Digital Australia: State of the Nation

The 2017 edition

EY Sweeney

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https://digitalaustralia.ey.com/

75% "Smartphones improve my communication with family and friends"

30% "I'm addicted to my smartphone or tablet"

64% "I worry about what information organisations can access about my digital behaviour"

35% "I'll often conduct online research for a product while I am in store"

33% "I consider myself an early adopter of technology"

Introduction

The world is spinning faster for any organisation looking to keep up and connect with Australians – be they businesses looking to build a relationship and capture market share or government departments and agencies looking to deliver services more efficiently and effectively.

The overarching theme this year is about the quantum leap in the level of connection across all devices and the positive disposition towards becoming even more digital. The flow–on effect is that the volume of data being generated by Australians multiplies with each new device and service, creating the opportunity to leverage much more precise insight into profile, behaviour and preferences.

The data produced across these devices is one of the most valuable currencies today, yet many organisations struggle to identify and realise the value. The most progressive see data as a strategic asset of the organisation, using advanced analytics to deliver exceptional products and services and transforming the traditional process driven approach. This sees them stand apart from peers as they deliver an ever improving experience.

With all consumer-facing organisations having invested heavily in digital across the business, the focus now needs to be on digital cohesion. This is about ensuring all elements are effectively integrated, co-ordinated and leveraged across the business to create a truly differentiated frictionless experience.

Within this, an important aspiration needs to be obtaining a single view of a customer - what can be called 'the power of one'. A consolidated real-time view is a competitive point of difference, ensuring a seamless experience prevails and enabling the ability to personalise what is being delivered and experienced. Consumers expect organisations to know them and those that remain distant will see market share start to taper.

This expectation of familiarity extends right through and the most advanced digitally-enabled organisations are achieving alignment across all of the elements that underpin performance. They know the channels through which customers want to engage; effectively leverage predictive analytics to deliver more precision and greater conversion; ensure availability and delivery through a digitally enabled supply chain; and elevate the customer experience through more efficient back office digital operations. The pacesetters have the best understanding of customers and are defined not just by their ability to connect with the market at the front end, but equally by their operational efficiency.

The charter for this report is to inform and inspire so that the potential within organisations can be realised. It looks at the world through the eyes of Australian consumers to provide insight into what they are doing now in digital and where it will lead in the future. The insights will challenge assumptions, the expert observations will give rise to new thinking and ultimately it will provide greater clarity, helping to signpost the way forward.

"Time is running out. Digital disruption is appearing everywhere in every market. For companies that haven't already got a robust strategy to leverage digital in their business to better serve their customers, it's getting very late."

Jenny Young,
EY Oceania Technology, Media & Entertainment and Telecommunications; and Customer Leader

About the research:

This report tracks the status of Australia as a digital nation. It is based on both primary research and extensive desk research, overlaid with insight from EY's professionals in digital.

▸ **Extensive quantitative research:** A representative survey of 1,551 Australians (18-69 years) and 131 digital opinion leaders drawn from the commercial and government sectors.

▸ **Deep dive qualitative research:** A series of in-depth interviews with some of Australia's top digital decision-makers and industry thinkers.

▸ **Aggregate research:** Publically available data from a diverse range of sources, including other EY thought leadership.

▸ **Subject matter experience:** Insight from a wide range of EY digital professionals.

Digital infrastructure: Realising the economic potential

- Australia fell two spots on the Networked Readiness Index
- Now 18th out of 139 countries
- Agree internet speed is reasonable - consumers 34%; opinion leaders 9%

The ubiquity of smartphones and the growing repertoire of digital devices and services being used by Australians, coupled with the demand of business and governments for state-of-the art platforms, is a challenge given the infrastructure required to support the demand and the pace at which it is evolving.

Comparative international data shows that Australia is caught in the shadow of other nations that have a similar level of economic maturity, but which are well ahead in terms of digital infrastructure. As the thirteenth largest economy in the world with an AAA rating across all major rating agencies, the ability to keep up relative to other countries is an emerging vulnerability.

The challenges around infrastructure are many and have been well documented over the years (geography, population size, economy, investment required, amongst others), but the reality is that the world won't wait. The debate isn't so much around how fast Australians can download a movie (although that's important!), but more around the ability of Australian businesses to compete with international peers and for the Government to be able to deliver services more efficiently and to create the type of future cities and towns in which Australians want to live and work.

Digital inequality

- My town is digitally advanced - urban 46%; regional/rural 21%

While Australia has long aspired to be an egalitarian nation, it isn't holding true in digital. Large numbers of Australians living in smaller cities, regional towns and rural areas do not see their area as digitally advanced.

National connectivity is a fundamental agenda item as it is imperative to sustainable economic success, positive social dynamics and ultimately quality of life.

nbn: Awareness, appeal and experience

- The nbn is relatively well-supported compared to other countries in the region
- 33% aware the service is available in their area

The nbn is the highest profile infrastructure program and, regardless of the continued debate on the efficacy of the network relative to what might emerge in the future, it is here, people are taking it up and the aim is to have 8 million households connected by 2020. Support for the nbn is strong and this compares favourably with what we have seen in other countries in the region. There are challenges in managing expectations and the experience delivered through resellers, but it is a digital bedrock for Australia's future.

Beyond the nbn: Other infrastructure initiatives

- Submarine cables, cloud services, 5G, regional focus

Australia's digital infrastructure doesn't stop at the nbn. Other critical initiatives that will underpin future success include launching new off shore submarine cables to help link Australia with the world; the pending launch of public cloud infrastructure; the acceleration of the launch of mobile 5G networks; state government initiatives to improve regional and rural connectivity; amongst other programs. The Government and corporate Australia are building digital infrastructure, the challenge is staying on par with peer nations to remain competitive. The fix isn't easy, but it's necessary.

Innovation: Digital ecosystems

- Five pillars: talent, capital, demand, policy and environment

The Fourth Industrial Revolution is disrupting every industry, requiring organisations to reinvent themselves. Alongside having the right digital infrastructure in place in Australia is the need to create well developed digital innovation ecosystems - ones that enable businesses (start-ups and incumbents alike) to realise the potential of the internet of everything. Work that we have conducted on behalf of digitally advanced governments, corporates and tech-peak bodies shows that there are five pillars of an effective ecosystem. Most importantly, a thriving network of ecosystems requires a high degree of collaboration across all stakeholders (it's not just about the government) and a shared vision of what it could be.

Empowered consumers: Constant connection and new mindset

- 88% smartphone usage
- 6.8 hours a day spent on mobiles, computers, tablets

Australia has one of the most connected populations in the world, with smartphone usage at an all-time high and an average of two hours a day spent on the handset. It's all about 'the small screen' and this holds implications for all organisations looking to engage with Australians – be it connecting, transacting, distributing content or building a relationship.

Australians also have a keen eye on the technology horizon with other new digital devices and services being embraced with an enthusiasm that rivals other early adopting nations. They are also prepared to spend on their devices and services, with their outlay taking up more of the household budget, however only a comparative few feel they spend too much on devices and services.

Australians, like their peers in other advanced digitally-enabled economies around the world, know their worth and are more demanding than ever. The most successful organisations have recognised the smartphone driven shift that has occurred in customer mindset, disposition and behaviour.

Main-streaming: The rise of music and video streaming

- 28% are subscribed to streaming providers to access TV/movies
- Music streaming revenue has increased by over 90%

When it comes to pastimes, streaming has produced a huge shift in entertainment-related behaviour, with large numbers of connected Australians now streaming tv shows and movies. Streaming music, has increased enormously over the past 12 months, exceeding revenue for physical music purchases and downloads for the first time. The way Australians consume and pay for content has changed and is increasingly moving towards one-off and subscription models that embrace a next generation, data-enabled, connected consumer experience.

Home to stadium: The rising of gaming and eSports

- 47% involved in some sort of gaming
- eSport drew an estimated global audience of 226 million in 2016, with global revenues of USD$325 million
- The Australian video game industry is worth $2.958bn

Gaming is a major pastime for Australians, particularly for those at the younger end of the spectrum. Its appeal has seen it morph from a fun entertainment and social activity to a professional league with global eSport coming to the fore. eSport is now competing not just with other entertainment options, but with major traditional sporting and entertainment pastimes. eSports will be a medal event in future Asian Games.

The context of connection in a world of multi-screening

- 87% use their device while watching television
- Other places include outdoors, on public transport and in bed
- 63% often multi-task while using a smartphone/tablet

A major battleground today is for headspace, getting people to commit and be present in order to absorb what is being delivered. Large proportions of Australians are double or even triple-screening when watching television. They are using devices on the move. The anywhere, anytime approach means that the environment in which people are choosing to connect is all-important as is their level of commitment to what is being delivered.

Altered realities: VR and AR go commercial

- 74% of digital opinion leaders see VR headsets as a popular device in the future

Virtual and augmented reality (VR and AR) are maturing and we are seeing a convergence of better devices and meaningful software. In 2016, the NBA finals were all filmed in VR and UFC 212 from Brazil is the first major sport streamed in VR to give those at home a ringside seat. AR was behind one of the biggest phenomenons in recent years (e.g. Pokémon Go), and underlines the ability to drive rapid uptake, although sustainability is the issue. The most progressive businesses embrace the potential of VR and AR, identifying how technology can be used to improve the connection with customers and the experience delivered.

The frictionless experience

- 40% will walk away from a business that fails to offer them a high quality digital experience
- Digital opinion leaders - the two consistent shortcomings are delivering a frictionless digital experience and having information seamlessly integrated across all points of contact

Australian consumers are more assertive and demanding than ever. They can be more mercenary in the short-term, but ultimately more loyal over time if the experience resonates.

Our digital performance index across 25 sectors identifies those that stand-out and those at the other end of the spectrum. The data has remained relatively static since our last study, with a big divide still in place in perceived performance. Inherently enjoyable sectors like entertainment, social media, music and travel all maintained positive ratings at the top of the ladder, while more utilitarian and transactional sectors fall short.

The drivers of the digital experience span a number of areas, including both hygiene factors and differentiators like hassle-free purchasing, useful content and a great user experience. Embedded within this is real-time assistance.

What the analysis across the sectors underlines is the absolute importance of an intuitive frictionless experience across all channels. It needs to be cohesive and integrated to drive not just a positive experience, but true engagement and advocacy. Above all, it needs to be tailored to suit that individual customer.

The promiscuous digital consumer

- 94% have researched products/services online in the last year
- 35% often research a product online whilst in store

The pace of change and lack of certainty is unsettling for many businesses. Anxiety is rife. Those tasked with looking to connect and engage with Australians are confronted with a fragmented consumer landscape that can be hard to define. Consumer behaviour can seem indiscriminate and that can be confounding. The most sophisticated organisations understand that digital is not just about facilitating a transaction or delivering information, it's about forging a strong and enduring relationship. It's a differentiated and more empathic approach that connects with consumers.

Conversational commerce

- 31% have given feedback to an organisation in the last year via social media
- Feedback is more positive than negative

Social media usage continues to rise with Australians in constant connection to people they know and those they don't; to businesses and to the government. It is an increasingly major form of feedback to organisations and more feedback is positive than negative. Beyond the benefit of capturing feedback is the ability to help manage issues and provide assistance with decision-making on transactions. The most progressive organisations have embraced the power of conversational commerce.

Chatbots and truthbots

- 33% have used a chat app in the last 12 months

The sophistication of automated systems to interact with customers through a chat app or social media has increased to a point where they can deliver a better, more cost effective solution than a people-powered solution.

The use of AI-driven chatbots are at the frontline and are taking over more of the customer conversation. Given the level of engagement with chat apps, coupled with the high usage of social media and the propensity to engage with organisations online, it is critical that organisations embrace this type of solution.

App fatigue

- An average of 24 apps on smartphone, only use 6-7 daily
- Two-thirds say they have apps they 'rarely use'

The thinking today needs to be different. Most organisations have apps – some outstanding, others less so. What the research is showing is that app fatigue is a reality. People are overwhelmed with the number of apps and the reality is that many have been relegated into the dormant category: still there, but drawing little attention. App fatigue is a major issue. The focus today needs to be on how to connect with consumers through the smartphone. What is clear is that mobile-optimised websites can be as effective as a native app for an increasing number of organisations.

Smart home: Control and command

- 44% find smart homes appealing
- Average of 4 connected devices per person

Australian homes are becoming more and more connected as each new internet-enabled device comes into the home. The connected devices all deliver benefits individually, but it's when they are co-ordinated and centralised the true advantages appear, streamlining the running of their household and lifestyle.

In the fast-paced world in which many elements are conspiring to put pressure on people, the emotional benefit of feeling 'in control' is incredibly powerful.

One of the challenges for consumers is that they often have different brands and devices connected, but not necessarily centrally controlled. Enter new devices and apps using voice activation and AI to bring it all together. These devices will also harness and collate all the data produced by the devices to help not just the running of households, but to also help cities move into the future.

Transport: New models of mobility

- 22% of 18-34 year olds have used ride-sharing apps
- 32% of Australians find self-driving motor vehicles appealing

Once they leave the front door, digital solutions are having a profound effect on the way Australians move around. Ride-sharing has been used by over one in ten Australians over the past 12 months, with more users in the younger generation (one in five). Interest in electric and hybrid vehicles is on the rise. Self-drive vehicles are capturing imagination. While the self-drive vehicle now exists, the barriers to seeing them on Australian roads revolve not around the technology, but around commercial, regulatory and governance complexities.

The impact of digital solutions in transport is not just challenging how the government and businesses think about mobility, but influencing how people are thinking about how they will get around in the future. Younger people are already questioning the need to own a car and subscription-type services are more likely to come to the fore.

Digital is driving transformational change in the transport strategy in cities, heavily influenced by the shift in consumer thinking about how they get around.

Financial services: Transacting in the ether

- 84% use their banks' website, 59% use their banks' app
- 80% have used contactless payments via credit/debit card
- 350 Fintechs operational in Australia

Digital payments continue to grow and change shape. Digital banking is pervasive with the majority of Australians engaging with their bank through the website or app. Contactless payment continues to have strong cut-through and the major area of disruption is in Fintech. Adoption of Fintech in Australia currently sits at around 37%, slightly ahead of the global average (33%). It's estimated there are approximately 350 fintech business operating in Australia.

Participatory health

- 55% searched online for health advice
- 47% either own a wearable device or find them appealing
- 37% happy to provide DNA to find out more about their health

Australians are taking an interest in their health like never before. The enthusiasm for monitoring physical wellbeing continues, with wearable technology one of the growth areas. Australians will be in the first wave of early adopters of the next generation of solutions – provision of DNA, implantables and other monitoring devices. Identifying physical propensity for longevity and a better quality of life is something of a national passion. The importance of the data generated by these devices has major implications for any organisation involved in health.

Social control: Developing the right social media operating model

- 80% use Facebook, with 30% increasing their usage
- Instagram, WhatsApp and Snapchat also experience rise in usage

Social media is an integral part of consumer behaviour. Facebook has the same level of penetration as smartphones and continues to be in a league of its own. While Instagram, WhatsApp and Snapchat saw a rise in usage, no social network matches Facebook's overall usage levels - although it varies across the generations.

Optimising social media is a critical dimension for all businesses. Many organisations that are looking to move from merely having a social media presence to actively engaging with consumers are struggling with the expansiveness of the channel. While it often starts in marketing, it quickly crosses over into customer service, product development, corporate reputation, issue management and even HR. This raises questions of ownership and control.

