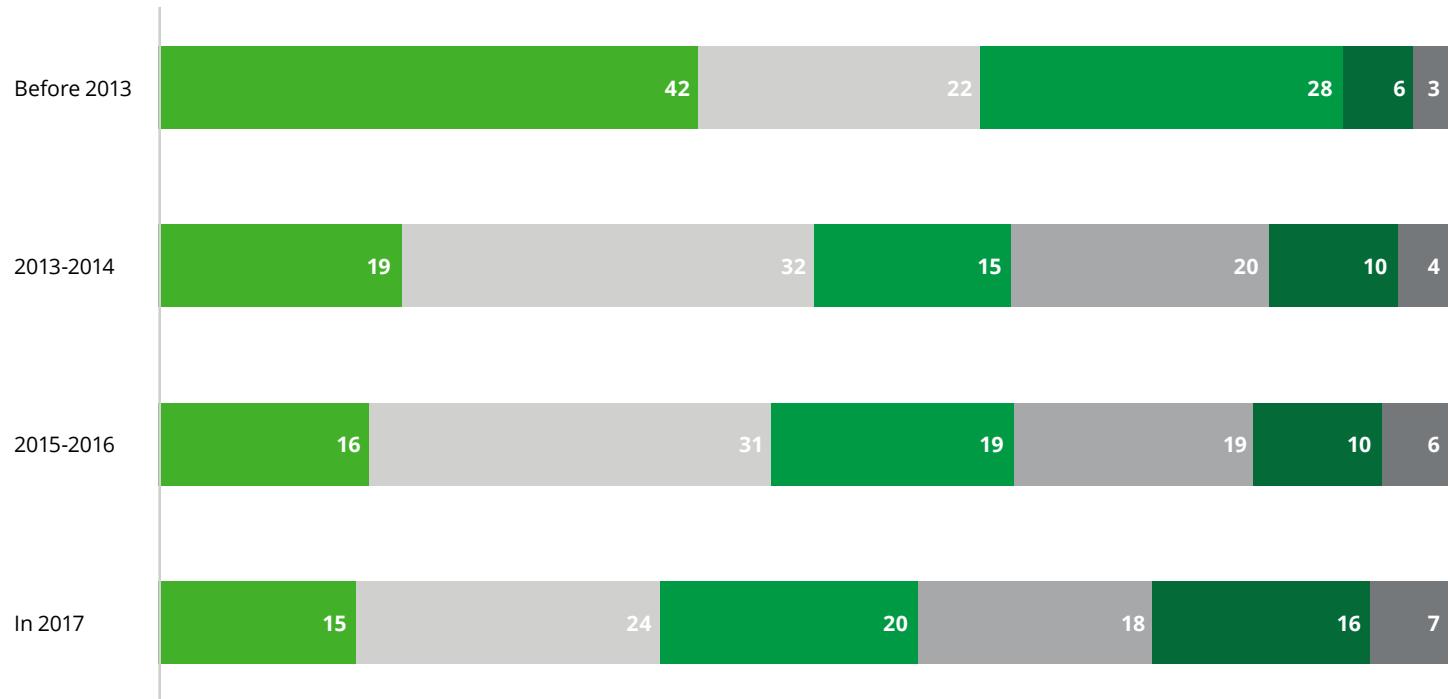




Demanding data divas

Graph 4: Data allowance by ownership year

What is your monthly data allowance? When did you purchase your phone?



It's a story in two parts when it comes to Australians and their data. Part one: Australians are increasingly purchasing new phone plans with greater data packages – in fact 60 percent of all new phones purchased in 2017 had a data limit exceeding 3GB. Plus the number of new phone users with a data limit greater than 10GB has almost doubled.

Part two: The more they have, the more they use, with our research showing that those who have between 3-5GB are two times more likely to exceed their data limit than those with a limit of 500MB or less.

Less than 1GB

At least 1GB but less than 3GB

At least 3GB but less than 5GB

At least 5GB but less than 10GB

At least 10GB but less than 20GB

More than 20GB



Forty-three percent of Australians can't make do with their set data packages, and 56 percent of those aged 25-34 have exceeded their limit at least once. Granted, it's cheaper than ever to do this – by our calculations it's 33 times cheaper in 2017 than it was in 2013. But this means consumers are still paying an unnecessary fee to operators every month. We estimate those who exceed their data collectively pay close to \$30m per month or \$313m per year for extra data.

Thirty-eight percent of respondents listed unlimited data as a feature that was important to them when purchasing a smartphone. Globally there was a rise in carriers offering unlimited data plans this year⁴, potentially as a competitive action to entice customers seeking greater mobile streaming services such as Netflix⁵. Australia still does not have unlimited data plans on any network, though this is forecast to change before the end of 2017⁶. However, unlimited is not all that it seems. Overseas operators often use techniques like data de-prioritisation in peak times for users who exceed 20GB per month in order to maintain quality across their network⁷. The operator who can provide the most data at an affordable rate will win customers.

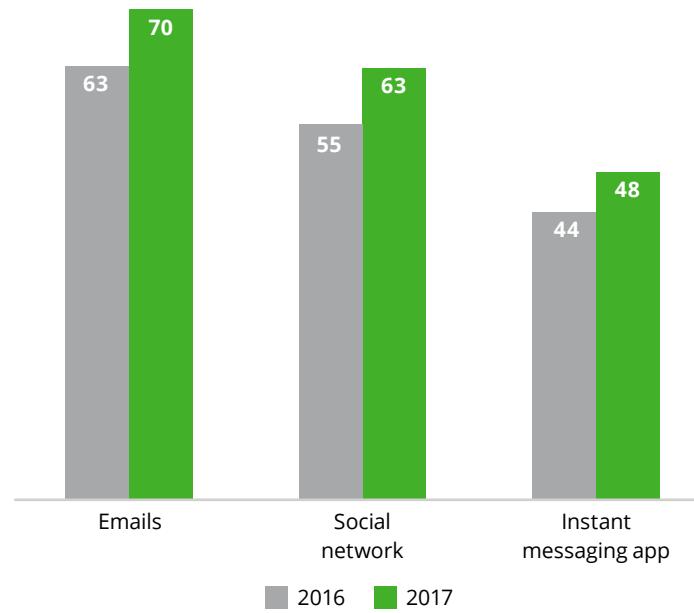




Sliding into IMs like...

Graph 5: Weekly phone activities – communication apps

Which activities do you do on your mobile phone?



Checking emails, social media and instant messaging (IMs) remain the most popular activities on our phones. While the 18-24 year old age group leads the way, the major growth is being driven by the 25-44 age segment.

This is particularly clear when it comes to instant messaging, with an increase of 20 percent of 25-34 year olds using it since last year and 25 percent more 34-44 year olds.

The rising popularity of instant messaging (according to Deloitte's Media Consumer Survey⁸, as an alternative to social posting) means Facebook's roll out of Facebook Messenger and their acquisition of WhatsApp for US\$19bn, was a prescient strategic move, especially with the news that revenue from its main news feed has slowed.

Among apps that support photo/video sharing and editing, our survey shows Facebook has the most appeal amongst all age segments, and Instagram and Snapchat are still widely popular amongst people between 18-34 year olds. The next challenge for platform providers will be to further monetise these apps without driving consumers away, especially given controversies this year around advertising on Facebook and YouTube⁹.

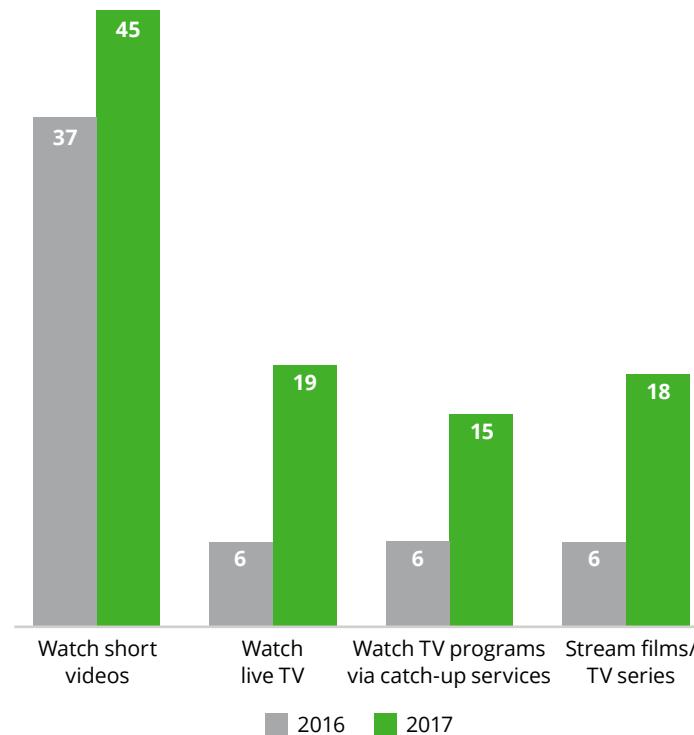




Streaming soaring, TV take over

Graph 6: Weekly phone activities – video views

Which activities do you do on your mobile phone?



It's the golden age of TV... on our mobiles. As we saw in the Media Consumer Survey⁸, we're watching more TV-type content than ever – just in very different ways. Streaming films and TV series on our phones has tripled in the last year; approximately one in five Australians are streaming films or TV series regularly on their smartphones, with 18-34 year olds leading the way. Watching TV programs via catch-up services on mobiles has more than doubled across all age groups from 2016.

Watching live TV has also tripled for smartphone users. More than 25 percent of young Australians watch live TV on their smartphones weekly. Increases in both streaming and live TV are at least in part driven by operators offering data free AFL and NRL streaming (Telstra) or free Netflix or Stan access (Optus)¹⁰.

Around 70 percent of 18-34 year olds watch videos weekly on their mobiles, with growth driven by the 25-34 age segment. Given the rising popularity of video on social media platforms and outside them (Cisco predicts, by 2021, more video will move across the internet in just one second than you could watch in almost two years of doing nothing else, including sleeping¹¹), it's inevitable that short video watching will go above 50 percent next year.