As social media is a fast-paced dynamic platform that never sleeps, immediacy is critical and that requires the right technology, processes and resources to support it. Developing an effective social media operating model - one that manages risk and extracts value from social data - requires a different service model and different technical and personnel capabilities. The more sophisticated and mature social strategy adopters are leaving behind those organisations with a less developed approach.

Brand equity and the cloud of consumer commentary

- 9 out of 10 people who can skip ads... do
- 89% of digital opinion leaders are concerned about the lack of investment in developing digital experiences

Brands are defined as much by the cloud of consumer commentary as they are by what the custodians of brands can formally communicate and instil through more traditional channels. This new brand paradigm reflects the new relationship required with consumers.

Communicating with Australians is difficult and there are a range of new challenges to the advertising ecosystem - decreasing loyalty to specific destinations and commoditisation of content; cross platform and off platform consumption; difficulty understanding behaviours across screens and platforms; the role of data analytics; new competitors from unexpected sources; and concerns around transparency, data security, privacy and ad blocking.

The flow on effect is that advertisers and agencies are shifting to more channel agnostic and outcome-based approaches.

The power of one: A single view of individual customers

- 79% desire their information be seamlessly integrated across all points of contact
- 51% want customised content that reflects their interests

The digital world unlocks a two-way flow of customer insights that, harnessed correctly, can create a virtuous circle of value. It enables an organisation to have a single view of a customer to provide a more personalised and consistent experience that incorporates the ability to identify behaviour and recommend the next best action. It can provide proactive relevant sales opportunities coupled with the ability to minimise any risk factors to mitigate the risk of churn.

Success will be predicated on building the deepest and most sustainable relationship. A relationship that is built on rapport and trust - your organisation knows a customer better than the next.

One with the other: Linking data and digital operations

▸ 42% of major organisations have started robotics proof of concepts or are moving into full operational phases

Delivering against the desired experience requires a frontline customer experience grounded in relevant and well-analysed data, supported by a robust digital back office capability.

At the heart of delivering on this is the combination of high-end data analytics and effective digital operations.

Predictive customer analytics are the Holy Grail in the digital world, but equally, every organisation thinks a competitor is doing it better. The reality is that different organisations have different needs and are at different levels of maturity, so they key is to understand where your organisations sits on the maturity curve.

The true power of predictive analytics lies in the extent to which it is underpinned by the digital operations of the organisation. Success in that sphere is dependent on automation. Organisations are having a high degree of success with Robotic Process Automation (RPA) where software 'bots' perform rule based, high volume, repetitive tasks to speed up the process and increase efficiency.

Automation anxiety: RPA and AI unsettling

▸ The World Economic Forum forecasts significant labour displacement in coming years

The major pending shift in the Australian workplace will be the displacement of labour by technology – the Fourth Industrial Revolution. The predicted scale of the disruption and extent of the displacement means the coming reinvention of work will be like no other. Technology including AI, robotics, virtual reality, IoT and the sharing economy platforms will impact on blue, grey and white collar workers. We are already starting to see a rise in automation anxiety in some workplaces that are early adopters of some of this new technology.

Digital inspired talent strategies

▸ A third say they would struggle to do their job without their smartphone
▸ Digital and generational change are redefining the workplace

Constant connection has seen the convergence of work and home life. The boundaries are no longer clear and the way people will work in the future are being re-defined – particularly with the arrival of Gen Z in the workforce. On the agenda for those managing the talent strategy should be the gig economy, greater internal fluidity and flexibility for staff, enhanced geographic mobility and open source problem solving. There's a lot to reflect on.

Digital government being embraced

▸ High degree of comfort in dealing with the government through online channels

Digital offers government the opportunity to simultaneously improve policy effectiveness, enable cheaper, faster service delivery and meet the expectations of citizens for a convenient online experience.

Australians have an increasing desire to interact with the Government through digital channels. Over the past 12 months, the majority of Australians surveyed had accessed at least one government service online, with myGov heading the list. Comfort in dealing with government through digital channels is high (only 18% saying they are not comfortable).

The digital transformation programs and focus on citizen behaviour over the past few years are paying dividends. Aggregate satisfaction data drawn from feedback on the experience across 14 different departments and agencies shows that 'overall' satisfaction sits at 60%. However there is still a significant opportunity for improvement and to communicate the improvements when they are set in place. A progressive way to do this is to use citizens and businesses as part of a co-creation process; to harness insight and new thinking from the outside to create new solutions.

Citizen centricity

- 46% support data sharing if individuals don't have to provide the same information multiple times
- One in five citizens are against it

Although digital service delivery is important, the biggest return on investment in digital government will come from using data to inform policy design. Harnessing data-driven insights will give policy-makers confidence about investing in early interventions. Issues in the data sharing space need to be addressed. Australians are quite comfortable sharing data with banks/retailers, but are divided when it comes to the government. The barriers are around concerns about the government having adequate security systems/procedures.

Data transparency: Government mandate

- 78% want to see the government playing a more active role in ensuring organisations are more transparent in how they use consumer information

Looking to the role of the government as a regulator, the research found a strong mandate for the Government to play an even more active role in enforcing transparency in how consumer information is used.

However, there is less support for monitoring online activity (only 31% support).

Authentication: Verify me

- 80% of digital opinion leaders predict thumbprint/fingerprint access to bank accounts will be popular in future

One of the areas of keen interest is authentication – how organisations verify individuals remotely to protect the data they hold and to avoid a breach. New technologies go well beyond basic passwords to voice recognition, palm vein recognition and heartbeat patterns from wrist band monitors. Biometric alternatives are also available based on how people interact with the technology (e.g. how fast they press buttons, swipe apps, etc.). While Australians are likely to embrace new methods of authentication, the challenge will lie in how they are rolled out and the accompanying messaging.

Data transparency: Notifiable breaches

- 81% believe organisations should be more transparent about how they use customer information

There is concern amongst Australians about how well organisations manage and protect privacy - what personal information can be accessed, what might be done with the data and ultimately how safe the information is. There is a clear expectation for greater transparency. It is something supported through legislation with the Notifiable Breaches amendment coming into the Privacy Act early next year. This mandatory compliance will ensure better management and control of consumer data prevails.

Cyber security: A more guarded population

- 20% believe they have been compromised in the last year

Getting hacked is a fundamental concern and cyber security is uppermost in the minds of Australians. At a personal level, significant numbers believe they have been compromised in some way over the past 12 months. They are actively employing measures to minimise the level of exposure – not opening emails from unknown senders, using anti-virus software; and changing passwords across different accounts (albeit not that frequently for many). The pressure is also on organisations to have the right processes and systems in place to protect their customers or citizens in the case of government.

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Global position

Digitisation and the economy

Australia is now eighteenth in a list of 139 countries, having slipped two places in the World Economic Forum's Networked Readiness Index (NRI). The index measures the drivers necessary for digital technologies to meet their potential and the factors driving down our national ranking include the cost of fixed broadband and a low score for business adoption of information and communications technology (ICT).

Although Australia's Index score is the same as it was in 2014, the nation's digital position has deteriorated as other countries have advanced. Aside from trailing behind the countries listed opposite, Australia is also outstripped by Denmark, Hong Kong, Korea, Canada, Germany, Iceland and New Zealand in digital readiness. Australia scored well in individual usage of ICT, with the world's tenth highest penetration of mobile broadband. However, it was brought down by the cost of fixed broadband. Affordability is Australia's lowest performing digital readiness aspect, currently ranked at fifty-seventh in the world.

As the world's thirteenth largest mixed-market economy, boasting an AAA rating from all three global rating agencies[1], Australia should be further up the global digital rankings. Many of the elements are in place for Australia to succeed as a digital economy including - outstanding talent, a strong entrepreneurial spirit among aspiring business owners, a national innovation and science agenda, a thriving start-up ecosystem and investment in fixed and mobile networks. However, Australia remains caught in the shadow of other advanced nations. Certainly there is much

valid commentary on the size of the country, the comparatively small population and the level of investment required as being fundamental challenges for delivering high speed connectivity, but the reality is that the world won't wait and the barriers aren't relevant in a competitive global context.

The challenge for business

It is challenging terrain for local businesses as they are aware that if they do not meet the growing demand for digital products and services and deliver them in the right way, overseas competitors will fill the void. Every business needs to 'be digital' and the infrastructure, governance and regulation set in place must keep up with the new demands of the digital economy. The digital opinion leaders involved in the research reflected at length on the hyper-connected and competitive nature of the global digital economy and lamented Australia's current position. They are passionate about the need for Australia to continue to ensure that the right infrastructure and mindset is in place to maintain our economic standing.

Government ranks higher than business

In terms of its ability to deliver online services, the Australian government is ranked eighth in the world and seventh for the quality, relevance and usefulness of government websites in providing online information and participatory tools and services to Australian citizens. In contrast, Australian businesses are only ranked twenty-fourth in the world for their adoption of ICT.

Networked readiness index

Country	2016 rank	Score	2015 rank	2014 rank
Singapore	1	6.0	1	2
Finland	2	6.0	2	1
Sweden	3	5.8	3	3
Norway	4	5.8	5	5
United States	5	5.8	7	7
Netherlands	6	5.8	4	4
Switzerland	7	5.8	6	6
United Kingdom	8	5.7	8	9
Luxembourg	9	5.7	9	11
Japan	10	5.6	10	16
Canada	14	5.6	11	17
Australia	**18**	**5.5**	**16**	**18**
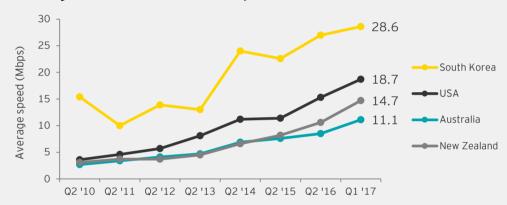
Australia's networked readiness index – subindices

Country		Score	2016 world rank	Rank change since 2015
Environment	The political, regulatory, business and innovation environments	5.2	16th	▲ 1
Readiness	Infrastructure, digital content, affordability and skills	6.2	10th	▼ 3
Usage	Individual, business and government usage	5.4	22nd	▼ 2
Impact	Economic and social impact	5.2	21st	▼ 2

Note: Score ranges from 1-7, Ranking in 2016 is out of 139, 2015 is out of 143, and 2014 is out of 148.
Source: *World Economic Forum*. 2016. Global Information Technology Report 2016 - Reports.
[ONLINE] Available at: http://reports.weforum.org/global-information-technology-report-2016/economies/#economy=AUS
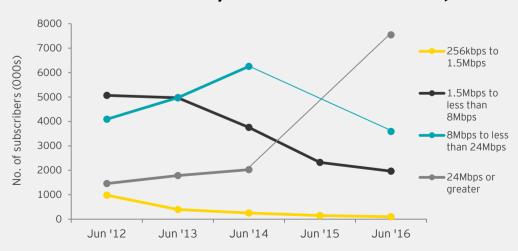
Fixed broadband

Average fixed broadband speeds

- South Korea — 28.6
- USA — 18.7
- Australia — 11.1
- New Zealand — 14.7

Source: Akamai. 2017. *State of the Internet Connectivity Report Q1 2017*. [ONLINE]
Available at: https://www.akamai.com/us/en/multimedia/documents/state-of-the-internet/q1-2017-state-of-the-internet-connectivity-report.pdf.

Internet subscribers by advertised broadband speeds

- 256kbps to 1.5Mbps
- 1.5Mbps to less than 8Mbps
- 8Mbps to less than 24Mbps
- 24Mbps or greater

Note: ABS data for 8Mbps and 24Mbps is only available for 2012, 2013, 2014 and 2016.
Source: *Australian Bureau of Statistics. 2016*. 8153.0 - Internet Activity, Australia. [ONLINE]. Available at: http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/8153.0December%202016?OpenDocument

Global rankings by average fixed broadband speeds

Country	Q1 2017 rank	Average speed (Mbps)
South Korea	1	28.6
Norway	2	23.5
Sweden	3	22.5
Hong Kong	4	21.9
Switzerland	5	21.7
Finland	6	20.5
Singapore	7	20.3
Japan	8	20.2
Denmark	9	20.1
United States	10	18.7
New Zealand	27	14.7
Australia	50	11.1

Source: Akamai. 2017. *State of the Internet Connectivity Report Q1 2017*. [ONLINE]
Available at: https://www.akamai.com/us/en/multimedia/documents/state-of-the-internet/q1-2017-state-of-the-internet-connectivity-report.pdf.

Mobile broadband

Global rankings by average mobile broadband speeds

Country	Q1 2017 rank	Average speed (Mbps)
United Kingdom	1	26
Cyprus*	2	24.2
Germany	3	24.1
Switzerland*	4	22.4
Finland	5	21.6
France	6	17.4
Norway	7	17.3
Denmark	8	16.6
Belgium	9	16.2
Romania	10	15.9
Australia	11	15.7
New Zealand	13	13.0
United States	32	10.7

*Fewer than 25,000 unique IPv4 addresses classified as mobile observed in Q1 2017
Source: Akamai. 2017. *State of the Internet Connectivity Report Q1 2017*. [ONLINE]
Available at: https://www.akamai.com/us/en/multimedia/documents/state-of-the-internet/q4-2016-state-of-the-internet-connectivity-report.pdf.

Consumer contentment

Although the Networked Readiness Index clearly points to room for improvement, the majority of consumers don't have a global point of reference and are not aware that Australia's digital economy is ranked lower than many comparable nations. In fact, more than half (56%) of those surveyed see Australia's digital economy as 'the same as or more advanced' than peer economies, up from 49% in our last survey.

However, if we purely look at the most optimistic Australians relative to the most pessimistic in the community, we get a net negative result (-11). This means more Australians see Australia's digital environment as 'less advanced' (33%) than 'more advanced' (22%). The overall interpretation is that while there is a degree of contentment from many in the community, equally there is an awareness that Australia is not a global frontrunner.

One of the most important attributes for consumers is the download speed, particularly with the rise in streaming. This is perceived to be a shortcoming and only a third of consumers consider Australia's current fixed and mobile internet quality to be 'reasonable'. Global data shows Australia's average national internet speed as being substantially slower than many countries.

Fixed broadband

For fixed broadband, there is an average speed of 11.1 megabits per second (Mbps). Australia's internet speeds vary significantly across the country and the nation is falling behind other nations. The distance to those at the top of the global leader board has widened, despite Australia's average connection speeds increasing steadily and reaching an all-time high. Australia has risen to number 50 in global rankings of average internet speeds, but is still behind New Zealand, which ranks at number 27.

Meanwhile, citizens in the US benefit from substantially better connectivity. In South Korea, which is setting the benchmark for the rest of the world, fixed internet speed is nearly three times faster than in Australia.

Mobile broadband

In terms of mobile broadband, Australia performs much more strongly, with an average download speed of 15.7 Mbps. This sees the country ranked at 11 on the global ladder. Mobile broadband is a fundamental part of the infrastructure required for an effective digital economy.

View of Australian digital economy

Same as or more advanced than other leading countries

	2014-15	2015-16	2016-17	2 year change
Consumer view	44%	49%	56%	▲12%
Digital opinion leader view	41%	43%	46%	▲5%

The current internet speed in Australia is reasonable (via fixed internet access or mobile devices) % agree

34% Consumer view

9% Digital opinion leader view

Note: Arrows denote significant differences between 2016-17 and 2014-15
Source: *EY Digital Australia: State of the Nation 2016-17, 2015-16, 2014-15*.
Q. In your opinion, how advanced is the Australian digital economy compared to the digital economies of other leading developed countries?
Q. To what extent do you agree or disagree with each of the following statements?
Base: Total consumers – 2016 (n=1,551), 2015 (n=1,500), 2014 (n=1,498);
Total digital opinion leaders – 2016 (n=131), 2015 (n=142), 2014 (n=167)

The digital opinion leaders are across this type of comparative data on download speeds and adopt a harder line when rating Australia's digital position in the world. Fewer than one in ten (9%) believe average internet speeds in Australia are 'reasonable'. While less forgiving than consumers as a function of their awareness of what is out there and knowledge of what people in other countries experience, the theme is the same - all want greater speed.

A major discussion point for those at the frontline of creating and delivering online content to Australian consumers is not just the base speed, but also how to maximise the efficiency of the network. The appetite of Australians for streaming rich content like movies and live sport is only going to increase in coming years. The uptake of latest generation hardware (like internet-enabled TVs) continues at pace as do subscriptions to streaming services.

While those delivering entertainment and sport recognise the challenge, the quality and speed of digital connectivity for consumers is an important consideration for all organisations looking to connect with Australians. It's not all about focussing on the top speed, because the reality is that Australians experience different connection speeds (by choice or otherwise). This means that the digital experience needs to be tailored for those at lower thresholds. It's a critical audit point when developing new digital strategies.

"The management of the network is critical. Looking at what is on the horizon, one of the real challenges will be delivering major sporting events live. For example, when you have a popular sporting event and you have 2 million households downloading it all at the same time, you don't want each of those 2 million to be unique streams of data going the network. You want to take it as close to the edge as possible and then only stream it once from there. This saves people a lot of money, a lot of speed, latency issues and other technical issues. If it's not managed properly, it will put significant pressure on Australia's digital infrastructure."
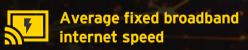
Digital opinion leader,
Media sector

Comparison of average fixed broadband internet download times

As a comparison, South Korea's average internet speed of 28.6 Mbps allows South Koreans to download a file nearly three times faster than Australia's 11.1 Mbps. For example, assuming that the average download speed remains consistent, a 1.74 gigabyte standard definition video file would take approximately 8 minutes to download in South Korea and close to 21 minutes in Australia.

The table below summarises predicted download times for three video file sizes with different resolutions (576i, 702p, 1080p).

South Korea | Australia

Average fixed broadband internet speed 28.6 mbps | 11.1 mbps

	Resolution	File size of a 2.5 hour movie (illustrative)	Average download time (minutes)	
			South Korea	Australia
Standard definition (SD)	576i	1.74GB	8.3	21.4
High definition (HD)	720p	3.99GB	19.0	49.1
	1080p	4.84GB	23.1	59.5

The digital divide

Australia's cities face a number of growing pressures, including housing affordability, urban sprawl and rising congestion. Digital infrastructure – whether embedded in new solutions or activating existing infrastructure and services – is key to dealing with these issues while accommodating a growing population.

Our study finds a relatively subdued outlook on the level of perceived digital advancement at a state and city level. Large tranches of people aren't yet seeing their city or town as digitally advanced and that there is a real divide emerging across Australia. Residents of NSW are more optimistic than those in other states, with the figures influenced by the comparatively bullish attitude in Sydney, where 58% think their city is digitally advanced.

The most pronounced divide in perceptions of digital advancement lies between urban (46%) and regional/rural (21%). This holds significant implications as confidence around digital infrastructure is a critical element in generating momentum in the economy.

Cities cannot grow and thrive without people. The overarching objective of any digital intervention should be to increase the well-being of residents and to sustain that change. For example, many cities are analysing multiple data sources, including information from traffic cameras and sensors in roads and vehicles, to reduce congestion; improving citizens' quality of life by shortening commute times and lowering pollution levels.

"There are many competing pressures on Australia at the moment, particularly as our major cities continue to grow and congestion becomes a greater issue. When you look at the impact of digital on the economy and the opportunities it creates to change the way and where many Australians work and live, then the issue of digital inequality is a major one."

Marc L'Huillier,
EY Oceania EY Sweeney Managing Partner

Although pessimism outweighs optimism about Australia's level of digital advancement at a national level, many Australians do have an eye on the future. Close to a quarter (23%) say they will travel less in the future as new technologies provide more choices around where to work, learn and play.

Future cities

EY's smart and future cities report provides valuable insight into the perspective of Australian citizens and what will be the defining traits of successful cities in the future.

http://futurecities.ey.com

How can you build a strong city pulse, without taking the human pulse?

July 2016

The better the question. The better the answer. The better the world works.

EY
Building a better working world

City growth and future cities

▲7m

The population in Australian cities is predicted to grow by an additional seven million people by 2031
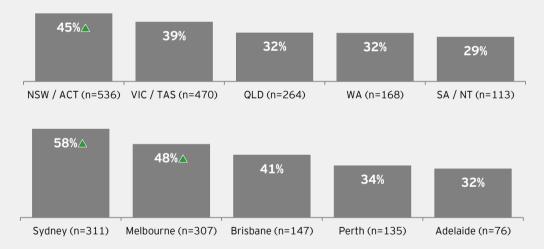
Australia's four biggest cities need 500,000 to 700,000 additional dwellings to accommodate this growth

$50b

Without action, the cost of congestion on urban roads could rise to more than $50 billion each year by 2031

Source: Infrastructure Australia. 2016. *Australian Infrastructure Plan*. [ONLINE] Available at: http://infrastructureaustralia.gov.au/policy-publications/publications/Australian-Infrastructure-Plan.aspx

Consider their city/town to be digitally advanced

45%△	39%	32%	32%	29%
NSW / ACT (n=536)	VIC / TAS (n=470)	QLD (n=264)	WA (n=168)	SA / NT (n=113)

58%△	48%△	41%	34%	32%
Sydney (n=311)	Melbourne (n=307)	Brisbane (n=147)	Perth (n=135)	Adelaide (n=76)

46%

Urban (n=1,006)

21%
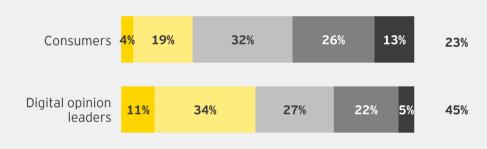
Regional/rural (n=488)

Note: Arrows denote significant differences to national results.
Source: *EY Digital Australia: State of the Nation 2016-17*.
Q. To what extent do you agree or disagree with each of the following?
Base: Total consumers. Bases as shown.

City perceptions: Consumers vs. Digital opinion leaders

I will travel less in the future as new technologies will give me more choices as to where I work, learn and play

		Agree or strongly agree
Consumers	4% / 19% / 32% / 26% / 13%	23%
Digital opinion leaders	11% / 34% / 27% / 22% / 5%	45%

■ Strongly agree ■ Agree ■ Neither agree nor disagree ■ Disagree ■ Strongly disagree

Note: 'Don't know' figures not shown.
Source: *EY Digital Australia: State of the Nation 2016–17*.
Q. To what extent do you agree or disagree with each of the following?
Base: Total consumers (n=1,551). Total Digital opinion leaders (n=131)

Will travel less in the future as new technologies provide more choices: Consumers (% agree)

27% Male (n=772)   **19% Female (n=779)**

Age	
18 to 34 (n=520)	29%
35 to 44 (n=312)	31%
45 to 54 (n=323)	18%
55 to 69 (n=396)	12%

Region	
Perth (n=135)	26%
Rest of WA (n=33)	27%
Adelaide (n=76)	22%
Rest of SA/NT (inc. Darwin) (n=37)	9%
Brisbane (n=147)	24%
Rest of QLD (n=117)	16%
Sydney (n=311)	32%
Rest of NSW (n=168)	13%
Melbourne (n=307)	28%
Rest of Victoria (n=101)	14%
TAS (inc. Hobart) (n=62)	12%

Note: Total agree (strongly agree/agree) shown.
Source: *EY Digital Australia: State of the Nation 2016–17*.
Q. To what extent do you agree or disagree with each of the following?
Base: Total consumers. Base sizes as shown above

Digital infrastructure

Support for the nbn

More than six in ten (63%) Australians and 76% of digital opinion leaders support the nbn, underlining the level of recognition that Australia needs major digital infrastructure programs in place.

The support shown by Australians towards the nbn is shared by those in some neighbouring countries around their broadband networks. When asked if their 'national broadband network' would help ensure their nation has a world class digital economy, the level of support is: Australians (40%), Singaporeans (47%), Malaysians (42%) and New Zealanders (25%).

History has shown that one of the most critical aspects for the development of economies is progressive thinking and making bold decisions - particularly commiting to building major infrastructure. The nbn represents such a decision and commitment. It is a foundational piece of digital infrastructure for all Australians. Regardless of the continued discussion about the investment and efficacy of the nbn relative to what might emerge in the future, it is here, people are taking it up and the aim is to have 8 million households connected by 2020.
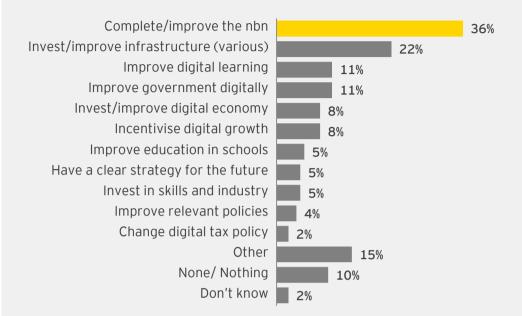
Current awareness around access to the nbn has doubled since our last report, with a third of Australians (33%) believing they can access the nbn.

Of those with access to the nbn, the main reasons for not taking up the nbn are cost and satisfaction with the current service.

The experience being delivered does emerge as an issue. The percentage of people who use the service but see it as 'worse than expected' has steadily increased - peaking at 29% in this year's research. Significant proportions of people who took up the service do not see it as living up to expectations. Only 22% this year saw the nbn as 'better than expected'.

The main factors underpinning the negative results on the nbn experience are: the speed not being as fast as anticipated, the (un)reliability of the connection and performance relative to the previous service.

Actions to advance Australia's digital economy: Digital opinion leaders

Complete/improve the nbn	36%
Invest/improve infrastructure (various)	22%
Improve digital learning	11%
Improve government digitally	11%
Invest/improve digital economy	8%
Incentivise digital growth	8%
Improve education in schools	5%
Have a clear strategy for the future	5%
Invest in skills and industry	5%
Improve relevant policies	4%
Change digital tax policy	2%
Other	15%
None/ Nothing	10%
Don't know	2%
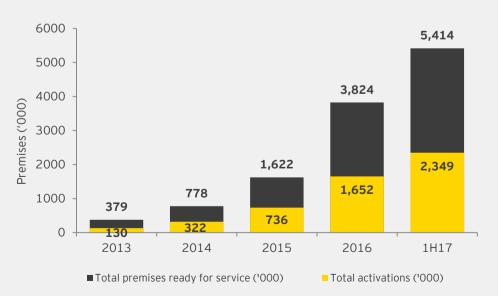
Source: *EY Digital Australia: State of the Nation 2016-17*.
Q. What specific things could the government do to better support the advancement of Australia's digital economy?
Base: Total Digital opinion leaders (n=131).

nbn premises ready for service and activations

Premises ('000)

Year	Total premises ready for service ('000)	Total activations ('000)
2013	379	130
2014	778	322
2015	1,622	736
2016	3,824	1,652
1H17	5,414	2,349

■ Total premises ready for service ('000) ■ Total activations ('000)

Note: '1H17' refers to the first half of 2017. Years ending in December.
Source: nbn

Support of nbn: Consumers

					Total support
Total (n=1,551)	27%	36%	29%	4%	63%
18 - 34 (n=520)	30%	33%	26%	5%	63%
35 - 44 (n=312)	30%	34%	29%	4%	64%
45 - 54 (n=323)	23%	39%	30%	4% 4%	62%
55 - 69 (n=396)	23%	37%	31%	5%	60%

■ Strongly support   ■ Support   ■ Neither support nor oppose
■ Oppose   ■ Strongly oppose   ■ Haven't heard of it

Source: *EY Digital Australia: State of the Nation 2016-17*.
Q. To what extent do you support or oppose the National Broadband Network (nbn)?
Base: Total consumers (n=1,551).
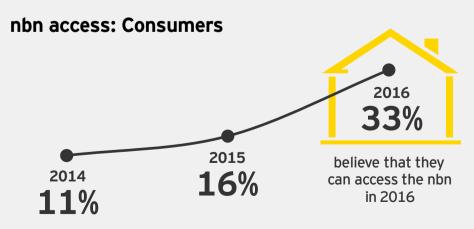
Support of nbn: Digital opinion leaders

Total	35%	41%	15%	7%	2%

■ Strongly support   ■ Support   ■ Neither support nor oppose   ■ Oppose   ■ Strongly oppose

Source: *EY Digital Australia: State of the Nation 2016-17*.
Q. To what extent do you support or oppose the National Broadband Network (nbn)?
Base: Total Digital opinion leaders (n=131).

nbn access: Consumers

2014 **11%**
2015 **16%**
2016 **33%**
believe that they can access the nbn in 2016
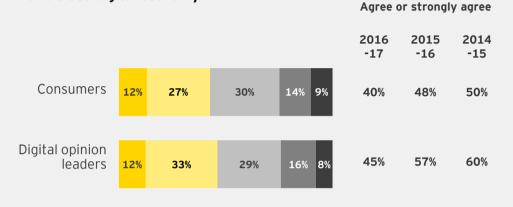
Source: *EY Digital Australia: State of the Nation 2016-17, 2015-16, 2014-15*.
Q. Is the nbn currently available to your home?
Base: Those aware of nbn - 2016 (n=1,530), 2015 (n=1,468), 2014 (n=1,448).

Attitudes to the nbn

The nbn will help ensure Australia has a world class digital economy

						Agree or strongly agree		
						2016-17	2015-16	2014-15
Consumers	12%	27%	30%	14%	9%	40%	48%	50%
Digital opinion leaders	12%	33%	29%	16%	8%	45%	57%	60%
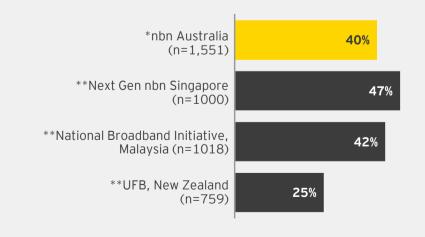
■ Strongly agree   ■ Agree   ■ Neither agree nor disagree   ■ Disagree   ■ Strongly disagree
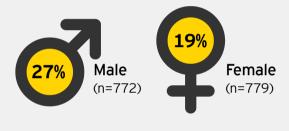
Source: *EY Digital Australia: State of the Nation 2016-17*.
Q. To what extent do you agree or disagree with each of the following statements?
Base: Total consumers - 2016 (n=1,551), 2015 (n=1,500), 2014 (n=1,498)
Total Digital opinion leaders - 2016 (n=131), 2015 (n=142), 2014 (n=167)

Attitudes to new broadband infrastructure in APAC

The [new broadband infrastructure] will help ensure [my country] has a world class digital economy

*nbn Australia (n=1,551)	40%
**Next Gen nbn Singapore (n=1000)	47%
**National Broadband Initiative, Malaysia (n=1018)	42%
**UFB, New Zealand (n=759)	25%

*Source: *EY Digital Australia: State of the Nation 2016-17*.
**Source: *EY Asia-Pacific: Digital Nations 2016*.
Q. To what extent do you agree or disagree with each of the following statements?
Base: Base sizes as shown above

nbn uptake (amongst households where it is available)

Total (n=494)	78%
18 - 34 (n=167)	82%
35 - 44 (n=106)	82%
45 - 54 (n=96)	71%
55 - 69 (n=125)	76%
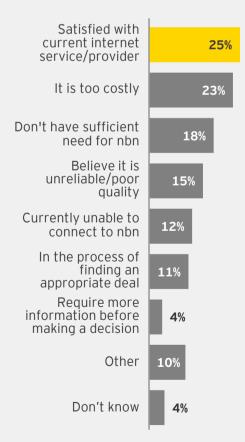
Source: *EY Digital Australia: State of the Nation 2016-17*.
Q. Have you taken up the nbn at your home?
Base: Consumers for whom nbn is currently available (n=494).