This increase in consumption of video content is a key reason why higher data plans are in demand. Fifty-four percent of 18-24 year olds with smartphones have allowances greater than 3GB.





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Networks, operators and churn

Shopping around for speed and value

Operators are responding to consumer demands, but not fast enough to avoid churn. Keeping up with consumers' increasing data consumption is the most pressing issue.





Networks, operators and churn: Shopping around for speed and value

Along with an increase in data allowances, there has been a sizeable increase in 4G subscribers over the past year, with up to 83 percent of respondents using a 4G service compared to 77 percent in 2016 and 41 percent in 2015. Despite the rise in data availability, as identified in the [data and content consumption](#) section, Australian consumers continue to regularly exceed monthly limits. Wi-Fi is now the most frequent type of connection for 63 percent of smartphone users, compared to 49 percent of users in 2016, indicating that consumers are defaulting to Wi-Fi to supplement their data demands.

In line with increases in online shopping across the board¹², Australian consumers purchased 19 percent of smartphones online, but the physical retail stores of network operators also remain relevant.

Cost of service and quality/availability of network (71 and 58 percent respectively) were found to be key drivers of choice for consumers when assessing their mobile operator. Desire for more data and network quality trumps everything, even loyalty. This is especially true for younger generations, who will switch for a better plan. The percentage of 18-22 year olds switching providers rose from 16 to 24 percent this year. The overall percentage of mobile users who churned to a new operator in the past two years grew from 15 percent to 18 percent.

Network operators are responding to this demand by investing heavily in the quality and coverage of their networks in order to offer larger data plans while maintaining quality of service. The focus on upgrading networks has resulted in the shutdown of the slower 2G networks and operators are actively preparing for the much anticipated move towards 5G.

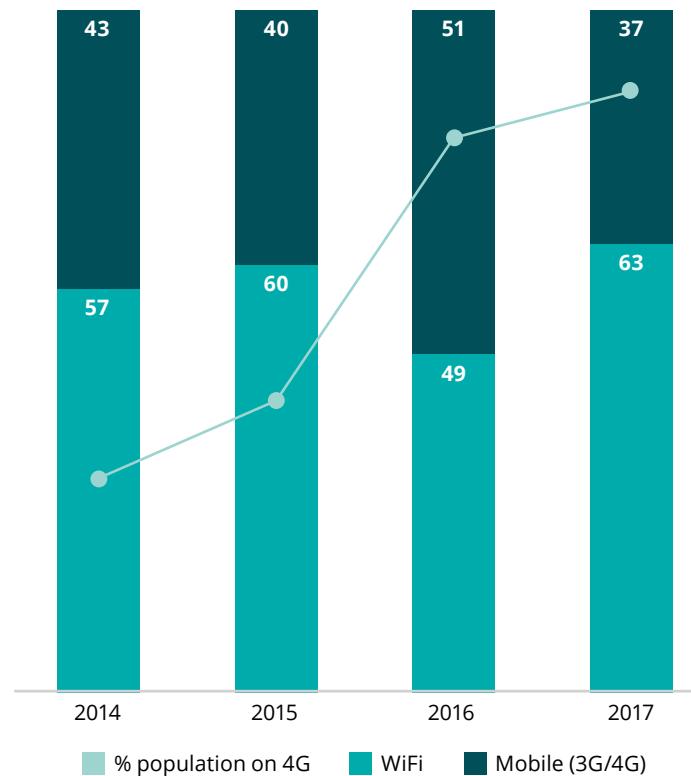




Wi-Fi wins...this round

Graph 7: Most frequent connection on a smartphone

Thinking about how you connect your devices to the Internet, which, if any of the following, types of connectivity do you use most often?



With an increase in 4G enabled smartphones and the shutdown of the 2G network, 86 percent of us are on a 4G network. However, Wi-Fi is the most frequent connection at 64 percent, compared to 49 percent last year.

What's driving this reversal? Our view is, not enough data and a diminishing perception that 4G is a faster connection. Deloitte analysis has found that the data hungry consumers who never exceeded their data plan are eight percent more likely to use Wi-Fi as their most frequent connection than those who regularly exceeded their plan.

In 2017, only 40 percent of consumers identify 4G as a faster connection at home (compared to 56 percent last year) and 46 percent out and about. As the NBN rolls out, Wi-Fi is getting faster to match 4G and consumers are willing to compromise on mobility or wait until connected to Wi-Fi to save data allowances.

While 2016 was all about discovering the freedom to carry out data heavy activities over 4G¹³, 2017 is all about the expectation to be able to do this. Consumers have become so accustomed to consuming data-rich entertainment while on 4G that they are blowing-out significant data allowances.

Looking into the future, there are some forecasters who are predicting the end of Wi-Fi¹⁴ as 4/5G speeds get faster and unlimited data packages roll out¹⁵. Despite this hype, our view is it is more likely that Wi-Fi, mobile connectivity and other connectivity solutions will continue to be complementary and required to enable consumers to remain 'always on'.

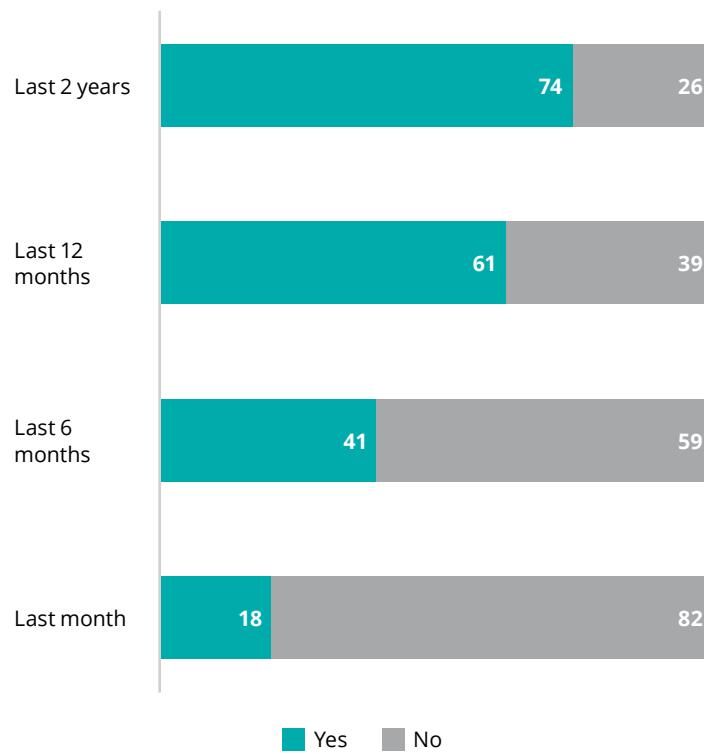




High-street hangs in

Graph 8: Last time survey respondents visited an operator store

When, if at all, was the last time that you went into a mobile operator's store for each of the following? (Options included: information, renew contract, make purchase, seek help or advice)



Our analysis suggests that operator stores still play an important role in the customer experience. More than three in five respondents visited a mobile operator store in the last year with one in five having visited in the last month. Fifty-four percent of smartphone users purchased their smartphones in a store and of these purchases, more than half were from a mobile operator.

Twenty-three percent of smartphones were purchased online, of which three percent were collected in an operator store. At 32 percent, the highest proportion of online purchases of smartphones came from the 35-44 demographic. Globally, the highest rates of online purchases were in Germany (45 percent), Netherlands (42 percent) and the UK (40 percent).

We suspect operator retail stores will continue to be an important sales and service channel for Australian mobile consumers for the foreseeable future, complementing online sales and other channels. Consumers are visiting operator stores for a range of reasons; the survey shows the most common is to test out physical products, closely followed by the need for face-to-face technical support. The increase in new technologies, devices and solutions creates a complex environment, which in turn creates a need for face-to-face customer interaction. For operators, there remains value to be gained in delivering a compelling and coherent omni-channel experience.

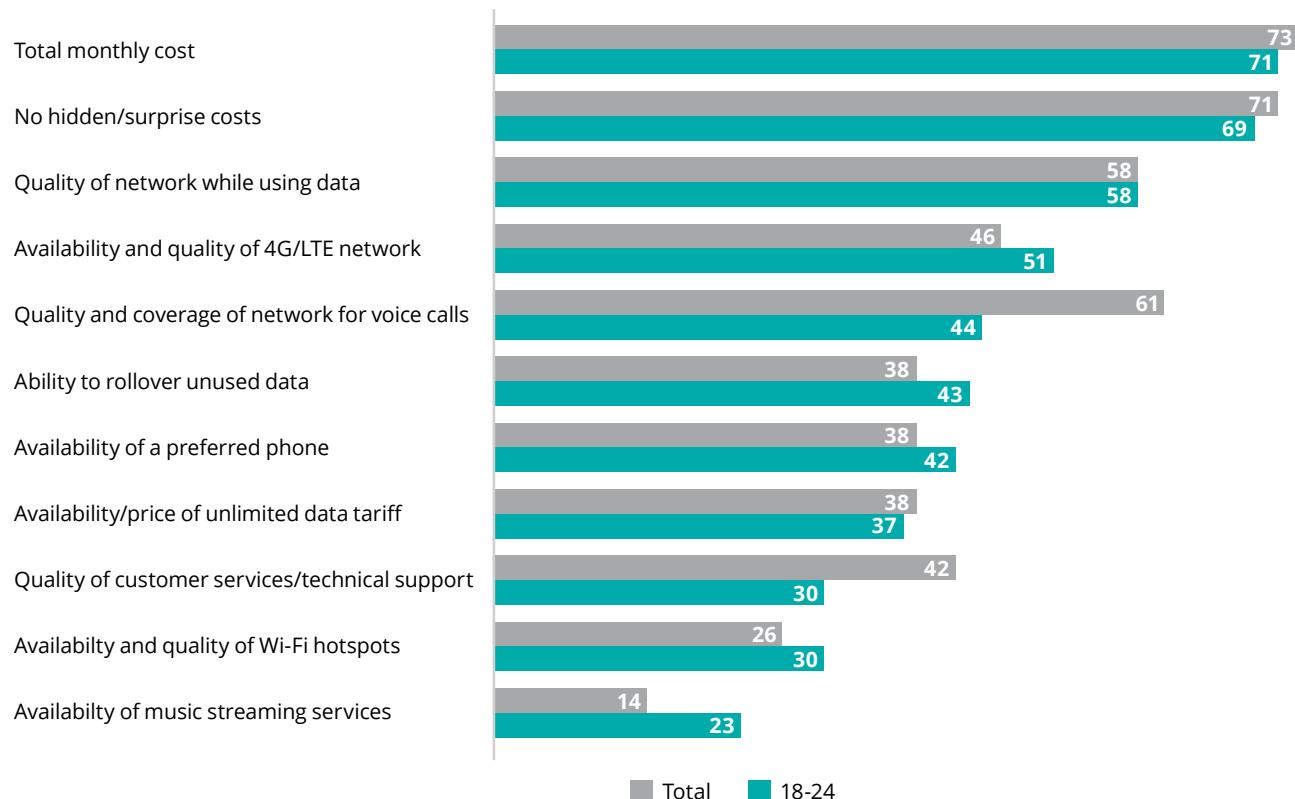




Satisfaction suffers

Graph 9: Mobile services that respondents rate 'very important'

From this list of features and services offered by mobile operators, please state which are important to you?