Reasons for not taking up nbn

Satisfied with current internet service/provider	25%
It is too costly	23%
Don't have sufficient need for nbn	18%
Believe it is unreliable/poor quality	15%
Currently unable to connect to nbn	12%
In the process of finding an appropriate deal	11%
Require more information before making a decision	4%
Other	10%
Don't know	4%
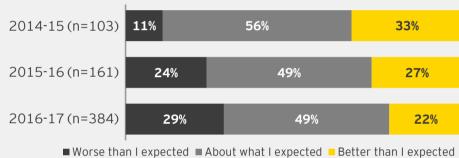
Source: *EY Digital Australia: State of the Nation 2016-17*.
Q. Why not?
Base: Consumers with access to nbn who did not take it up (n=110).

nbn experience

	Worse than I expected	About what I expected	Better than I expected
2014-15 (n=103)	11%	56%	33%
2015-16 (n=161)	24%	49%	27%
2016-17 (n=384)	29%	49%	22%

■ Worse than I expected ■ About what I expected ■ Better than I expected

Source: *EY Digital Australia: State of the Nation 2016-17, 2015-16, 2014-15.*
Q. How does your experience of using the nbn compare to the expectations that you had?
Base: Have nbn at home 2016 (n=384), 2015 (n=161), 2014 (n=103).
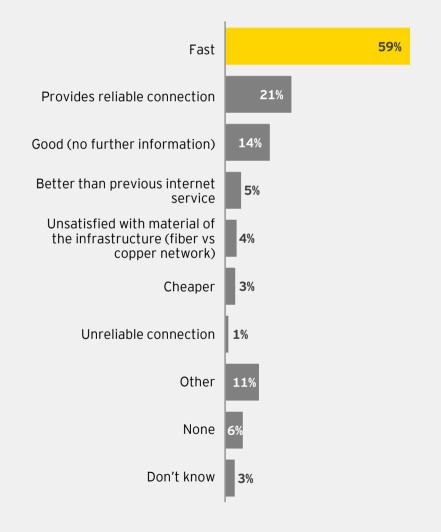
nbn experience by tenure

	Total sample	Less than 6 months	6 months to a year	Longer than a year
Worse than I expected	29%	30%	32%	26%
About what I expected	49%	48%	48%	51%
Better than I expected	22%	22%	20%	23%

■ Worse than I expected
■ About what I expected
■ Better than I expected

Source: *EY Digital Australia: State of the Nation 2016-17.*
Q. How does your experience of using the nbn compare to the expectations that you had?
Base: Have nbn at home (n=384), less than 6 months (n=145), 6 months to a year (n=123), longer than a year (n=114).
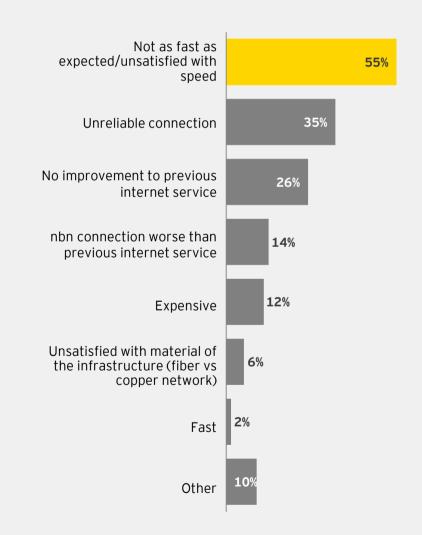
Reasons nbn experience is better than expected

Fast	59%
Provides reliable connection	21%
Good (no further information)	14%
Better than previous internet service	5%
Unsatisfied with material of the infrastructure (fiber vs copper network)	4%
Cheaper	3%
Unreliable connection	1%
Other	11%
None	6%
Don't know	3%

Source: *EY Digital Australia: State of the Nation 2016-17.*
Q. Why is your experience of the nbn better than you expected?
Base: Consumers who have nbn and deem it 'better than expected' (n=85).

Reasons nbn experience is worse than expected

Not as fast as expected/unsatisfied with speed	55%
Unreliable connection	35%
No improvement to previous internet service	26%
nbn connection worse than previous internet service	14%
Expensive	12%
Unsatisfied with material of the infrastructure (fiber vs copper network)	6%
Fast	2%
Other	10%

Source: *EY Digital Australia: State of the Nation 2016-17.*
Q. Why is your experience of the nbn worse than you expected?
Base: Consumers who have nbn and deem it 'worse than expected' (n=110).

Infrastructure beyond the nbn

It is important to recognise that Australia's digital infrastructure does not stop at the nbn. There are a number of other key initiatives that are critical for success in the future and which are being addressed now. These include:

▸ **Off shore internet connections:** The majority of Australia's internet traffic goes off-shore, so our national competitiveness is linked to the performance and latency of these submarine links. While many may think satellites dominate the delivery of the global internet, the reality is that undersea 'hard wired' cables are currently the most important connection point. Three new undersea cables are currently in the planning stage, including Southern Cross NEXT, which will deliver Australia's highest capacity and lowest latency internet connection. It will enhance the ability of Australian consumers and businesses to access US-based internet sites and apps. The cable will connect Sydney, Auckland and Los Angeles, as well as several Pacific Island countries.

▸ **Public cloud infrastructure services:** Public clouds are platforms which can be accessed by software developers and service providers to make resources, such as applications and storage, available to the general public over the Internet[2]. They have been rolled out in other major global hubs and are critical to Australia's success. The good news is that Alphabet (the parent company of Google) has selected Sydney in the next group of major cities to launch Google Cloud[3]. The

Google Cloud platform will compete with Amazon Web Services and Microsoft Azure. While the launch date for Google Cloud products in Australia is still to be confirmed[4], these type of cloud services will help Australian-based software developers and, more broadly Australian businesses, compete in the global economy.

▸ **Mobile data speed and capacity:** Australia will be one of the first countries in the world to access super fast 5G phone speeds, with all network operators announcing 5G network upgrade plans. Telstra is currently accelerating the development of their network, with the ambition to conduct a world-first trial during the 2018 Gold Coast Commonwealth Games. 5G delivery trials have shown the next generation network is capable of delivering 20 gigabit per second downloads to phones, with the ultimate potential to be 1000 times faster than current 4G networks[5]. The network will also help underpin emergence of the Internet of Things (IoT), linking autonomous cars and whitegoods, amongst other devices. The volumes of data through high speed connections mean that Australia's mobile operators are currently struggling to build additional in-fill capacity to cater for the massive growth in demand.

▸ **National consistency:** The need to ensure digital equality is recognised by state governments, with important initiatives like the Victorian Government's Connecting Regional Communities Program helping to bridge the divide.

History repeats: Connecting Australia with the world

The desire for a type of 'digital' connection existed 160+ years ago and that bold thinking on infrastructure had a profound effect on the development of Australia.

▸ 1854 first telegraph line between Melbourne and Williamstown.

▸ 1871 submarine cable laid between Java and Port Darwin.

▸ 1872 overland telegraph line linking Darwin and Adelaide completed, linking the Australian network direct to Europe.

▸ 1902 the pacific link between Canada and Australia via Fiji and Norfolk Island completed.

▸ For the first time the globe was completely encircled, via Australia, by telegraph cables. This cable network (in an updated form) is what drives digital today.

❝ This link with Europe (1872) ultimately resulted in significant economic benefits for the Australian colonies. The rapid exchange of commercial information allowed better co-ordination of the supply of and demand for agricultural produce, manufactured goods and raw materials. The ability of overseas investors to keep track of changing conditions in Australia encouraged investment and speculation in mining and other ventures.

One of the greatest benefits of the new telegraph link was the rapid arrival of news. News items could now arrive within hours of being written in Europe, rather taking weeks or months to come by sea. ❞

Innovation ecosystems

The Fourth Industrial Revolution

The Fourth Industrial Revolution is disrupting every industry, requiring organisations to reinvent themselves. Alongside having the right digital infrastructure in place is the need to create well developed digital innovation ecosystems – ones that enable businesses (start-ups and incumbents alike) to realise the potential of the internet of everything.

Work that we have conducted on behalf of leading governments, corporates and tech-peak bodies shows that there are five pillars of effective ecosystems – talent, capital, demand, policy and environment. Most importantly, it requires a high degree of collaboration across all stakeholders (it's not just about the government) and a shared vision of what it could be. Australia has some well-developed ecosystems, however there is much greater maturity in other advanced economies where the thinking has been more progressive and the ability to implement less constrained.

The free flow of data

An important factor in fostering innovation is the free flow of data. With artificial intelligence still in its infancy and data analytics still highly dependent on human oversight, we are still some way away from truly autonomous, self-optimising systems. This is a continually-evolving area, with no agreed standards when it comes to data formats or coding protocols. Getting different systems to effectively communicate to drive efficiencies is an issue.

But the challenges are not just technological. At the heart of this revolution lies the free flow of data. This leads to concerns around privacy, which will require regulatory recommendations – to protect businesses' intellectual property in a globally networked system, to protect individual customers' sensitive personal information and to confirm that self-optimising systems don't run out of control.

Fears about artificial intelligence are also likely to lead to new laws requiring human oversight to counter ethical concerns about automated decision-making. This could lead to legal restrictions on the autonomy of connected systems to prevent computers from taking significant decisions. This, in turn, could lessen the revolution's potential to drive significant change.
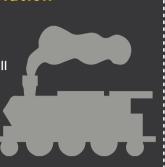
"The challenge for government, business and society is to find new ways of thinking and acting as our world is disrupted by technology and innovation."

Uschi Schreiber,

Chair of Global Accounts Committee and Global Vice Chair of Markets, EY

1760 — 1840

The First Industrial Revolution

Transition from manual to machine-based production. The development of improved water power and the steam engine, as well as advances in iron and chemical production processes. It led to large-scale labor relocation from agriculture to manufacturing, driving rapid urbanisation.

1930 — 1860

The Second Industrial Revolution

Improved manufacturing processes, driven by electrification, the adoption of petroleum as an energy resource, the rise of steel, the birth of mass production and the division of labor.

1960 — 2010

The Third Industrial Revolution

The rise of computers and digital technology, the internet, cell phones, and automated robotic production techniques drove a shift from manufacturing to service-based industries. Accelerated as computers became ubiquitous.
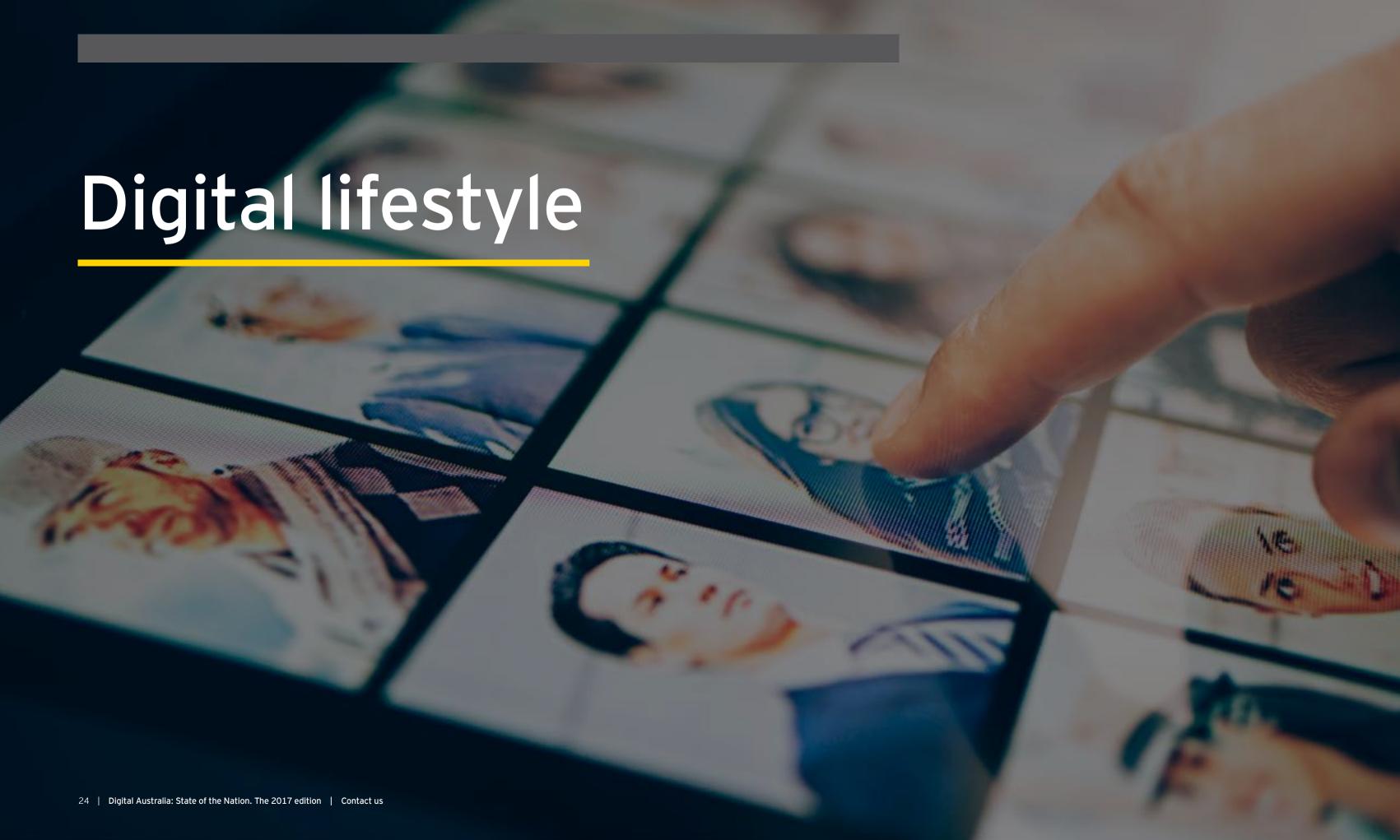
Now

The Fourth Industrial Revolution

The integration of technology into business and production processes to make them more self-sustaining and more efficient. Made possible by the emergence and integration of digital systems, networked communications, machine learning and large-scale data analysis. Forecast to profoundly change global workforce dynamics.

Digital lifestyle

Empowered consumers
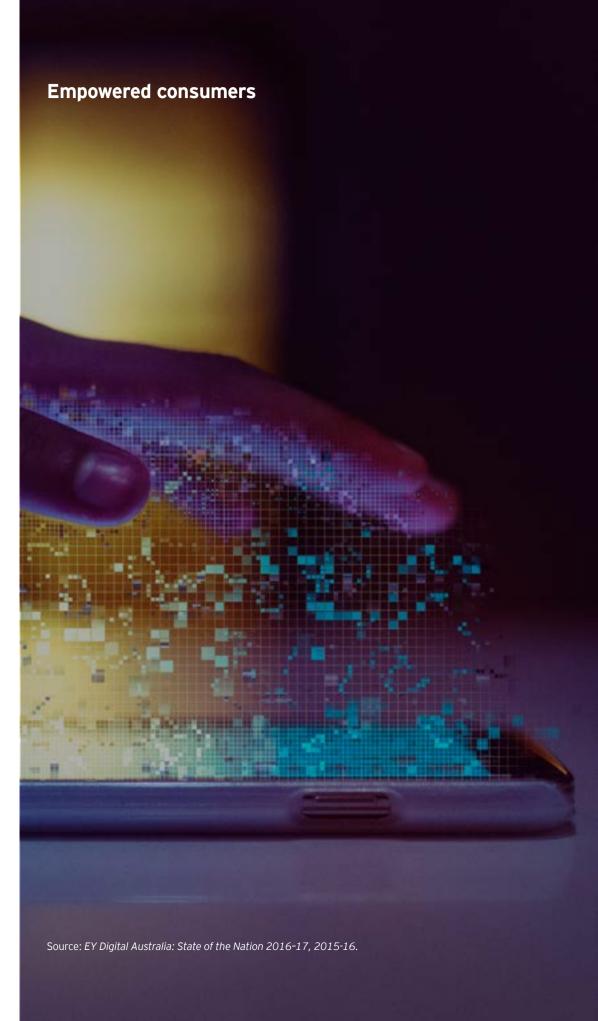
Today's consumers are better informed and more empowered, with the balance of power having been tipped in their favour. They are digitally enabled and determined to get the best product, service or experience for the best value. It is fair to say a more mercenary mindset prevails.

Underlining the changed dynamic in the purchase process is the fact that the proportion of customers who research the price and quality of products and services online is edging towards universal (94% of Australians surveyed). The source of the recommendations or advice on what to buy is also significant, with consumers not turning to the manufacturers or retailers, but to third-parties such as their peers, social leaders or 'experts' found on digital channels like Facebook, TripAdvisor or Twitter.
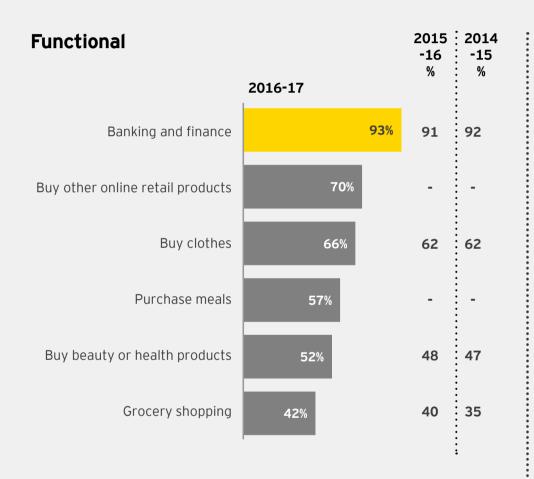
Australia's empowered consumers are online for 6.8 hours a day and their smartphone is their primary point of connection.
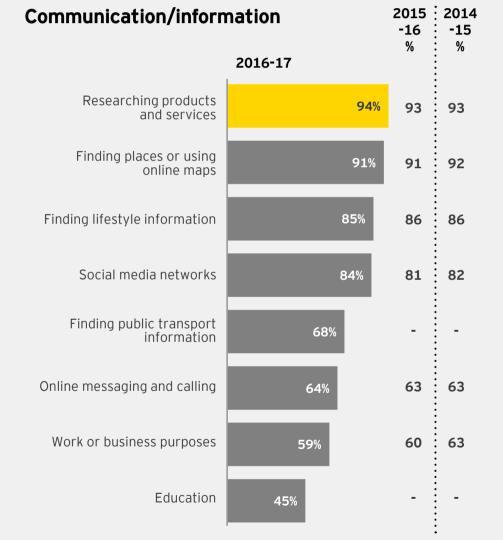
"The shift in mindset is pronounced. Australians are much more assertive and less predictable than ever before. The organisations that are the most proficient and successful have a contemporary understanding of how consumers shop their category and the spheres of influence on their ultimate decision."

Marc L'Huillier,
EY Oceania EY Sweeney
Managing Partner

Source: *EY Digital Australia: State of the Nation 2016–17, 2015-16.*

Activities done online at least once a year

Functional

	2016-17	2015-16 %	2014-15 %
Banking and finance	93%	91	92
Buy other online retail products	70%	-	-
Buy clothes	66%	62	62
Purchase meals	57%	-	-
Buy beauty or health products	52%	48	47
Grocery shopping	42%	40	35

Communication/information

	2016-17	2015-16 %	2014-15 %
Researching products and services	94%	93	93
Finding places or using online maps	91%	91	92
Finding lifestyle information	85%	86	86
Social media networks	84%	81	82
Finding public transport information	68%	-	-
Online messaging and calling	64%	63	63
Work or business purposes	59%	60	63
Education	45%		

Entertainment

	2016-17	2015-16 %	2014-15 %
News and sport updates	83%	84	84
Finding things to do/ buying entertainment tickets	76%	78	77
Reading blogs or online communities	67%	58	59
Listening and downloading music, podcasts, TV or film	64%	65	69
*Game apps on smartphone/tablets	58%	-	-
*Games on computer/gaming consoles	50%	-	-
Gambling	27%	26	21

Device usage

Australians love digital devices and are seen as early adopters of new technology on a global scale. Across the fifteen different types of devices explored, we found Australians use, on average, four devices. There is also a strong inclination to trade-up, with Australians having one of the highest propensities to upgrade their smartphone per capita.

While smartphones are ubiquitous and dominate (88% usage), usage of other devices is more fragmented. We are seeing a decline in usage of laptops/notebooks and personal/desktop computers as mobile devices take more share.

The biggest shift this year is in the extent to which people are connected to each other and the degree to which they have devices that are connected to the internet (and other devices). Australians are now more connected to the Internet than ever before with a significant rise in the usage of connected smart TVs, gaming consoles and set top boxes.

However, it is not all about the next generation of devices – something that is critical to appreciate when looking to connect with customers. Legacy devices still resonate with the older age group (aged 55+). This segment are still enthusiastic about new technologies (75% use smartphones), but many are still wedded to their desktops and still use an analogue phone (22% of those 55+). Those charged with connecting with Australians from all walks of life need to bear in mind that, while optimizing to the latest standard is important, it is equally important to appreciate the experience for those with more dated technology.

Digital device usage

Portable devices	2016-17	2015-16 %	2014-15 %
A smartphone	88% ▲	81	78
Portable laptop or notebook computer	65%	68	72
Tablet, e-reader or mini-tablet	50%	49	49
Another type of mobile phone	14% ▼	20	23
Drone	3%	-	-

Fixed devices	2016-17	2015-16 %	2014-15 %
Personal or desktop computer	57% ▽	62	62
Smart TV with internet access	35% △	29	23
A games console with internet access	31% △	22	21
TV set top box which enables internet connectivity	28% △	17	-
3D printer	3%	-	-

Wearable devices	2016-17	2015-16 %	2014-15 %
Personal training and fitness wearable device	15%	14	-
Action camera in a head mount or harness	9% ▲	5	-
Smart watch	8% ▲	5	-
Virtual reality headsets/controllers	4%	-	-
Smart glasses	2%	-	-

Note: Arrows denote significant differences between 2016 and 2015
Source: *EY Digital Australia: State of the Nation 2016-17*, 2015-16, 2014-15.
Q. Which of the following devices do you use whether at work or personal use?
Base: Total consumers – 2016 (n=1,551), 2015 (n=1,500), 2014 (1,498).

Smartphones

As has been seen in previous years, Australia has one of the highest levels of smartphone usage in the world. Close to nine in ten (88%) Australians involved in the research use a smartphone.

The most prolific users of smartphones are the 18-34s (97%), tapering down (albeit not that dramatically) to those at the older end of the spectrum, with 75% of 55-69 year olds using smartphones. Laptop and notebook usage overall remains strong (65%), followed by tablets (50%).

The 'always on, always connected' approach to life is underlined by where Australians are using their smartphones and tablets, with a rise in:

▸ **Multi-screening:** The use of tablets and smartphones while watching television is rife, with 87% of Australians saying they 'regularly or occasionally' use their device while watching TV. Double devicing (or even triple devicing) is more the norm than the exception. This has a profound impact on viewing behaviour and 'presence'. Multi-screening holds significant implications for any organisation looking to connect – whether it be the content producers or organisations looking to deliver a brand or product message. The key is to identify ways to leverage this multi-screen approach.

▸ **Anywhere, anytime usage:** Devices are being widely used in a range of situations… outside, on public transport and in bed. Organisations need to consider the context in which people are engaging with them and in which messages are being delivered.

We are also in an era of 'small-screening', with the consumption of online streamed content, accessing of information and interacting or transacting with organisations being increasingly done on mobile devices.

"Brands with relevant, timely and personalised content will be able to capture headspace when consumers reach for their devices, especially when watching television. Now TV viewing is becoming a multi-screen experience, companies will be able to offer simultaneous live mobile feeds to create a far richer experience. In future, we expect integrated small and large-screen campaigns targeting consumers when they are relaxed and open to carefully curated, value-added content."

Jennie McLaughlin,
EY Oceania Customer and
Strategy Partner
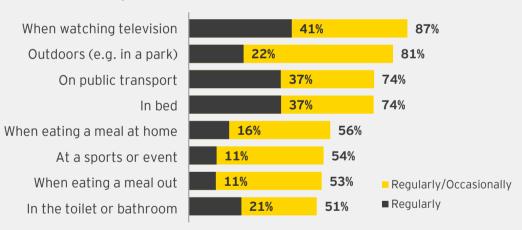
Device usage by age

	18-34 (n=520)	35-44 (n=312)	45-54 (n=323)	55-69 (n=396)	Total (n=1,551)
Smartphone	97%	95%	83%	75%	88%
Laptop	68%	66%	63%	62%	65%
Desktop	51%	53%	58%	66%	57%
Tablet	50%	53%	48%	49%	50%
Smart TV	37%	41%	35%	29%	35%
Another type of mobile phone	9%	8%	16%	22%	14%

■ Highest age group ■ Lowest age group
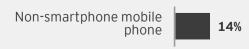
Source: *EY Digital Australia: State of the Nation 2016–17*.
Q. Which of the following devices do you use whether at work or personal use?
Base: Total consumers. Bases as shown.

Where smartphones/tablets are used

	Regularly	Regularly/Occasionally
When watching television	41%	87%
Outdoors (e.g. in a park)	22%	81%
On public transport	37%	74%
In bed	37%	74%
When eating a meal at home	16%	56%
At a sports or event	11%	54%
When eating a meal out	11%	53%
In the toilet or bathroom	21%	51%

■ Regularly/Occasionally
■ Regularly

Source: *EY Digital Australia: State of the Nation 2016–17*.
Q. Where and when do you use a smartphone or tablet?
Base: Smartphone and tablet users (n=1,427).

Analogue phone usage

Non-smartphone mobile phone	14%

Source: *EY Digital Australia: State of the Nation 2016–17*.
Q. Which of the following devices do you use whether at work or personal use?
Base: Total consumers (n=1,551).
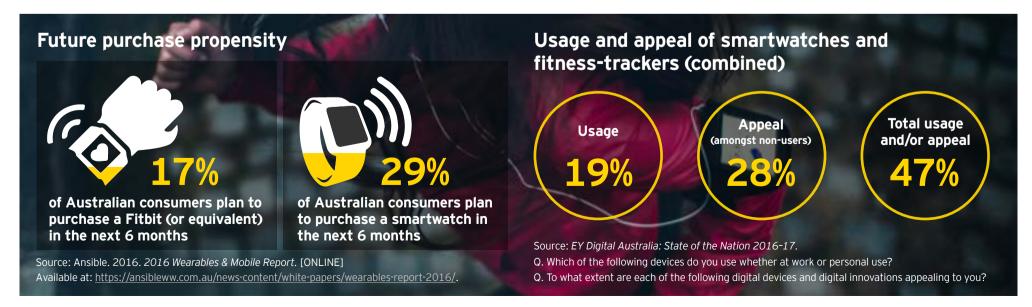
Wearables

The wearables market continues to grow, with strong appeal of the devices, particularly amongst those under 44 years old. The most appealing device is the VR headset/controller, followed by smart glasses, smartwatches and digital clothes. In the watch and tracking category, if we combine fitness trackers with smartwatches, we see that 47% of Australians either currently use one of these devices or find them appealing (19% currently use; a further 28% do not currently use, but find them appealing).

Wearables and fitness trackers are also the number one device/innovation for digital opinion leaders in terms of future predicted device 'popularity'. The true value of these devices is yet to be fully realised. While benchmarking with peers or elite athletes can be motivating and fun, benefits like the preventive health alerts and specific behaviour-based incentives are next in line.

"Wearables are delivering a new frontier in personal data. The potential multiplies as uptake increases. In the fitness and health sector, it helps individuals track and manage their physical wellbeing. As it aggregates up, it is incredibly compelling for the commercial sector and for government agencies when they have the capacity to analyse previously unavailable health and wellbeing data from the population. This data can help inform investment and improve both citizen longevity and quality of life."

David Roberts,
EY Oceania Health Leader

Future purchase propensity

17%
of Australian consumers plan to purchase a Fitbit (or equivalent) in the next 6 months

29%
of Australian consumers plan to purchase a smartwatch in the next 6 months

Source: Ansible. 2016. *2016 Wearables & Mobile Report*. [ONLINE]
Available at: https://ansibleww.com.au/news-content/white-papers/wearables-report-2016/.

Usage and appeal of smartwatches and fitness-trackers (combined)

Usage
19%

Appeal
(amongst non-users)
28%

Total usage and/or appeal
47%

Source: *EY Digital Australia: State of the Nation 2016–17*.
Q. Which of the following devices do you use whether at work or personal use?
Q. To what extent are each of the following digital devices and digital innovations appealing to you?

Wearables usage by age

	18-34 (n=520)	35-44 (n=312)	45-54 (n=323)	55-69 (n=396)	Total (n=1,551)
Base:					
Wearable fitness tracker	19%	17%	13%	9%	15%
Smartwatch	12%	10%	4%	2%	8%

■ Highest age group   ■ Lowest age group

Source: *EY Digital Australia: State of the Nation 2016–17*.
Q. Which of the following devices do you use whether at work or personal use?
Base: Total consumers. Bases as shown.
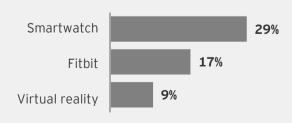
Appeal of wearable solutions

Virtual reality headsets and controllers (n=1,492) — 11% / 31%
Smart glasses (n=1,516) — 9% / 25%
Smartwatch (n=1,431) — 7% / 25%
Digital clothes (n=1,551) — 7% / 19%

■ Very appealing   ■ Total appealing

Source: *EY Digital Australia: State of the Nation 2016–17*.
Q. To what extent are each of the following digital devices and digital innovations appealing to you?
Base: Total consumers. For select devices, excludes owners. Base sizes are shown.

Australians intending to purchase a wearable device in the next six months (top 3)

Smartwatch — 29%
Fitbit — 17%
Virtual reality — 9%

Source: Ansible. 2016. *2016 Wearables & Mobile Report*. [ONLINE]
Available at: https://ansibleww.com.au/news-content/white-papers/wearables-report-2016/.

There is enormous currency in the data produced by wearables. While still in its infancy, consumers will increasingly have the opportunity to 'trade' their data for benefit. Here are some of the examples we are seeing around the world today:

▸ Health insurers are already incentivising customers to provide the health data collected by the wearable to reduce health insurance premiums.

▸ Asthma wheeze data, collected via devices and apps is helping to provide an early warning of potential issues as the weather changes based on past experiences and sophisticated analysis. This can enable hospitals to be prepared.