Customer satisfaction with operators has significantly decreased in the past 12 months, with our survey showing NPS is down by 14 points. This is in line with a 47 percent increase in new complaints, specific to mobile phone services, filed with the Telecommunications Ombudsman between April 2016 and June 2017¹⁶.

Cost of service remains the key driver of choice for consumers assessing their mobile operator, with 71 percent of the population rating this as very important. Quality and availability of network are next in line with 58 percent of all phone consumers citing this as an important consideration. However, operators are not always delivering.





The measurable impact of this slide in customer satisfaction is operator churn, which has grown in the past two years from 15 to 18 percent. The 18-24 year old segment is very price sensitive and is comfortable switching operators to get the best value for quality connectivity and data packages. Overall the most important services to consumers across the board are total cost, no bill surprise and quality and coverage of network for data and voice calls.

Addressing the evolving expectations of their consumers, investing in network quality and developing innovative data packages to meet the cost-conscious demands of consumers should be high priorities for all mobile operators.

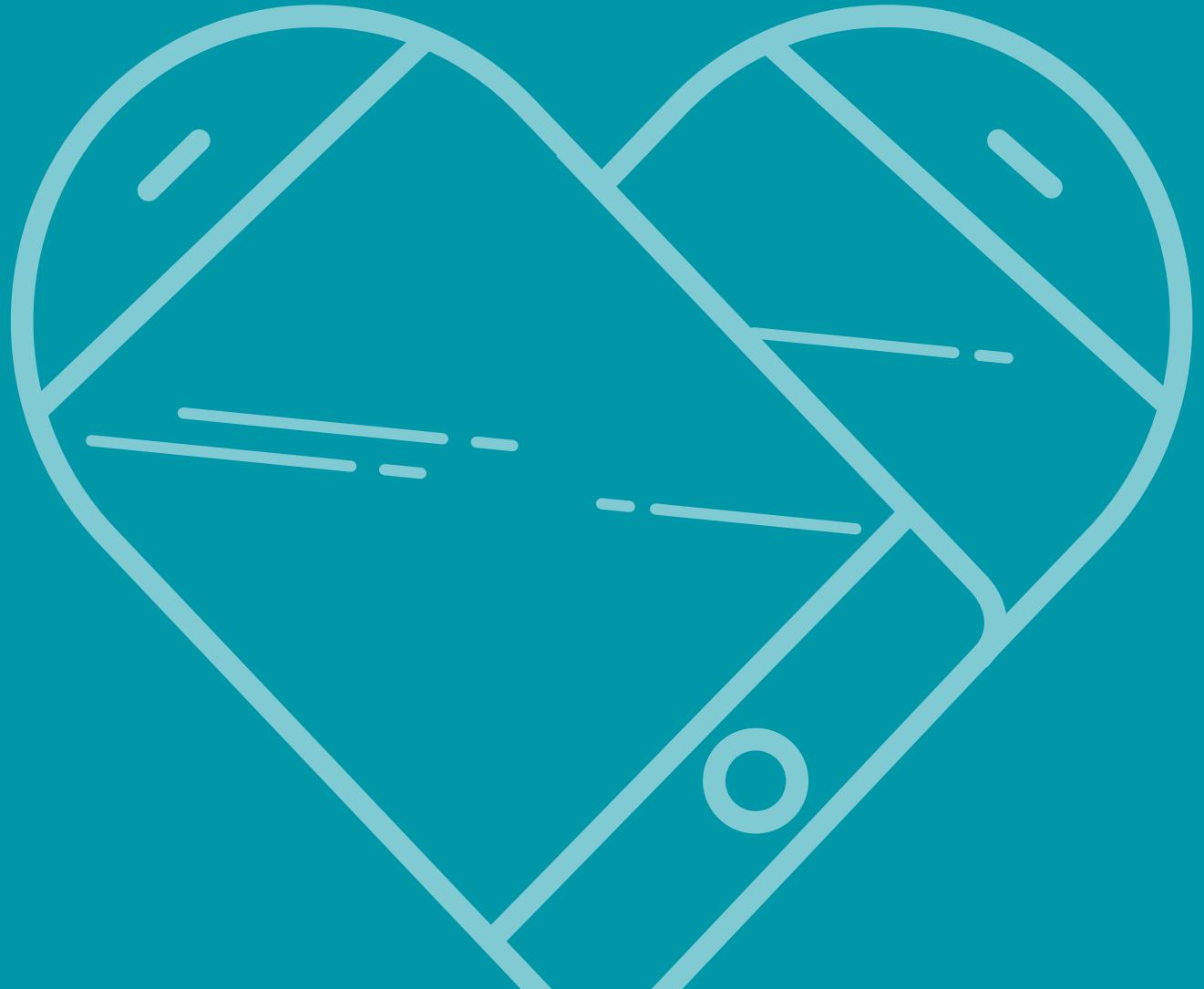




Phone usage

My first, my last, my everything

It's the first thing we touch in the morning and the last thing we see before bed – our smartphone use remains high, but how we use them is changing.



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Phone usage: My first, my last, my everything

There are a lot of loving glances happening in Australia – 560 million of them a day in fact – but it's not increasing the wedding count. No, the romance is between Australians and their smartphones. Australians are checking their phones more often, and the perception of others as to whether we overuse our phones has also increased.

Thirty-five percent of respondents check their phone within five minutes of waking up in the morning, with 70 percent admitting to using their phone during mealtimes with family and friends. Fifty-seven percent of parents are concerned about their children's use of phones.

However, alongside this increase in usage, are signs that respondents are aware and being more conscious about how we use our phones. Two thirds of young people admit to using their phone too much, and half of those are attempting to limit their usage. Habits for what respondents consume and how they use phones before bed are also showing signs of shifting, with more reading books and fewer on social media.

Smartphones are growing in importance as workplace tools – and there is opportunity for workers and businesses to take advantage of devices across a wide range of uses.

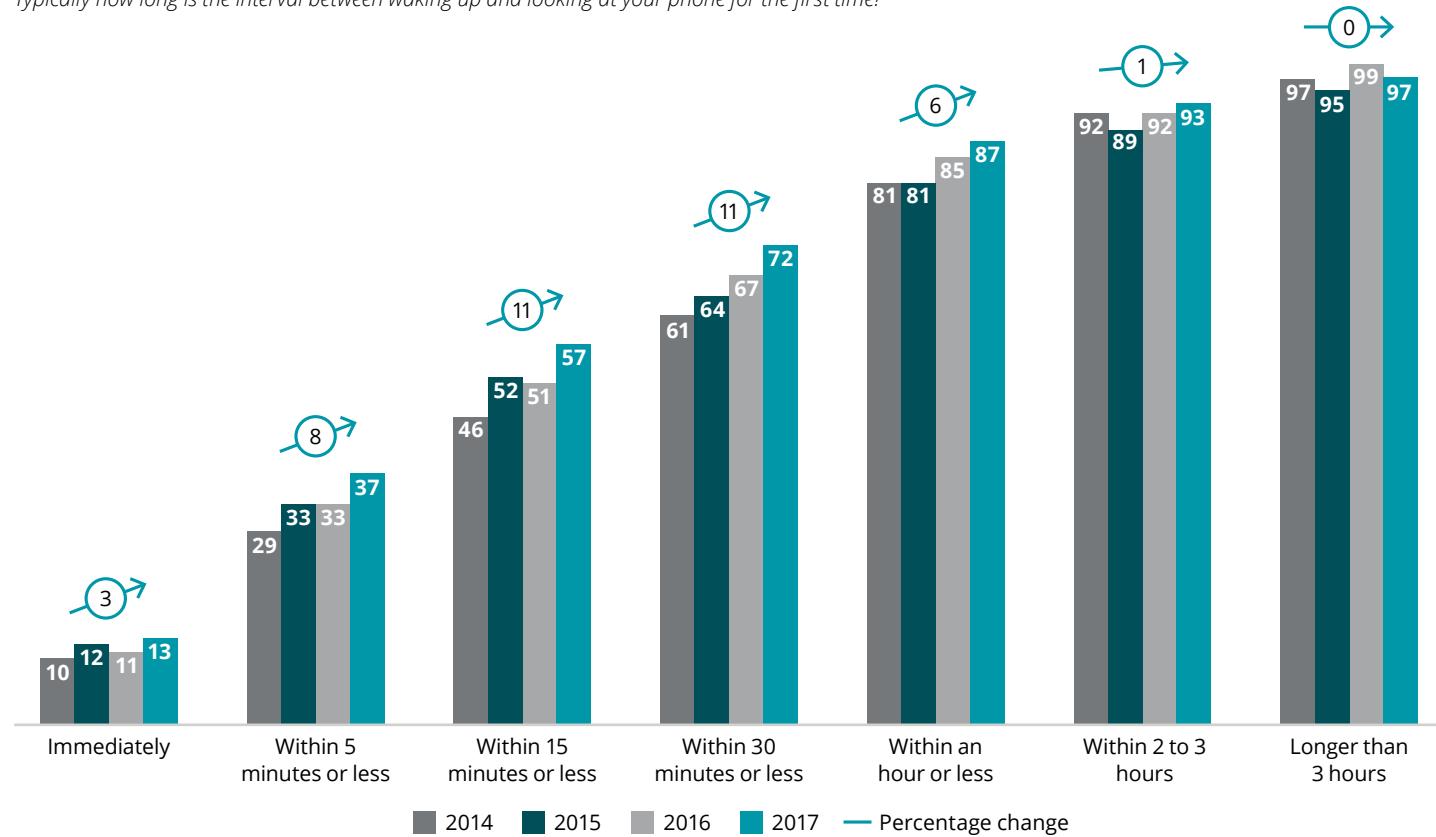




The moment I wake up...

Graph 10: Length of time between waking and looking at phone

Typically how long is the interval between waking up and looking at your phone for the first time?



Australians are checking their phones 80 million times more often than they were last year. Collectively, this is a massive 560 million times per day, or individually, more than 35 times a day on average.

And there are a lot of dinners getting cold, with our research showing that up to 1.2 million household meals are interrupted each evening by smartphone use. Additionally, the interval between waking and checking our phones has decreased every year since 2014. In 2017, respondents check phones within 32 minutes of waking, compared to within 35 minutes in 2015. The biggest change has been in 45-54 year olds, who now check within 32 minutes, compared to 50 minutes in 2015.





Almost half of us (46 percent) still use our phones immediately before going to sleep, despite expert advice on the impacts of screen light on rest¹⁷. However, there are signs of conscious change in what activities we do before sleep, with more young people playing games and reading books on their phones before bed, versus social media and messaging activity, compared with 2016. Also decreasing is phone use while driving, down eight percent from 2016.

With the diversity of uses for smartphones increasing every year (you can now use your smartphone as a breathalyser, a microscope and to solve a maths equation by taking a photo of it)¹⁸ it's no wonder Australia is struggling to disconnect. But we do appear to be trying to apply some balance.

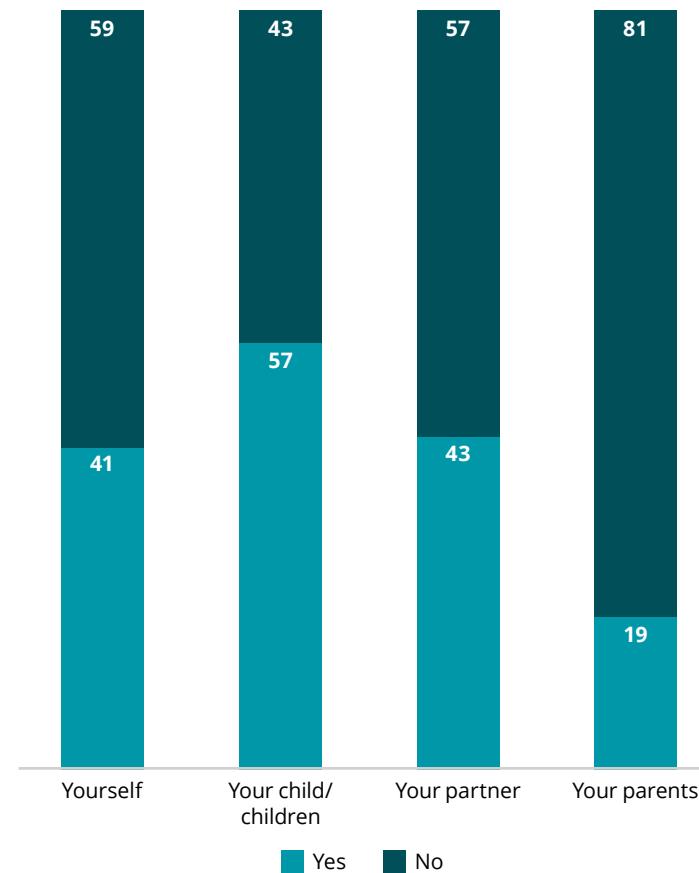
Phone is where the heart is

Almost 70 percent of 18-24 year olds admit they use their phones excessively, 50 percent are attempting to limit their usage, but only one in five of those are succeeding. Forty-nine percent of respondents multitask on their smartphone while spending time with others, this rises to 65 percent of 18-24 year olds. Thirty-five percent of all respondents believe both they and their partner use their phones too much.

Fifty-seven percent of parents in 2017 felt that their kids were spending too much time on their phones. However, this is likely just a mirroring behaviour, with 44-55 year olds interacting with their devices earlier (three minutes sooner upon waking since 2015) and more often (average views per day has increased by 13 percent).

Graph 11: Perceived excessive use of smartphone

Do you think the following use their mobile phones too much?





Many respondents perceive their smartphone usage as problematic, with 44 percent of people trying to reduce or limit their smartphone usage, most commonly by trying to keep the smartphone out of their hands or turning off its functions. A quarter of those trying to limit their phone time claim to do so by deleting apps.

Phone addiction is not just an Australian phenomenon, with Tencent, one of the largest gaming companies in China, implementing usage limits for under 18s¹⁹. There is potentially a new market for businesses who can provide assistance in limiting screen time.

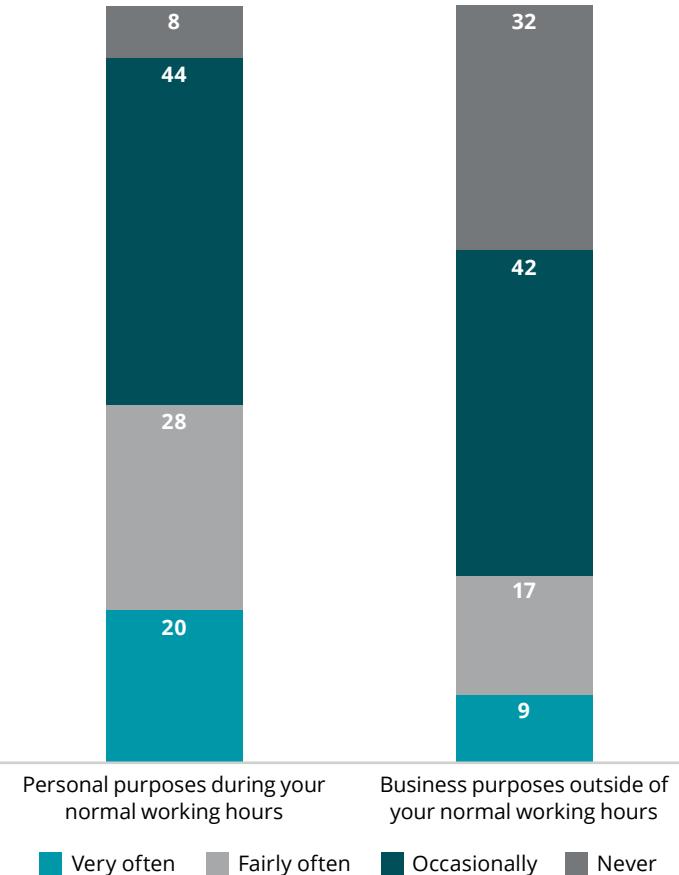
Putting the smartphone to work

Smartphones are emerging as an essential work tool. Of the 67 percent of respondents who use their smartphones for work, email (48 percent), making standard calls (47 percent) and calendar management (29 percent) are the most popular activities.

Seven percent of workers used their smartphones to submit a timesheet, five percent did so to submit expenses, and nine percent did so to access a work intranet site. These numbers increase despite the difficulty of using smartphones for certain work related applications.

Graph 12: Phone usage during working hours and non-working hours

During a typical working week, how often, if at all, do you use your phone for...?





Use of mobiles for work is blurring the lines between work and personal time. During a typical work week, 26 percent of Australians will often use their phone for business purposes outside of work hours. We're on par with the Netherlands, Finland and Ireland on this, behind Norway and Sweden (33 and 32 percent) and ahead of the UK (19 percent). By contrast, 32 percent of working adults don't use their mobile for any work-related activities at all, while only eight percent are able to forgo their mobile for personal use during work hours.

Mirroring this blur, there is an emerging trend for consumer apps to enter the business space. As an example, WhatsApp is used as a tool for business communication and touts itself as a secure messaging service²⁰.

The smartphone's success as a business tool across multiple processes requires mobile-optimised design – just as with consumer apps. Developers who can optimise mobile to transform the way work gets done, from retail store operations, healthcare, field maintenance, to dozens of other services and processes, could have an opportunity on their hands.