▸ Fitness tracker activity data can be linked with Flybuys accounts so that users can be rewarded for their daily physical activity by earning Flybuys points.

▸ Wearable and implantable devices that allow hospitals to transfer patients to ambulatory/outpatient care whilst continuing to closely monitor their health, relieving demand for hospital beds.

▸ Devices to monitor the health of employees allowing employers to make informed decisions about managing their stress and wellbeing.

Using data to inform city planning and traffic management

EYC3 applied advanced analytics to the data from cyclists using Strava's app to identify cycling commuter corridors from all directions in the Melbourne metropolitan area.

City planners and traffic management teams use the animated data to visualise how and when cyclists use Melbourne's roads, hour-by-hour over the course of a day, to support infrastructure development and transport planning.

EY
Building a better
working world

C3

Digital entertainment

This year in Australia the story is all about streaming – for both video content (television/movies) and music. It has gone from relatively niche through to the mainstream.
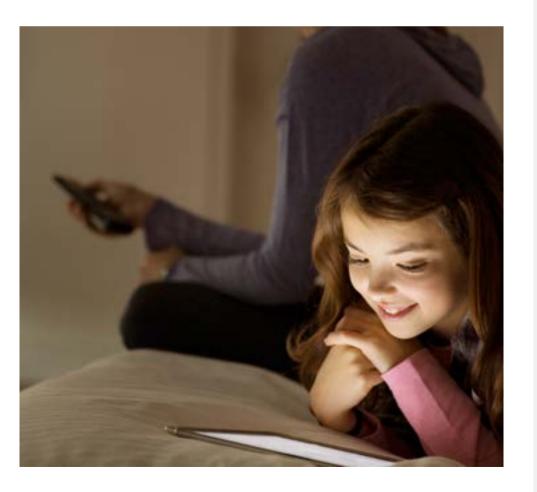
TV and movies

The biggest shift in TV shows and movie access has been the rise in streaming subscriptions (up from 18% to 28%) as Australians welcome the ability to pace themselves, binge, self-select and skip ads.
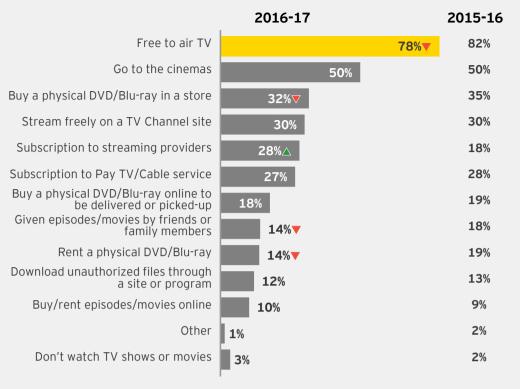
▸ In the last 12 months, Netflix has jumped from being accessed by 60% to 76% of Australians who stream. The proportion of Netflix users is now on par with Foxtel users (24% vs. 23% of Australians respectively). According to some digital opinion leaders, its ease of use, personalisation and flexibility make Netflix the benchmark for the streaming experience. We would expect to see streaming services from all providers to continue to surge ahead in the next 12 months. This is reflected by Foxtel's focus on streaming, with their launch of the revitalised streaming service, Foxtel Now.

▸ As binge consumption becomes the norm, streaming will become an increasingly important element in the media consumption mix. The challenge for advertisers will be to embed communications or product content.

Cinemas

With 50% of Australians still going to the cinema, our findings underscore consumer appetite for out of home entertainment 'experiences'. Going to the cinema is a social occasion and the next generation cinemas and entertainment/dining precincts have elevated the experience to a new level.

Channels for television shows/movies

	2016-17	2015-16
Free to air TV	78%▼	82%
Go to the cinemas	50%	50%
Buy a physical DVD/Blu-ray in a store	32%▽	35%
Stream freely on a TV Channel site	30%	30%
Subscription to streaming providers	28%△	18%
Subscription to Pay TV/Cable service	27%	28%
Buy a physical DVD/Blu-ray online to be delivered or picked-up	18%	19%
Given episodes/movies by friends or family members	14%▼	18%
Rent a physical DVD/Blu-ray	14%▼	19%
Download unauthorized files through a site or program	12%	13%
Buy/rent episodes/movies online	10%	9%
Other	1%	2%
Don't watch TV shows or movies	3%	2%

Note: Arrows denote significant differences between 2015 and 2016 results.
Source: *EY Digital Australia: State of the Nation 2016-17, 2015-16.*
Q. Which of the following do you use to access TV shows and movies?
Base: Total consumers – 2016 (n=1,551), 2015 (n=1,500).

Streaming services for television shows/movies

	2016-17	2015-16
Netflix Australia	24%△	12%
Foxtel via a set top box (e.g. IQ box)	23%	22%
Stan	7%△	2%
Foxtel Play	5%	5%
Presto	4%△	2%
Telstra TV*	4%	N/A
Fetch TV	3%△	2%
International streaming service (e.g. Netflix US, Hulu)	3%	2%
Quickflix	2%	2%
Other	0%	2%

*Telstra T-Box was replaced with Telstra TV in 2016-17.
Note: Arrows denote significant differences between 2015 and 2016 results. Asked of those who access TV shows/movies via streaming and/or Pay TV.
Source: *EY Digital Australia: State of the Nation 2016-17, 2015-16.*
Q. Which of the following do you use? This includes paid or trial subscriptions.
Base: Total consumers – 2016 (n=1,551), 2015 (n=1,500).
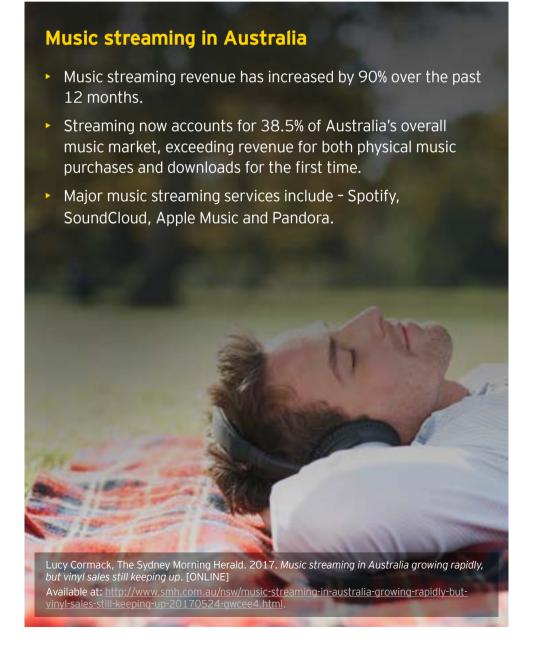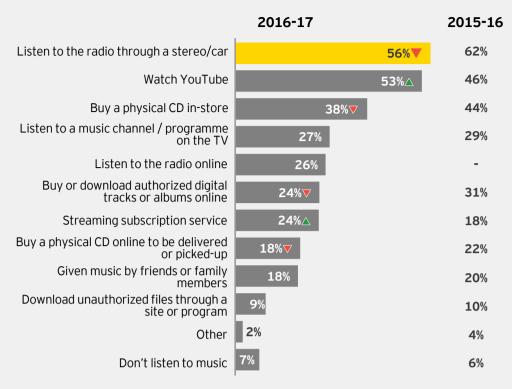
Music

Radio still plays a predominant role in the delivery of music to Australians. It is the number one source for listening to/acquiring music, although it has dropped slightly this year. Streaming and related digital services are growing in popularity, with 'watching music on YouTube' (53%) a major source and the top medium for 18-34's (67%). Music subscription service usage is also high amongst this age band (42%).

As accessibility has improved and streaming has become mainstream, we have seen a decline in consumer propensity to access unauthorised content in recent years.

Music streaming in Australia

‣ Music streaming revenue has increased by 90% over the past 12 months.

‣ Streaming now accounts for 38.5% of Australia's overall music market, exceeding revenue for both physical music purchases and downloads for the first time.

‣ Major music streaming services include - Spotify, SoundCloud, Apple Music and Pandora.

Lucy Cormack, The Sydney Morning Herald. 2017. *Music streaming in Australia growing rapidly, but vinyl sales still keeping up.* [ONLINE]
Available at: http://www.smh.com.au/nsw/music-streaming-in-australia-growing-rapidly-but-vinyl-sales-still-keeping-up-20170524-gwcee4.html.

Listening to and acquiring music

	2016-17	2015-16
Listen to the radio through a stereo/car	56%▽	62%
Watch YouTube	53%△	46%
Buy a physical CD in-store	38%▽	44%
Listen to a music channel / programme on the TV	27%	29%
Listen to the radio online	26%	-
Buy or download authorized digital tracks or albums online	24%▽	31%
Streaming subscription service	24%△	18%
Buy a physical CD online to be delivered or picked-up	18%▽	22%
Given music by friends or family members	18%	20%
Download unauthorized files through a site or program	9%	10%
Other	2%	4%
Don't listen to music	7%	6%

Listening to and acquiring music by age

Base:	18-34 (n=520)	35-44 (n=312)	45-54 (n=323)	55-69 (n=396)
Listen to the radio through a stereo/car	48%	52%	62%	63%
Watch YouTube	67%	55%	46%	40%
Buy a physical CD in-store	25%	32%	43%	53%
Listen to a music channel / programme on the TV	23%	28%	29%	28%
Listen to the radio online	26%	28%	25%	24%
Buy or download authorized digital tracks or albums online	30%	28%	21%	15%
Streaming subscription service	42%	24%	16%	8%
Buy a physical CD online to be delivered or picked-up	16%	17%	21%	21%
Given music by friends or family members	20%	14%	18%	18%
Download unauthorized files through a site or program	15%	10%	4%	3%
Don't listen to music	4%	7%	5%	11%
Other	1%	1%	3%	3%

■ Highest age group   ■ Lowest age group
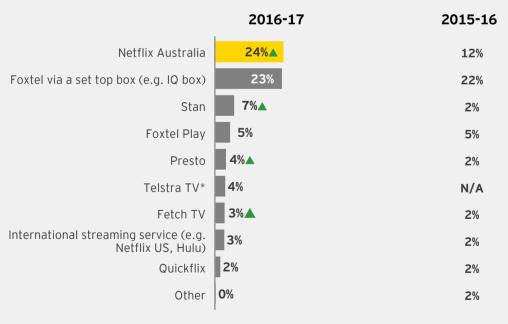
Note: Arrows denote significant differences between 2015 and 2016 results
Source: *EY Digital Australia: State of the Nation 2016-17*.
Q. Which of the following do you use to acquire or listen to music?
Base: Total consumers – 2016 (n=1,551), 2015 (n=1,500). Age group bases as shown.

Gaming

Around half of the Australians involved in our research participate in gaming to different degrees. Many gamers are immersed, with nearly two thirds (63%) of those playing games also participating in peripheral gaming activities, these include:
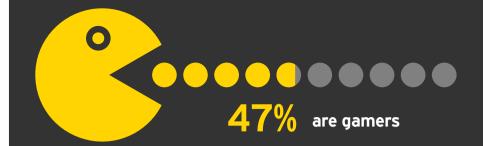
▸ Watching gaming related content (43%)

▸ Streamer play (40%)

▸ Watching a professional tournament/event (15%)

▸ Attending a gaming convention (10%)

The rise and rise of eSports

Gaming is also evolving from an individual or social activity to competitive live events, where players come together at networked locations to compete for major prize money and kudos. Competitive gaming (eSports) has a participation and fan base rivalling physical sports. Doubters should consider:

▸ **Gaming is now a major stadium and streaming sport:** eSports had an estimated global audience of 226 million gamers in 2016, with global revenues of $325 million. League of Legends – a multi-player online battle arena (MOBA) game – has one of the world's biggest footprints, attracting an estimated 100 million monthly active players every month (27 million per day). The 2016 League of Legends championship event drew more than 43 million

Australia video game industry (2016)

Total value: $2.958b (4%▲)

▸ Traditional retail: $1.065b (16%▼)

▸ Console/portable software: $508m (18%▼)

▸ Console hardware: 3%▼ in units

▸ Consoles accessories: 8%▼ in value

▸ Digital sales: $1.893b (19%▲)

▸ Mobile: $988m (14%▲)

▸ Digital downloads: $762m (26%▲)

▸ Subscriptions: $143m (23%▲)

Interactive games & entertainment association. 2016. *Australian Video Game Industry Value. An industry snapshot 2016.* [ONLINE]
Available at: http://www.igea.net/wp-content/uploads/2017/02/TIV-2016-Infographic.jpeg.

47% are gamers

Gaming by age

	18-34 (n=345)	35-44 (n=158)	45-54 (n=128)	55-69 (n=100)	Total (n=731)
Play games on computer/gaming consoles	66%	52%	39%	25%	47%

■ Highest age group ■ Lowest age group

Source: *EY Digital Australia: State of the Nation 2016–17.* Consumer survey,
Q. How often do you use the Internet for each of the following activities, whether accessed via a mobile device (e.g. smartphone, tablet), a desktop computer, SmartTV, or other internet enabled device?
Base: All consumers (n=1,551).

Gaming related activities

Activity	%
Viewed online content related to gaming	43%
Watched a streamer play online	40%
Purchased in-game items	29%
Watched a professional tournament/event	15%
Watched an in-game replay through the game client	14%
Joined a video group chat whilst playing an online game	14%
Attended a gaming convention	10%
Cosplay as a gaming character	7%
None of the above	37%
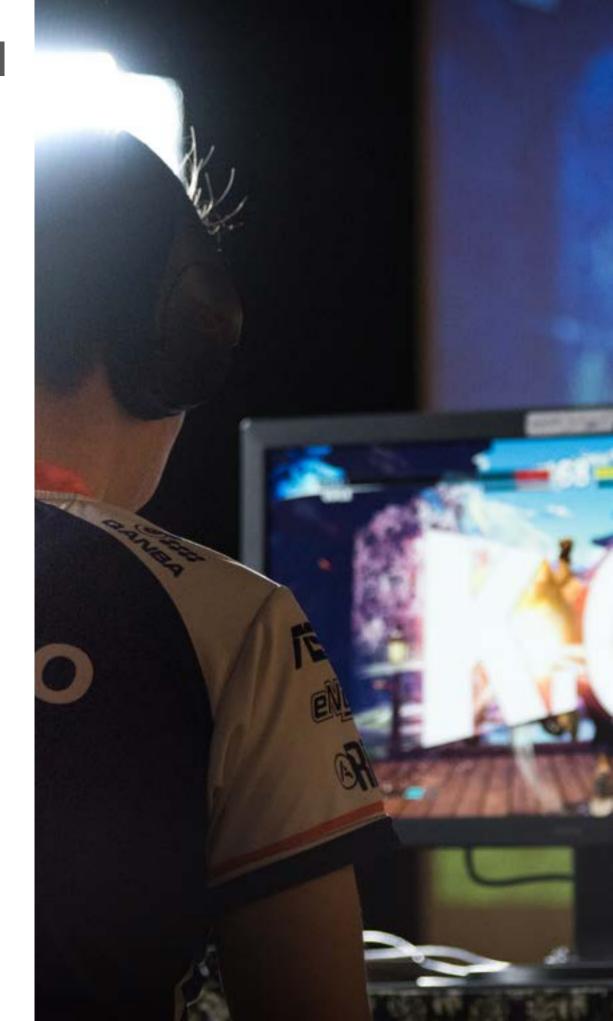
Source: *EY Digital Australia: State of the Nation 2016–17.*
Q. Which of the following gaming related activities have you done in the last 12 months?
Base: Consumers who play games on computer / gaming consoles (n=731).

unique viewers (with a peak of 14.7 million)[6]. Watch this video (https://youtu.be/PyDZYLYWcNg) for a sense of the passion of both the players and the followers of this new phenomenon. A dedicated eSport stadium recently opened in Taipei and will soon host a 13 week tournament.[7]

▸ **Olympic aspirations:** Alibaba has invested USD$150m in the International e-Sports Federation with the aim of making eSports an Olympic event. eSport will be a demonstration event at the 2018 games in Jakarta featuring FIFA 17, MOBAs and a real-time strategy game. eSport will then be a medal event at the 2022 Asian Games in Hangzhou. It doesn't stop there. The growth, value and hyper competitiveness of gaming will see it come more and more into contention with other Olympic sports hopefuls in coming years.