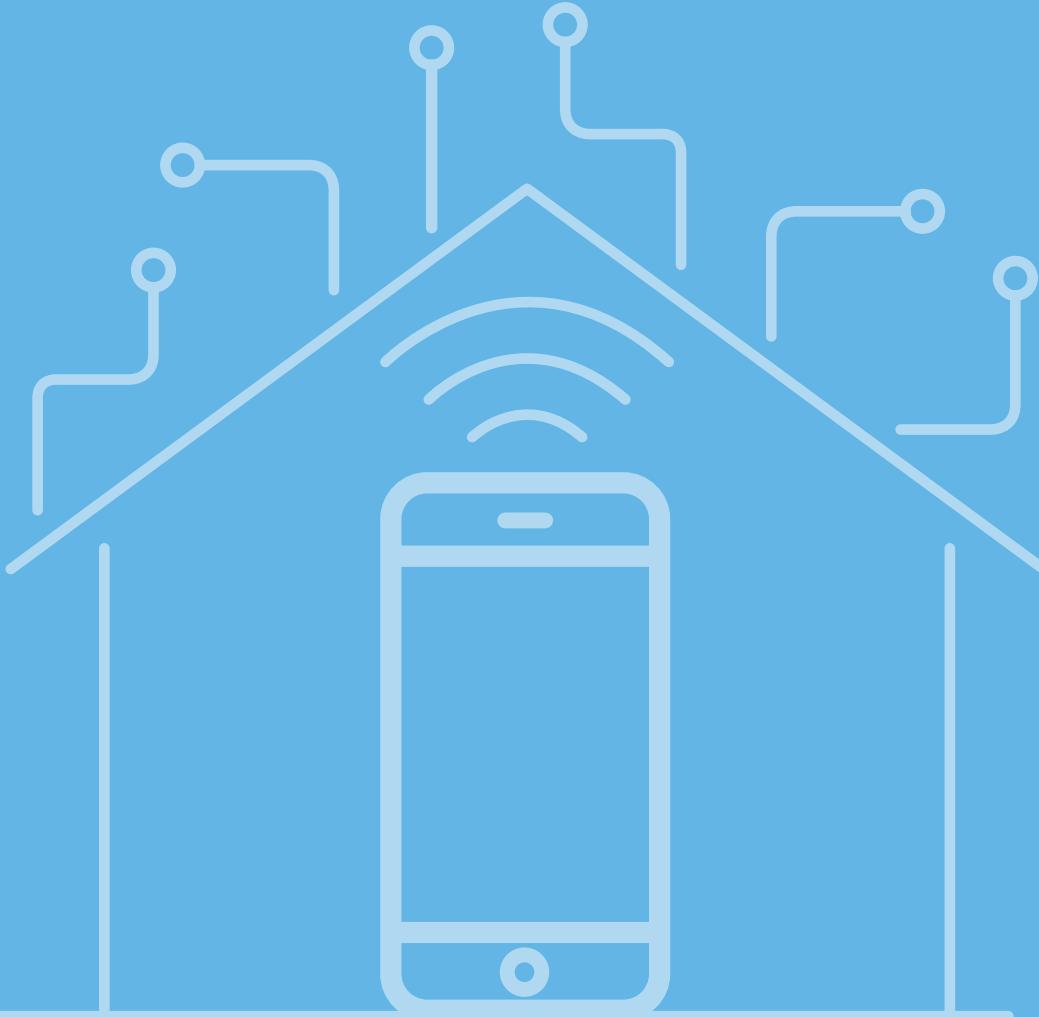




The rise of connected everything

Smart money's on IoT

Years of theoretical discussion and speculation about the potential of the Internet of Things (IoT) are finally starting to come to fruition, as findings show Australians are now likely to own several smart technologies. Growth in smart entertainment systems is leading the way.



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The rise of connected everything: *Smart money's on IoT*

The survey shows connected devices are starting to gain momentum in the Australian market after years of stagnant growth. Survey responses in 2017 have indicated double digit market penetration growth for the vast majority of connected devices, from fitness bands (15 percent increase) to home security systems (73 percent increase). Where almost half (48 percent) of those surveyed in 2016 had yet to purchase any connected device, this has reduced to less than one third (29 percent) this year.

Connected entertainment devices have had the highest growth and penetration. Ownership of smart TVs, games consoles and wireless speakers grew 50 percent, 46 percent and 75 percent respectively from 2016.

Wearable devices have seen steady growth and, given improved technologies and the expanded range of wearables, we can expect this to continue. Fitness band penetration may stabilise as consumers shift their preferences to smart watches as they increase in functionality and become more affordable.

Connected home devices have the lowest penetration, however, they have seen strong growth in 2017, particularly in self-install appliances like home security devices. The Australian home IoT market is expected to be worth \$4.7bn by 2021, up from \$377m in 2016²¹. Consumer preference is slowly shifting towards connected home devices, though penetration remains low due to the long product life spans of the typical home device (think fridge, washing machine) and therefore extended replacement lifecycles²². The introduction of Google Home and Alexa in 2017 could see an increased uptake in these devices – so watch this space.

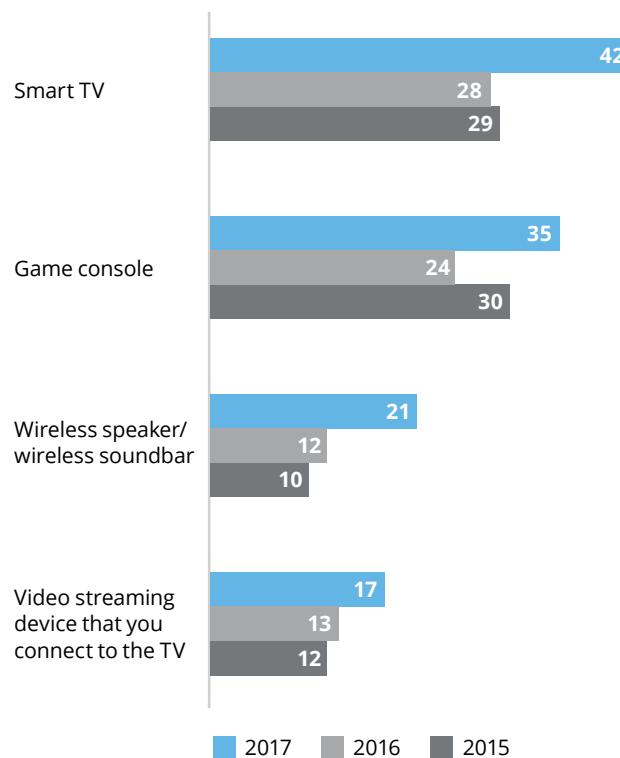




Our entertainment ecosystem

Graph 13: Percentage of ownership of connected entertainment devices

Which, if any, of the following connected devices do you own or have ready access to?



The increase in popularity of music streaming and podcasts has led to an explosion in the ownership of wireless speakers, especially for users aged 18-44. Coupled with the increased affordability of these devices, Australians are 'un'wired for sound wherever they go.

Wireless speakers and sound bar market penetration has increased to 21 percent in Australia, a 45 percent increase since 2015, with a further 12 percent of respondents noting their intention to purchase one within the next 12 months.

Smart TVs and games console ownership grew 50 percent and 46 percent respectively this past year. This is likely driven by the higher number of connected entertainment devices in the market and the phasing out of 'dumb' devices.

Other contributing factors include increased affordability of smart entertainment devices and the growing popularity of streaming content providers such as Netflix and Stan – set to be more popular than pay TV in a year²³.

The release of voice based 'virtual personal assistants' – Google Home is now available in Australia and the arrival of Apple's Home Pod and Amazon's Alexa rumoured to be in the near future – will likely have a significant impact on the take-up of connected home entertainment and other smart devices²⁴.

Voice activation is crucial in a smart home environment and these assistants provide a simple, accessible interface and control centre to link up a variety of smart devices – moving us much closer to the idea of a truly connected home²⁵.

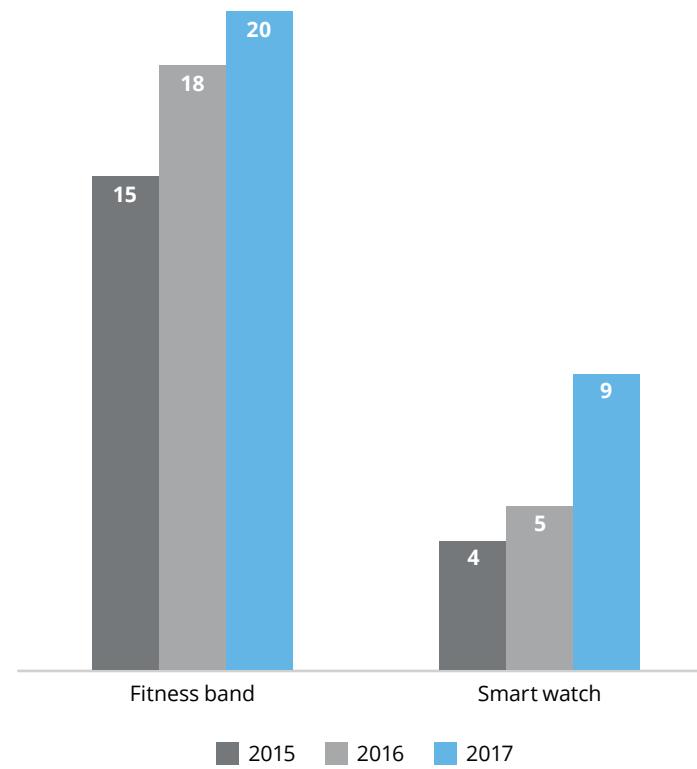




Watch the throne?

Graph 14: Percentage ownership of connected fitness devices

Which, if any, of the following connected devices do you own or have ready access to?



Two key factors might see the pretender seize the crown, as the slow-to-take-off smart watch outpaces growth in fitness bands for the first time. It's a winner takes all scenario, as our findings show only 12 percent of people who own either device own both.

Globally, Gartner predicts some 40.5 million smart watches will be sold worldwide during 2017, generating revenue of AU\$11.77 billion²⁶. In Australia, smart watch ownership almost doubled from five percent in 2016 to nine percent in 2017, and is predicted to achieve greater market penetration.

Key factors driving this include greater functionality provided by leading technology players (e.g. Apple, Samsung) into the smart watch market, successfully overtaking existing brands (e.g. Fitbit) due to their ecosystem strength and greater availability via carrier channels, including bundles and repayment plans that increase the ease and affordability of purchase.

Fitness band manufacturers are shifting in response to consumer preferences, for example, Fitbit announced the launch of their first smart watch in September this year – the Fitbit Ionic²⁷.





Outside of fitness bands, wearables have been relatively slow to take off, or even faltered, in the case of Google Glass. But with the range of wearable technologies available set to broaden, including yoga pants that will correct your posture and bikinis that will tell you when to move out of the sun²⁸, consumers will soon have the option to outsource thinking and decisions to so-called smart clothes. The resurgence of Google Glass²⁹ combined with the array of enterprise use applications for AR in the workplace³⁰ could further drive adoption of wearable technologies next year.