▸ **The eSport economy:** The eSport economy is maturing, with an average revenue per fan increasing year on year ($3.50 per eSport fan growing to $6.50 by 2019; compared to $20 for NBA and $60 per fan for NFL)[8]. It is also attracting the interest of major brands, looking to connect with a fast growing sport that resonates with what will be the most economically important segments in coming years – the Millennials and Gen Z.

New realities – Rise of VR and AR

"We always overestimate the change that will occur in the next two years, and underestimate the change that will occur in the next ten. Do not let yourself be lulled into inaction."

Bill Gates, 1995[9]

'The next big thing' is a well-worn catchcry in digital and the hype can often outweigh the success and longevity of products bestowed with that tag. However, one of the areas to keep an eye on is the commercial applications of Virtual Reality (VR) and Augmented Reality (AR). Both have been growing for a while, but we are now starting to see the convergence of better devices/software and meaningful applications.

The power of virtual reality solutions will emerge at pace in the mainstream entertainment and sporting arenas, where more immersive experiences can make people feel like they are there. For example, the 2016 NBA finals were all filmed in VR. UFC 212 from Brazil (May 2017) was streamed in VR using the Samsung Gear platform.
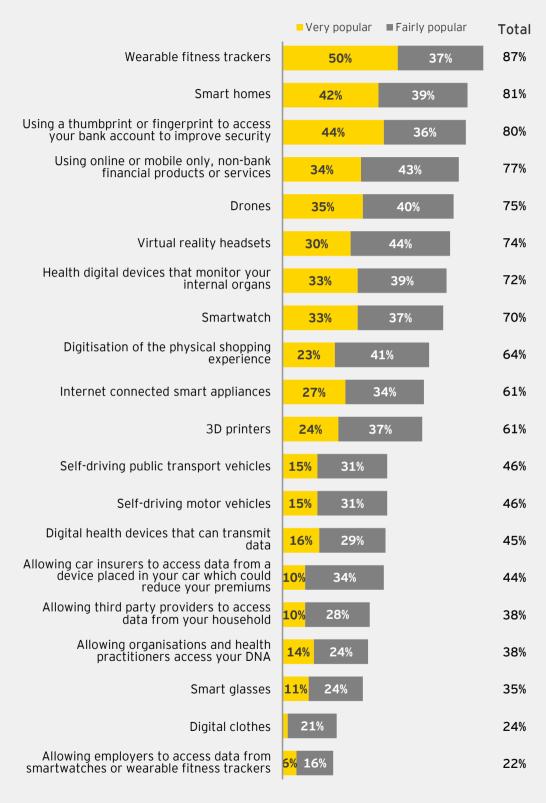
What is VR and AR?

VR: Virtual reality is a digitally-generated simulation of an artificial three-dimensional environment. It allows users to immerse and interact in a seemingly real or physical way, using specialised software and electronic equipment, such as glasses with a screen inside, or gloves fitted with sensors.

AR: Augmented reality is a live direct or indirect view of a physical, real-world environment whose elements are augmented (or supplemented) by computer-generated sensory input such as sound, video, graphics or GPS data.

Predicted future popularity of digital devices/innovations: Digital opinion leaders

	Very popular	Fairly popular	Total
Wearable fitness trackers	50%	37%	87%
Smart homes	42%	39%	81%
Using a thumbprint or fingerprint to access your bank account to improve security	44%	36%	80%
Using online or mobile only, non-bank financial products or services	34%	43%	77%
Drones	35%	40%	75%
Virtual reality headsets	30%	44%	74%
Health digital devices that monitor your internal organs	33%	39%	72%
Smartwatch	33%	37%	70%
Digitisation of the physical shopping experience	23%	41%	64%
Internet connected smart appliances	27%	34%	61%
3D printers	24%	37%	61%
Self-driving public transport vehicles	15%	31%	46%
Self-driving motor vehicles	15%	31%	46%
Digital health devices that can transmit data	16%	29%	45%
Allowing car insurers to access data from a device placed in your car which could reduce your premiums	10%	34%	44%
Allowing third party providers to access data from your household	10%	28%	38%
Allowing organisations and health practitioners access your DNA	14%	24%	38%
Smart glasses	11%	24%	35%
Digital clothes	21%		24%
Allowing employers to access data from smartwatches or wearable fitness trackers	6%	16%	22%

Source: *EY Digital Australia: State of the Nation 2016–17.*
Q. How popular do you think each of the following digital devices and digital innovations will be in 5 years' time?
Base: Total digital leaders (n=131).

Augmented reality mixes the digital and physical worlds. The biggest example in recent times is the Pokémon Go phenomenon, which, while short lived, did underline the potential. Other applications of AR include holographs, 3D glasses, dressing rooms, make-up mirrors, car locators, furniture catalogues – the list goes on.

VR: Commercial applications
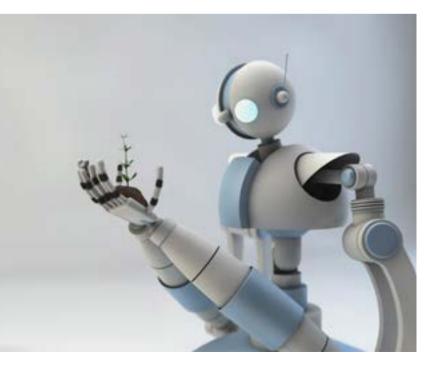
VR can help transform the uninspiring or complicated to vivid and immersive.

For example, in financial services, VR has been used to:

▸ Help visualize the journey to retirement for pre-retirees.

▸ Physically demonstrate savings and investment plans.

In the OHS (occupational health and safety) world, VR is being used for 'real life' training and reducing risk.

Surgeons use VR to practice operations and the data across all the operations can be used to further refine the approach and reduce the risk.

Next big innovation in digital technology for consumers: Digital opinion leaders

Top three most mentioned devices/innovations

Internet of Things

The Internet of Things (IoT) essentially refers to devices that are connected to the Internet and, in many cases, to each other. We are at a point now where device connectivity continues to rise, as does consumer acceptance. As a result, the focus is not as much on the technology, but more on how all of that technology can be made more personal and impactful for people.

Uppermost in the minds of consumers in the IoT space is the smart/connected home.

Connected home

There is strong appeal for connected homes and related innovation. Forty-four percent of Australians involved in our research find 'smart networked homes' appealing, with the greatest interest coming from males (47%), members of Gen Y (54%), and affluent consumers who have a household income greater than $120,000 (55%).

Those looking to knock on the door of the smart home, should:

▸ **Recognise the diverse digital needs in the home:** Some consumers will value saving money through using less energy, with others are looking for a richer home entertainment experience. Position the customers at the heart of your approach – focusing on smart technology as an add-on to existing products often confuses customers who are merely seeking simple, convenient solutions.

▸ **Prioritise feedback loops to refine your offering:** Smart homes are at an early stage. Dialogue with customers will help to shape and drive demand with early adopters.

▸ **Regularly assess your role in a changing industry ecosystem:** No single entity owns the customer in the digital age. Selecting the right partners is essential to creating a seamless, intuitive, high-value experience.

Future trends – Internet of things (IOT)

Telsyte forecast that the market for IOT devices and services used in the home will grow by a factor 11, reaching $3.26b by 2019.
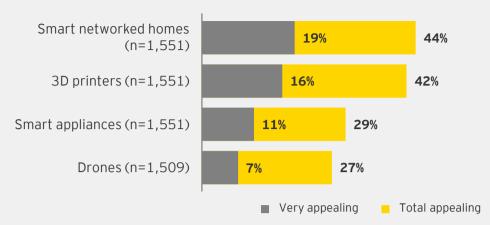
Manufacturers like Samsung have indicated that all products will be IOT capable by 2020.

Many of the coming IOT devices will require minimal bandwidth on their own. For example, an IOT enabled dishwasher may only require a few bits sent to notify a service centre that it needs maintenance. However, the sheer number of IOT devices will add greatly to household bandwidth demands. As such, the availability / affordability of high speed broadband in Australia may be more of a constraining factor to IOT dissemination in the future than availability of devices.

Source: Telsyte. 2015. *Internet uninterrupted: The connected future of Australian households*. [ONLINE] Available at: http://www.nbnco.com.au/blog/connected-homes/internet-uninterrupted-the-connected-future-of-Australian-households.html.

Appeal of home devices

Device	Very appealing	Total appealing
Smart networked homes (n=1,551)	19%	44%
3D printers (n=1,551)	16%	42%
Smart appliances (n=1,551)	11%	29%
Drones (n=1,509)	7%	27%

■ Very appealing   ■ Total appealing

Source: *EY Digital Australia: State of the Nation 2016-17*.
Q. To what extent are each of the following digital devices and digital innovations appealing to you?
Base: Total consumers. For select devices, excludes owners. Base sizes are shown.

Personal assistance

Gathering pace are devices that can help manage people's lives, with a strong initial focus on connected homes.

▸ **Apps:** With consumers now owning many devices across different brands, there are a range of players offering solutions that centralise the control of these devices with software, such as apps (e.g. Apple Homekit, Google's Android Things, etc.) to connect all IoT networked devices.

▸ **Digital assistants:** Physical (and virtual) devices that can help run the devices in a home (e.g. Amazon Echo, Google Home).

▸ **Automatic speech recognition (ASR) technology:** The next generation of personal support devices and software are intelligent systems that use AI and natural language process (e.g. Amazon Alexa voice services).

Source: Dave Evans, Cisco. 2011. *The Internet of Things: How the Next Evolution of the Internet Is Changing Everything*. [ONLINE] Available at: http://www.cisco.com/c/dam/en_us/about/ac79/docs/innov/IoT_IBSG_0411FINAL.pdf.

Transport in a digital world

Mobility influences the economic development and social cohesion in societies and digital is re-shaping mobility at a pace that has never been seen before. Digital solutions will have a profound impact on the way people move around.

Citizens today are demanding greater flexibility, more predictability, increased time-saving and improved affordability. At the heart of this is growing enthusiasm for new digital-led mobility solutions.

Our survey finds highly digitally savvy consumers and increasingly sophisticated mobility products and services developing in parallel. However, car makers, dependent on 30-year-old dealership networks, have yet to effectively address the shift.
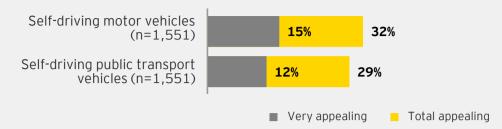
▸ **Strong consumer appetite for new service delivery models:** 22% of 18-34 year olds already use ride-sharing apps as users or providers. Growing consumer demand will support new market entrants providing car sharing, dynamic route services and journey planning apps. Australians are also interested in autonomous vehicles, with 32% seeing self-driving motor vehicles as appealing and a similar number positive about 'self-driving' public transport.

▸ **In-vehicle technology:** The technology already exists to switch control from the driver to the vehicle, with self-drive buses already tested in Western Australia[10]. However, completely autonomous vehicles are likely to still be up to a decade away and the degree to which they are utilised for private mobility will depend on various factors including regulation, technology costs, supporting infrastructure requirements and consumer acceptance.

At issue is the ability of stakeholders to deal with the commercial, regulatory and governance complexities. If a self-drive vehicle hits a pedestrian, who is to blame? What should the ethical framework look like to control machine decisions that could result in human pedestrian injuries? It's a fraught area that will not be solved easily or quickly.

In the meantime, the industry will continue to deliver cars with more autonomous features. Already, top of the line models prevent drivers from crashing while in reverse or changing lanes when another vehicle is present.

Appeal of transport options

	Very appealing	Total appealing
Self-driving motor vehicles (n=1,551)	15%	32%
Self-driving public transport vehicles (n=1,551)	12%	29%

■ Very appealing   ■ Total appealing

Source: *EY Digital Australia: State of the Nation 2016–17*.
Q. To what extent are each of the following digital devices and digital innovations appealing to you?
Base: Total consumers. For select devices, excludes owners. Base sizes are shown.

Uber usage (number of trips)
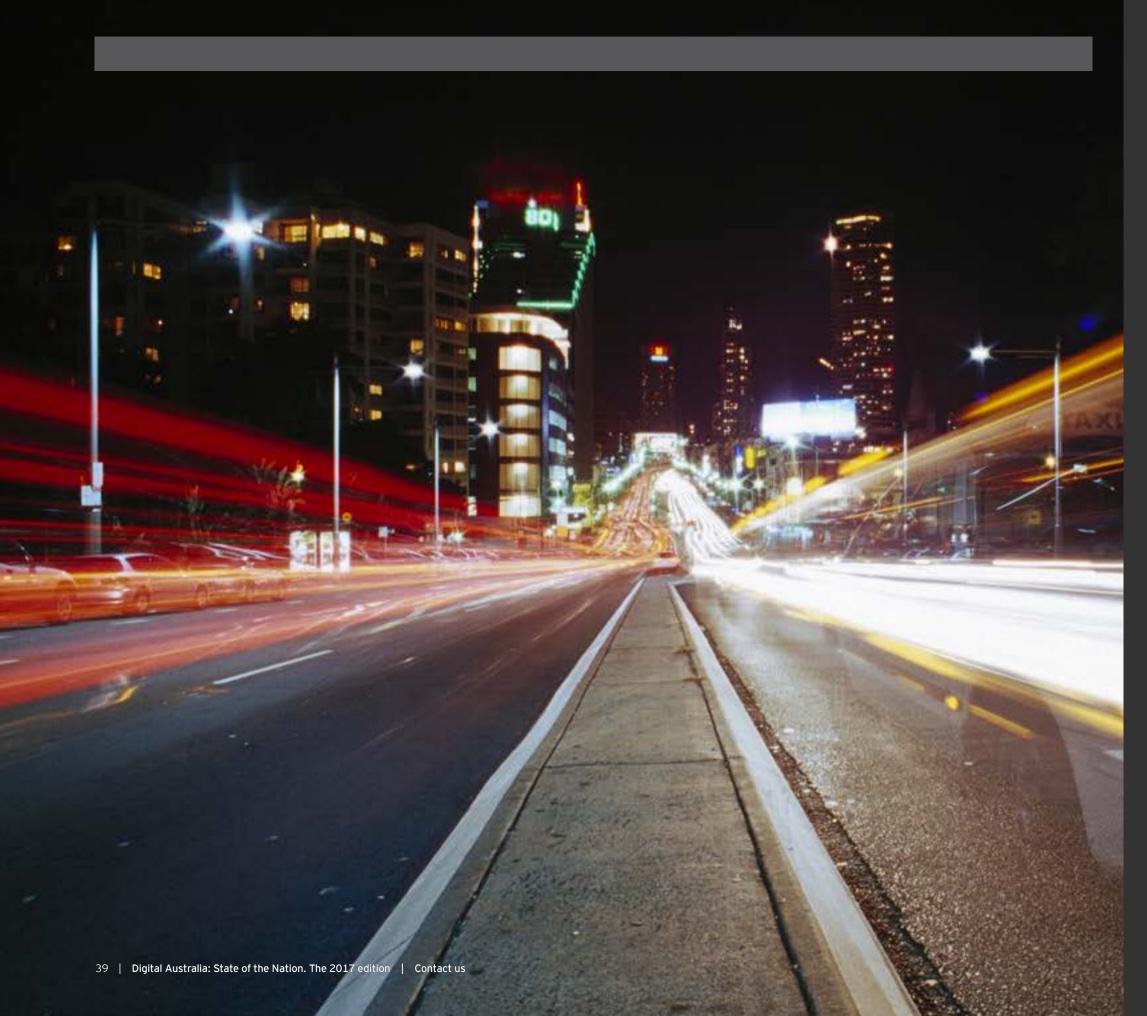
First trip — June 2010

1 million — May 2012

1 billion — December 2015

2 billion — June 2016

65% of millennials and Gen Z see the car as their primary mode of transport

However, one in seven already feel that car and ride sharing options have diminished their priority for owning a car

Source: Lifelounge & EY Sweeney. 2017. *Lifelounge Sweeney Report*. [ONLINE Available at: https://lifelounge.sweeneyresearch.com.au/.