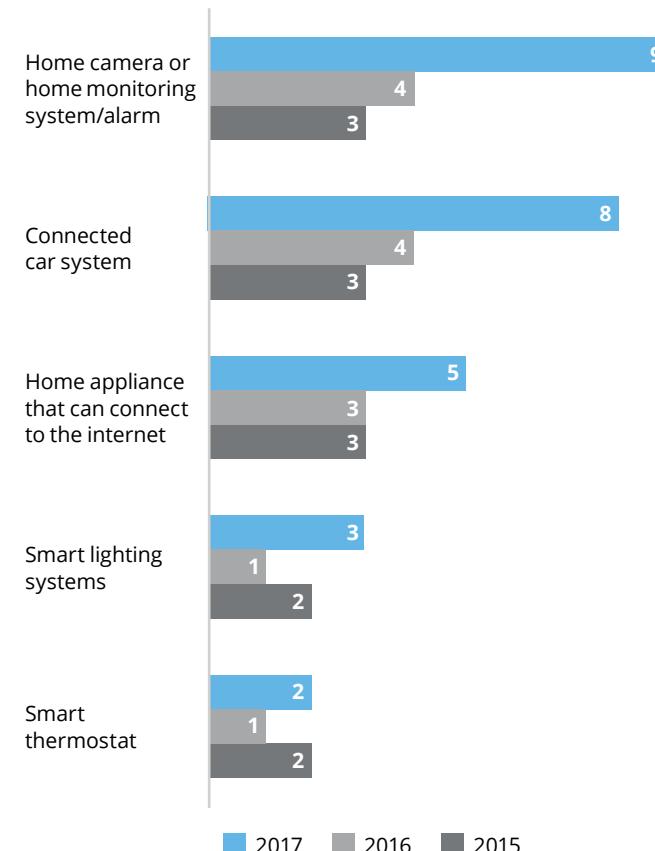
Our homes are getting smarter

Smart home connectivity is yet to go mainstream, with relatively low market penetration despite increases in ownership across the range of connected devices and systems. Device ownership has grown since 2015, driven largely by growth in home security monitoring systems and connected cars, which both doubled in penetration in the past year.

The popularity of home security systems seems to indicate consumers value connected home devices for increased security and convenience. However this perceived value is not yet high enough to warrant immediate purchase, as seen in the discrepancy between ownership and intention to purchase.

Graph 15: Percentage of connected home devices

Which, if any, of the following connected devices do you own or have ready access to?





The survey findings show devices that are lower cost and can be self-installed – like alarms and lightbulbs – are more popular. It's possible that consumers are testing out the functionality of these devices and the extent to which they are useful before committing to the purchase of more expensive smart home devices.

Over the next five years, we anticipate growth in home automation will help drive demand for new appliances, equipped with the appropriate sensors and software necessary to communicate with smartphones over Wi-Fi³¹. We expect connected home device ownership to keep increasing, as our survey shows that the intention to buy is higher than all 2017 ownership levels (with the exception of connected cars).

These findings indicate that bets in smart home IoT are best placed on products that have a clear customer benefit, short replacement cycle and are easily self-installed.

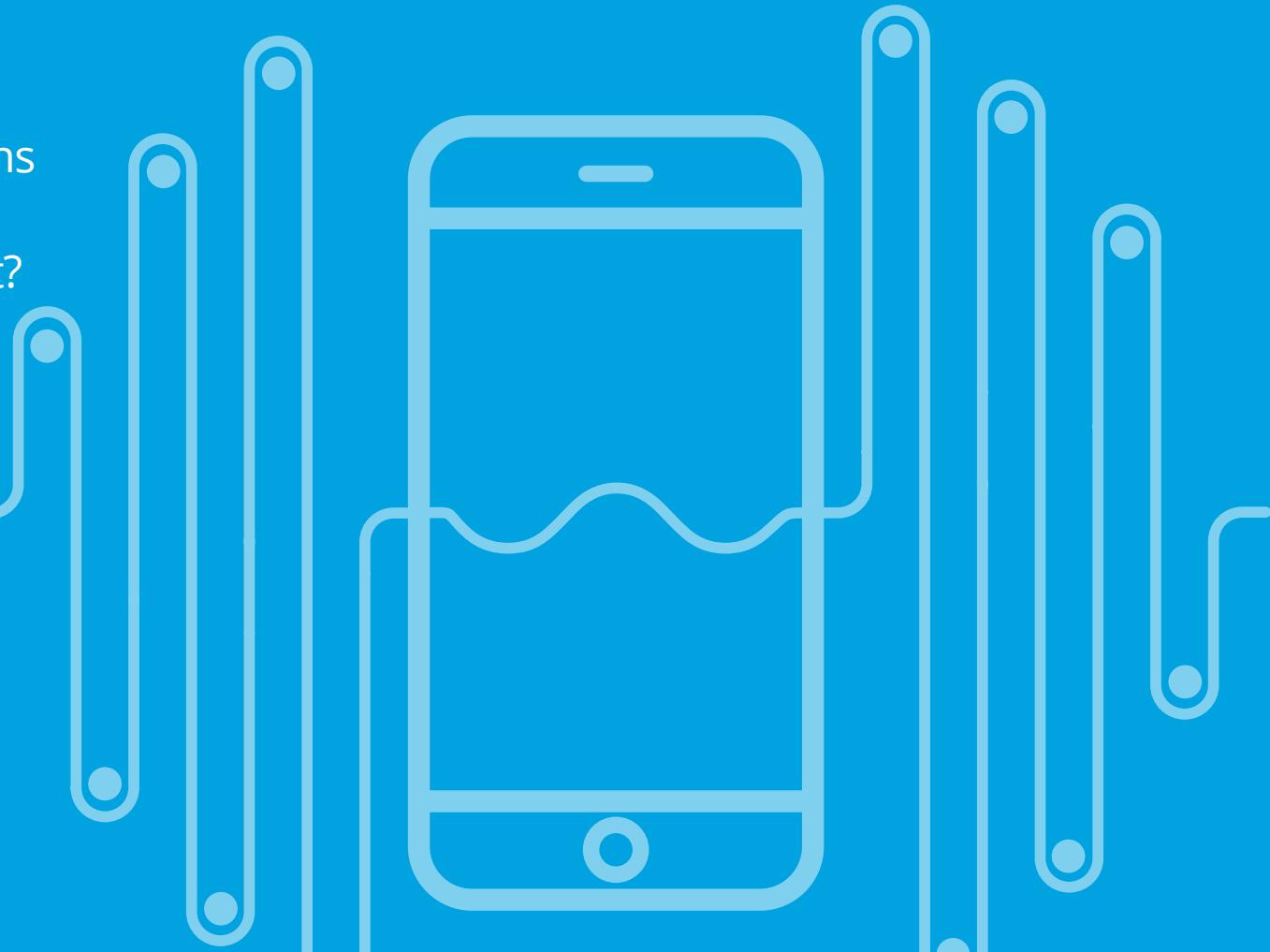




Machine learning in our phones

Slow rise of the machines

The battleground of artificial intelligence and specifically machine learning is delivering 24/7 unlimited personalised support to consumers through innovations like voice assistants, pop-ups and route finders. So why are so few actually using it?





Machine learning in our phones: *Slow rise of the machines*

Machine learning is an application of artificial intelligence which enables automated improvements without explicit programming. It uses a range of inputs to customise applications to the user. Examples of machine learning currently in smartphone applications include photo recognition programmes used to tag people in pictures, predictive text, voice assistants, or apps that make suggestions based on where the user is or what their preferences are.

It is likely to play an increasingly important – albeit often invisible – role in the evolution of smartphone application and handset design over the coming years. Responses show for Australian smartphone users, awareness of machine learning features in phones is about average, but usage is significantly lower.

Predictive text is the most popular machine learning function, with 39 percent of all smartphone owners using it. Route suggestions are the most commonly used location based service, with nearly one third of respondents being aware of it.

Voice assistants have high awareness, at 43 percent, but low usage at 14 percent. With the release of home speakers into the Australian market, normalising voice-led technology, we would expect this number to continue to increase.

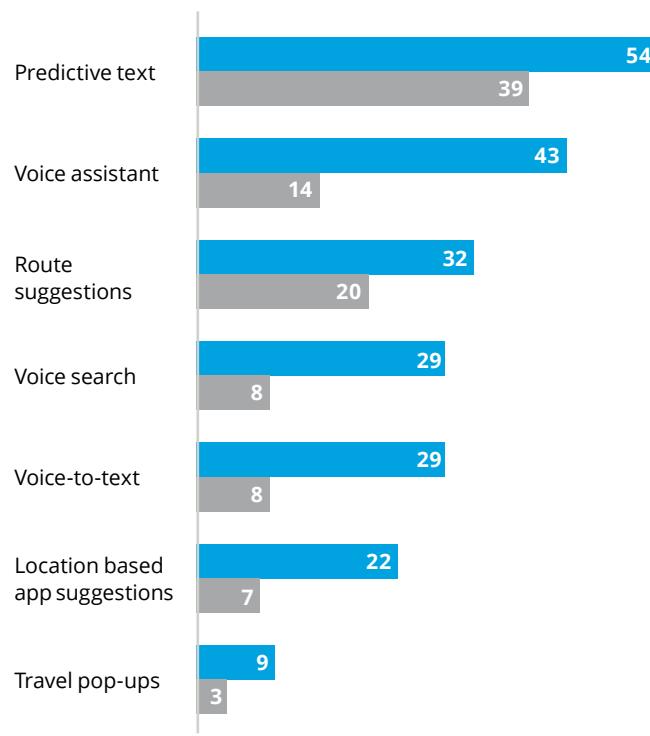




Text or voice?

Graph 16: Machine learning on mobiles

Which, if any, of these features are you aware of? And which, if any, do you use?



Of all machine learning services on our phones, predictive text is the most widely known and used. It has the highest use amongst respondents using any Apple 6-7 smartphones, with 46 percent of all respondents with these phones using the service. Users with bigger phones, such as the Samsung Galaxy 6 family, used predictive text around five percent more than users with smaller phones.

As the technology for predictive text improves, and as phones get bigger (and more difficult to type on), predictive text will either continue to rise, or be completely surpassed by the use of voice assistants and voice to text.

The main function of machine-learning applications, is to help smartphone users to manage the vast amount of information now available to us through our phones. As the volume of this information increases, the amount of activity we conduct through our smartphones rises and machine learning technology continues to improve, we expect it to become a central feature of smartphone use. As with most technology, the best machine learning applications will be those where we don't even need to realise what is powering their functionality.

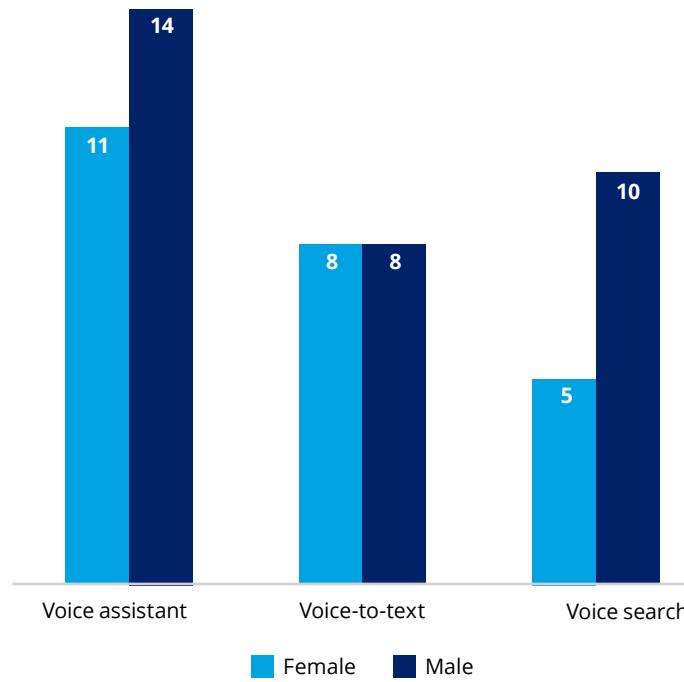




Hi, can I help you today? Please?

Graph 17: Voice assistant usage by gender

For which, if any, of the following reasons do you ever use the virtual assistant provided on your mobile phone?



Siri, Alexa, Cortana, OK Google. Never have so many been offered so much support and assistance from just a small few. But do we want it? While awareness of the presence of virtual assistant technology is high, at 43 percent, only 14 percent of respondents use it.

As well as the overall rates for voice assistant usage being low, there is a marked difference between how men and women use it. Females are 50 percent less likely to use voice to search on their smartphones than their male counterparts.

Various studies and opinion polls cite privacy concerns as a major barrier to voice-led search on two fronts³². Firstly, in relation to speaking personal information out loud and in public, for example, internet searches, holiday plans or banking info³³. Secondly, in relation to concern as to what the companies are doing with all of the data they collect on our voice searches³⁴.

Social context also seems to be part of the low adoption rates. Consumers tend to prefer to use voice assistants when they're alone, like in a car or at home. In a US study, 20 percent of consumers who said they have never used a voice assistant said it was because they feel uncomfortable talking to their tech in public. The same study showed 62 percent of iPhone owners use Siri in the car, possibly because of driving laws or more privacy³⁵.

Despite the low uptake to date, most research suggests the rise of voice led search and browsing³⁶, so developers would be wise to optimise their products and sites to be findable on voice search.



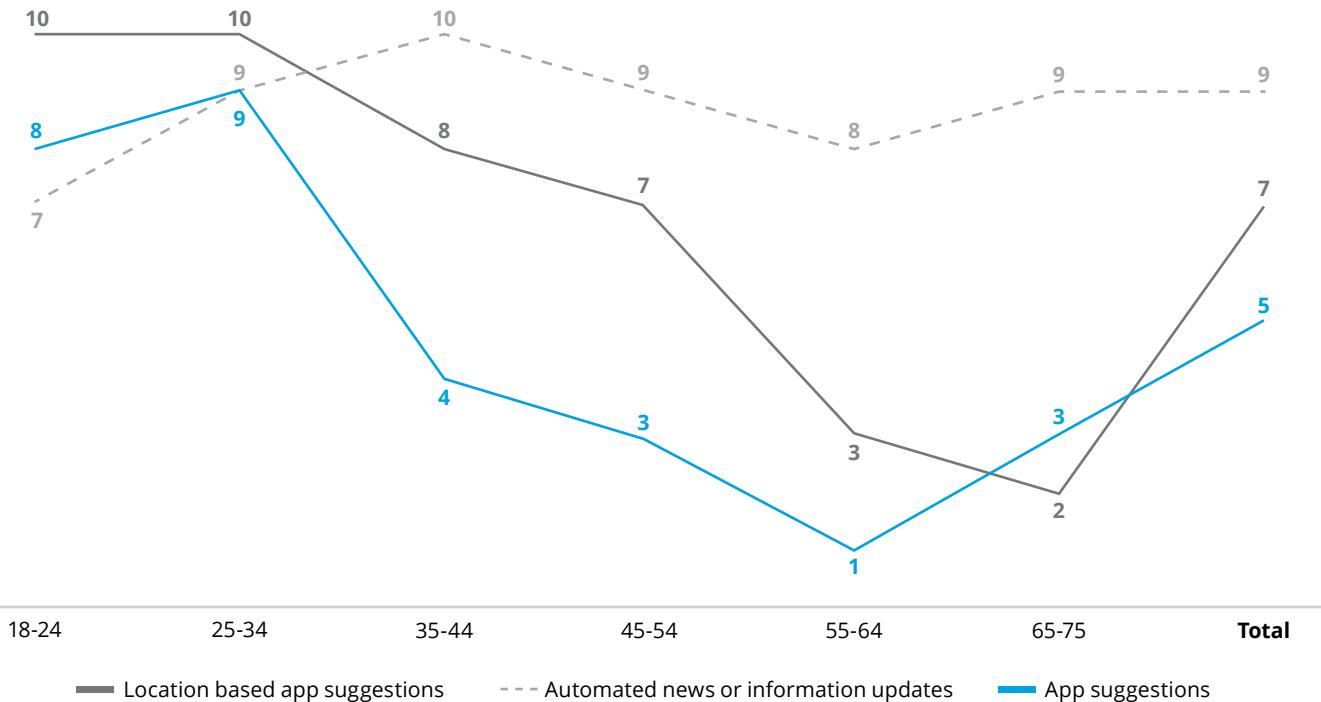


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Top of the pop-ups

Graph 18: Pop-ups and suggestion use by age

Which, if any, of these features are you aware of? And which, if any, do you use?



Pop-up notifications are a feature where your smartphone pushes information or updates to you based on preferences you have selected, your location or your activity. For example, Google can pop-up information giving you the best route home from work, suggested arrival time, or good restaurants in the area you're in.

Although the machine learning technology powering these pop-ups is improving, and the assistant or guidance they are providing should be more useful, the rates of usage are low. Automated news or information updates are consistently the highest pop-ups, and have a steady use rate amongst all generations, used by nine percent of all respondents.



Pop-up suggestions, both location based and within apps, are used significantly more by younger people, between the ages of 18-34, than other generations. This may be because this demographic are out and about more and so more open to venue/social suggestions.

18-34 year olds are also the most likely age group to use route suggestions on their smartphones – supporting the argument that Millennials literally would be lost without their phones! Use has also surged in 45-50 year olds compared both to older and younger age groups, potentially because of more severe penalties around use of mobiles while driving.

Pop-up notifications are generally not too popular with phone users, with lots of articles giving advice on how to disable them.^{37 38 39} Our results suggest the most used pop-ups are those that provide information that enhances a user's day. Developers considering pop-ups in their applications should ensure that the information is actually useful or provides benefit for consumers. Pop-ups with no function risk becoming intrusive or an annoyance, rather than a feature.





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Payments, biometrics and shopping via mobile

Tap happy

Australians are shopping more and paying more with smartphones. Fingerprints are hot on the heels of PINs as identifier and authenticator of choice. While respondents know how to protect data on their phones, they struggle with protecting personal data online.





Payments, biometrics and shopping via mobile: Tap happy

The use of fingerprint authentication on smartphones has surged, with a 35 percent rise from 2016. Mobile payment technologies are becoming increasingly available, with in-app payment and touchless technology overcoming traditional barriers to purchase on smartphones.

As screen size and technology improves, and more retailers and financial institutions modify and roll out mobile friendly sites, the smartphone is increasingly becoming the device of choice for browsing and buying. Twenty-four percent of respondents bought a product on their smartphone at least once a month. Browsing a shopping website/app and researching a product/service are the most popular shopping-related activities on a mobile.

The number of Australians that browse online shopping sites on their mobiles has risen 14 percent in the past year, however online purchases have increased by 25 percent since 2016. The existing browsing community, who previously did not purchase, has been converted to smartphone online purchases, enabled by easier payment.

18-24 year olds remain the primary adopters of biometric authorisation technologies at 50 percent, with Apple retaining their lead over their competitors.

This group also share the most data with companies online, yet are also the most trusting that these companies don't use this personal information or share it with third parties.

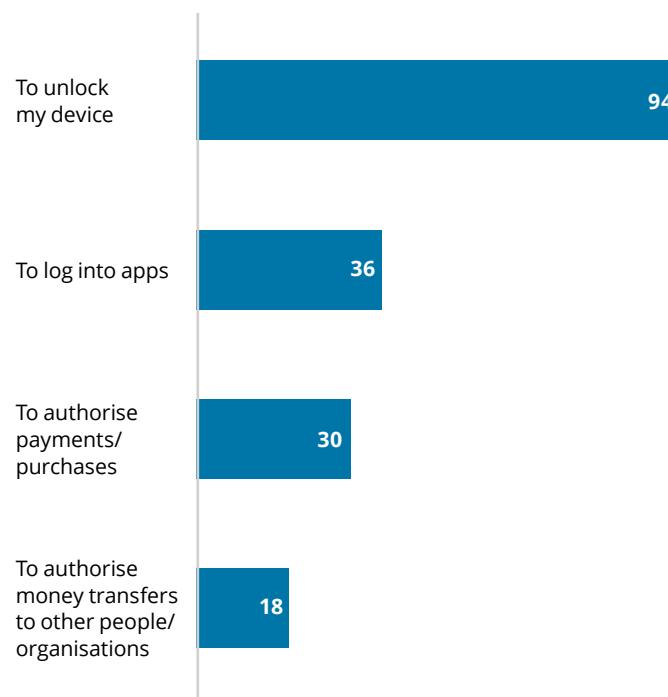




Prints Charming

Graph 19: Fingerprint reader usage

Which, if any, of the methods listed below have you used to identify yourself when unlocking your phone, authorising mobile payments or other transactions?



The use of fingerprint authentication on smartphones has surged. As of mid-2017, 31 percent of all smartphone owners aged 16-75 used fingerprint recognition for at least one application, up 35 percent from 2016.

Forty-five percent of smartphones now incorporate a fingerprint reader (up from one in three last year), and 69 percent of those who have the technology on their phones use it. The most common application is to unlock the phone, with 94 percent using it for this reason. The second most common application was to log into apps, used by 36 percent of those using the fingerprint sensor. This proportion is likely to rise as smartphones are increasingly used to access sensitive data, like banking apps, medical/health records or work-related content.

The use of fingerprint recognition for identification purposes has risen across all major phone manufacturers, with Apple users remaining significantly more likely than Samsung or Android users to use available fingerprint recognition technology. Fifty-nine percent of Apple users have used available fingerprint technology to unlock phones compared to 36 percent of Samsung users, leading us to conclude that Apple's technology remains ahead of Samsung's on this front.

PIN/passcode still remains the most common method of identification (68 percent), but as smartphone usage frequency increases, the convenience of a single tap versus entering a six digit or longer password is likely to become increasingly beneficial. With facial recognition to unlock and authenticate one of the new features of Apple's iPhone X model, and already available from other manufacturers, we predict a rise in other biometric identifiers to identify users.

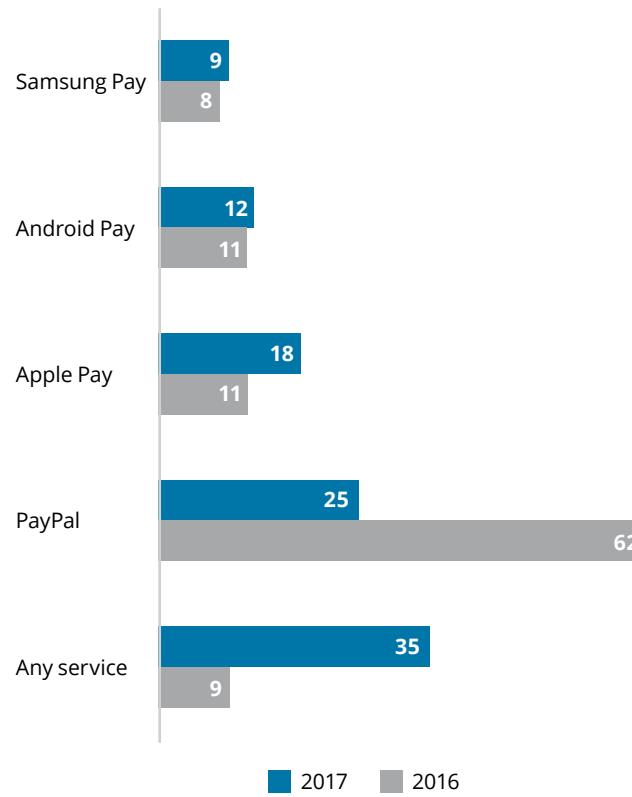




Seamless shopping on the go

Graph 20: Mobile payment solutions usage

Which of the following in-store mobile payment solutions have you used?



Purchasing via our mobiles is growing, and poised to increase further, as the joint enablers of mobile optimised sites and streamlined mobile payments combine to offer mobile shoppers a seamless experience.

Although laptops or desktop computers remain the most popular devices for online purchases, mobile purchases have risen 25 percent in 2017. This is especially true in the 25-34 age group. Forty-eight percent of that group purchase on their tablet and 32 percent purchase on their mobiles. Younger age groups are more likely to use mobile devices over tablets. Women are significantly more likely than men to use their mobile phones to make online purchases, 22 percent versus 14 percent.

Use of mobile payment solutions has risen 14 percent from 2016, with over a quarter of respondents now using them. Apple Pay (18 percent) retains its lead over Samsung Pay

(nine percent) and Android Pay (12 percent) as an in-store mobile pay solution. PayPal has been the big loser in this market. This may be because while their Android app allows tap and go payments, this doesn't exist for Apple users (as Apple's OS restricts third party payment applications).

Apple Pay is most popular among the older age groups 55-75, but Samsung Pay is gaining ground among younger age groups, with 10 percent of 18-24 year olds using it and 11 percent of 25-34 year olds. This corresponds with our findings in [device landscape](#), where Samsung's handset share has increased in the crucial 18-24 demographic.

These insights indicate that there is value in developers creating seamless experiences combining mobile applications and payments for fast purchasing on the go.

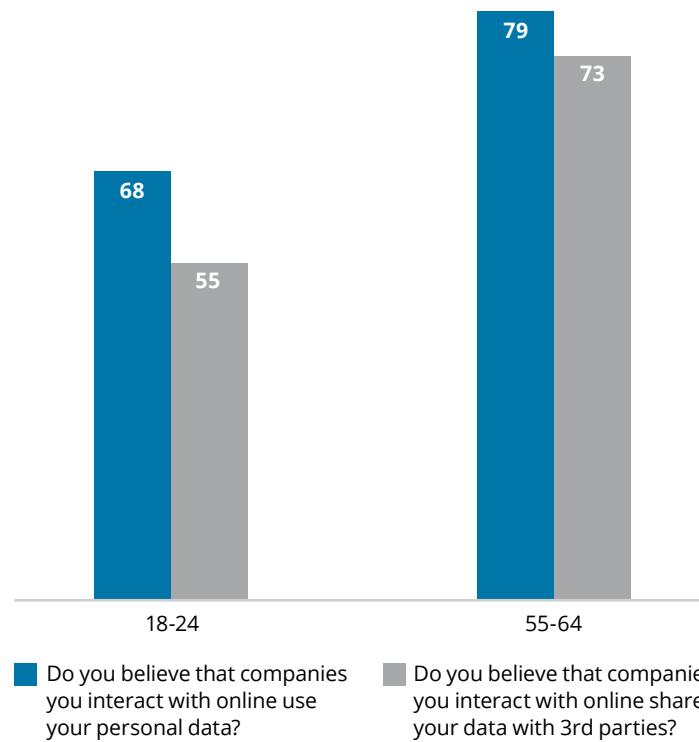




Open season on personal data

Graph 21: Data privacy

Do you believe that the companies you interact with online use your personal data? Do you believe that the companies you interact with online share your personal data with third parties?



Despite increasing sophistication in phone use, and the increase in the range of activities conducted through smartphones, Australians are alarmingly naive around data privacy.

18-24 year olds are the most trusting that companies they interact with online are not using their personal data. Only 68 percent believe their data is used by companies and only 55 percent believe their data is shared with third parties. This is despite the fact that 91 percent of 18-24 year olds confirmed they use Facebook Messenger, an app which collects personal information, including location⁴⁰. In fact, up to 70 percent of apps pass personal data on to third parties⁴¹. Recognition of the type of data shared online is still low, with only 60 percent of this demographic thinking that organisations they interact with had their name or email address.

In fact, the generations typically considered to be less informed about technology have the most insight around privacy. Seventy-nine percent of 55-64 year olds believe companies are using their personal data, making them more conscious of what they share, especially private information.

There is a major disconnect in attitudes and practices around information privacy online⁴². When asked, people say that privacy is important to them; when observed, people's actions suggest otherwise⁴³.

So what's going on? Are companies successfully duping younger generations into thinking they are not sharing data? Or does this generation not care, having grown up in a new era where privacy online just doesn't exist. This highlights a need for increased education on this topic to develop more informed consumers.



**Check out the Mobile Consumer
Survey website here:**

deloitte.com/au/mobile-consumer-survey



Contacts

Authors



Jeremy Drumm

Partner, Monitor Deloitte
jdrumm@deloitte.com.au
+61 02 9322 5088



Nicholas White

Principal, Consulting
nickwhite@deloitte.com.au
+61 02 9322 5813



Morne Swiegers

Manager, Consulting
mswiegers@deloitte.com.au
+61 02 9322 3377



Maggie Davey

Manager, Consulting
mardavey@deloitte.com.au
+61 03 9671 7315

Contributors

Louise Kelly

Senior Manager,
Content Marketing

Sam Twibill

Graduate, Consulting

Munir Hamza

Senior Consultant,
Consulting

Ben Coffey

Graduate, Consulting

Jean-Marie Voon

Senior Consultant,
Consulting

Tamasin Young

Graduate, Consulting

Scott Ellice-Flint

Graduate, Consulting

Vivien Chan

Graduate, Consulting

Eldon Wee

Graduate, Consulting





Other Deloitte contacts

Kimberly Chang

Partner, National Tech,
Media and Telco Leader
kimbchang@deloitte.com.au
+61 2 9322 3233

Kate Huggins

Partner, National Telco Leader
khuggins@deloitte.com.au
+61 2 9322 5452

Stuart Johnston

Partner, Asia Pacific Telco Lead
stujohnston@deloitte.com.au
+61 3 9671 6518

Steve Hallam

Partner, Deloitte Digital
sthallam@deloitte.com.au
+61 3 9671 6544

Eamon Fenwick

Partner, Tax
efenwick@deloitte.com.au
+61 2 9322 7189

Sandeep Chadha

Partner, Audit
sachadha@deloitte.com.au
+61 2 9322 5033

Dennis Moth

Partner, Risk Advisory
dmoth@deloitte.com.au
+61 2 9322 7897

Joshua Tanchel

Partner, Deloitte Private
jtanchel@deloitte.com.au
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