Autonomous vehicle deployment timeline

5-10 years

- Controlled, autonomous vehicle only environments
- Moderate level of automated driving
- Low to medium speeds

10-20 years

- Less restricted environments
- High level of automated driving
- Medium to high speeds

Beyond 20 years

- Large connected autonomous vehicle networks allowing multiple mobility scenarios
- On demand mobility and fleet services
- Customisable autonomous vehicles

Vehicles as a service

In this environment, consumers have dramatically different expectations of traditional automakers, who are struggling to connect digitally to customers. Millennials and Gen Z in particular are uninspired by existing sales processes and marketing channels.

For these customers, walking into a car dealership should be a similar modern, convenient experience to the one they get in Apple stores. Before they walk in, customers have already researched the vehicle. They know the price, colour and options they want. They expect their choice to be available. In the short-term, dealers need to be motivated for the common good of the brand, with incentive structures that get vehicles to the right place at the right time.

Over time, in urban areas, vehicles will be packaged as a service. Already, in New York, automotive packages are available for a monthly subscription with a suite of options for vehicle usage. Customers trade up or down depending on their driving needs, with providers taking care of service needs behind the scenes.

We expect to see front runners soon in Australia, with brands developing long-term customer relationships via apps. Cars will be monitored remotely for maintenance issues. Service will be brought to the customer. Upgrading a car will be a drive in/drive out experience.

"In a world where taxi rides are summoned with a button and where people have become reliant on mapping applications to get around town, a paradox has emerged: Technology companies know a lot more about a city's traffic patterns than the city officials trying to solve the problem."

Conor Dougherty,
The New York Times[11]

Hybrid models blur the distinction between public and private transport

Avego – turning cars into buses

Integrating GPS, web and mobile technologies, Avego's real-time information systems provides empty seats for ride sharing/pooling, public transportation schedules, convenient ticket purchasing options and reporting capabilities.

Zipcars – wheels when you want them

Zipcar operates the world's leading car-sharing network, with 9,500+ automobiles available for self-service hourly or daily use by 650,000 members in 21 cities and over 250 universities, mostly in the US and Canada.

HANNOVERmobil – integrating public transport with car sharing and taxis

An annual public transport ticket in the shared-tariff zone of the Transport Association of Greater Hanover (GVH) gives customers access to car-sharing as well as discounts from a taxi company.

New mobility value ecosystem

The automotive industry needs to prepare for mobility to become a service industry, no longer based on vehicle sales or dealerships. There is no single service solution, but a menu of ever-changing options, including shared services, where the product adapts to the customer's needs and is embedded within a broader mobility ecosystem.

Intelligent transport network

It is not just that vehicles are getting smarter. It is also the network itself. The real catalyst for a step change in overall mobility might come when vehicle-to-network connectivity enables modelling that frees up road capacity. Imagine a future where the network "self-solves" the minute-by-minute mobility needs of the population by guiding each journey to its destination in the most efficient and safe way.

Research in Sweden has found over half of the population is willing to charge someone else's electric car on their property[12].

Enter elbnb... a nationwide social market place where anyone can share their electricity.
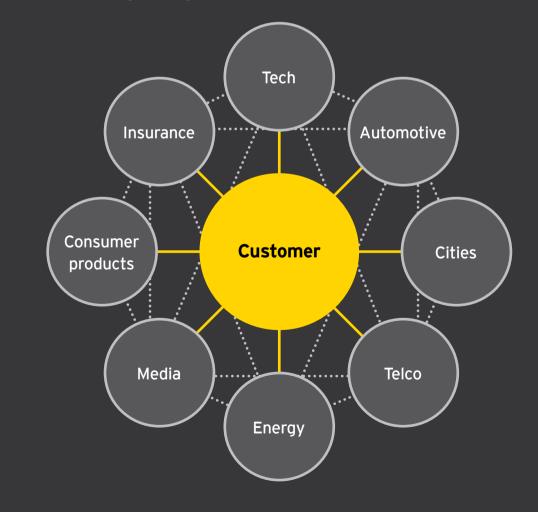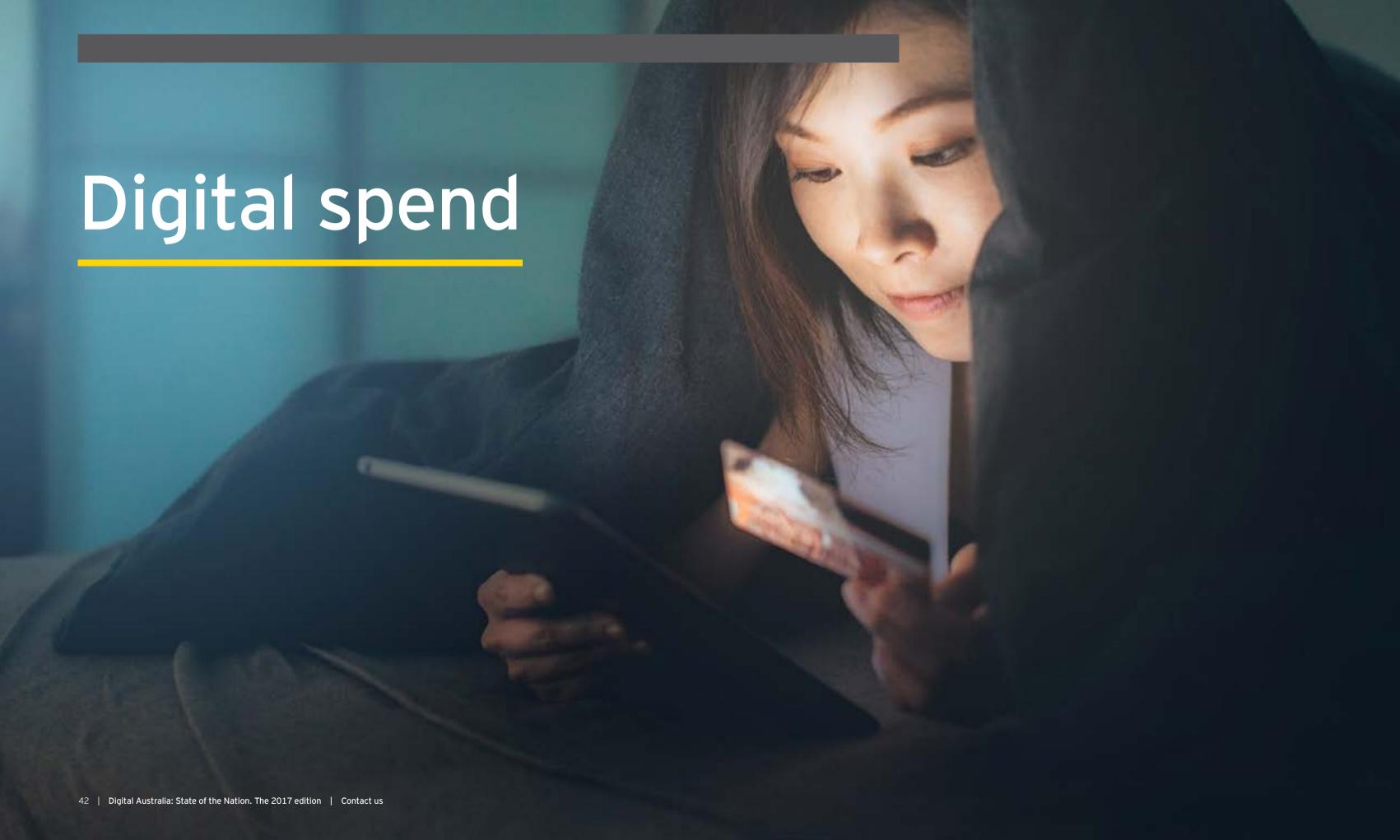
"Old" automative value chain

Supplier › Supplier › OEM* › Finance / Dealer › **Customer**

*OEM: Original Equipment Manufacturer

New mobility ecosystem

Tech · Automotive · Cities · Telco · Energy · Media · Consumer products · Insurance — **Customer**

Digital spend

Digital device and service expenditure
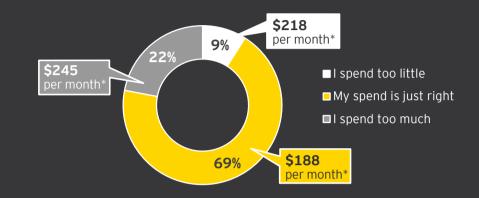
The spend on digital products and services is a significant and increasing part of personal and household budgets.

▸ **Total spend:** The total amount spent by Australians on digital is $3,426 (on average) per year, broken down as $978 in upfront costs on digital devices and $204 monthly on digital expenses.

▸ **An overall increase:** Compared to last year, Australians are spending approximately $200 more upfront (on average) and $20 more per month on digital-related costs. Driving the boost in digital spend is increased amounts spent across all devices, with computers continuing to be the highest cost, followed by smartphones. Of the ongoing costs, home phone/internet plans and smartphone bills make up the largest portion.

▸ **Digital spend part of life:** The proportion of Australians happy with their digital spend has grown since last year (currently at 69% from 63%). Only 22% feel they spend too much. Among Australians who feel they are spending the right amount on digital expenses, the average monthly digital spend is $188 per month.

"It's striking that only 22% of Australians think they spend too much on digital. Consumers clearly believe their digital devices and subscriptions deliver great value. This is good news for businesses ready to take advantage of the insatiable appetite for digital products and services."

Jenny Young,
EY Oceania Technology, Media & Entertainment and Telecommunications; and Customer Leader

Attitude towards spend on digital

$218 per month*
9%
22%
$245 per month*
69%
$188 per month*

- I spend too little
- My spend is just right
- I spend too much
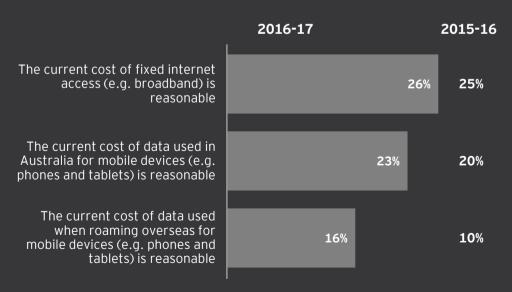
*Average monthly digital expenses.
Source: *EY Digital Australia: State of the Nation 2016–17*.
Q. Which of the following statements best apply to you?
Q. On average, how much do you personally spend on the following per month?
Base: Total consumers (n=1,551).

Attitude towards cost of data (% agree)

	2016-17	2015-16
The current cost of fixed internet access (e.g. broadband) is reasonable	26%	25%
The current cost of data used in Australia for mobile devices (e.g. phones and tablets) is reasonable	23%	20%
The current cost of data used when roaming overseas for mobile devices (e.g. phones and tablets) is reasonable	16%	10%

Note: Total agree (strongly agree/agree) shown.
Source: *EY Digital Australia: State of the Nation 2016–17, 2015-16*.
Q. To what extent do you agree or disagree with each of the following statements?
Base: Total consumers 2016 (n=1,551), 2015 (n=1,500).

E-Commerce

96% of Australians have made a purchase online over the past twelve months. The largest areas are homewares, groceries, media and fashion. The biggest growth year-on-year is in food.
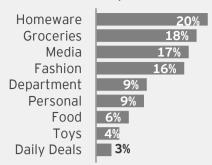
Even when in a physical store, over one-third of Australians (35%) have conducted research on their tablet or smartphone. This underlines the importance of search optimisation to get consumers to the right information as quickly as possible.

There is also appeal in the digitalisation of the physical shopping experience, over a quarter of Australians find the idea appealing. This was particularly driven by younger Australians (40% appealing).

"People are becoming more and more comfortable spending bigger and bigger sums online as the trust grows. There's an incremental progression that escalates up to bigger purchases."
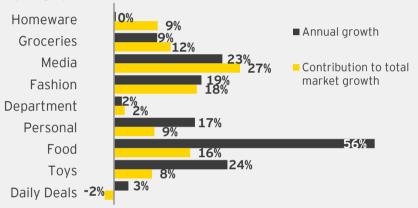
Digital opinion leader, Automotive sector

What Australians purchase online

Category	%
Homeware	20%
Groceries	18%
Media	17%
Fashion	16%
Department	9%
Personal	9%
Food	6%
Toys	4%
Daily Deals	3%

NAB Group Economics. 2016. NAB Online Retail Sales Index: June 2016. [ONLINE] Available at:
http://business.nab.com.au/wp-content/uploads/2016/08/20160729-NORSI-June-2016-Final.pdf

Category growth

■ Annual growth ■ Contribution to total market growth

Category	Annual growth	Contribution to total market growth
Homeware	0%	9%
Groceries	9%	12%
Media	23%	27%
Fashion	19%	18%
Department	2%	2%
Personal	17%	9%
Food	56%	16%
Toys	24%	8%
Daily Deals	3%	-2%
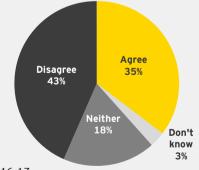
NAB Group Economics. 2016. NAB Online Retail Sales Index: June 2016. [ONLINE] Available at:
http://business.nab.com.au/wp-content/uploads/2016/08/20160729-NORSI-June-2016-Final.pdf

Australians researching online whilst in store

I'll often conduct online research on a product on a phone or tablet whilst in store or at the point of purchase
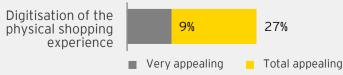
- Agree 35%
- Disagree 43%
- Neither 18%
- Don't know 3%

Source: *EY Digital Australia: State of the Nation 2016–17*.
Q. To what extent do you agree or disagree with each of the following?
Base: Total consumers (n=1,551)

Appeal of digital shopping experiences

	Very appealing	Total appealing
Digitisation of the physical shopping experience	9%	27%

■ Very appealing ■ Total appealing

Source: *EY Digital Australia: State of the Nation 2016–17*.
Q. To what extent are each of the following digital devices and digital innovations appealing to you?
Base: Total consumers (n=1,551).

Digital payment and fintech

Australians remain at the forefront of the adoption of digital banking services and digital payment platforms – both in terms of traditional players and new disruptive start-ups. We have been tracking Australian preferences over the past few years and there has been some incremental growth and stability across the different payment methods:

▸ **Online banking:** Well over 8 in 10 (84%) of Australians surveyed are using their banks' website, with 6 in 10 (59%) using their banks' app.

▸ **Tap 'n' Go:** The contactless payment system for credit and debit cards has seen a slight rise since 2015 (74% to 80% regularly/occasionally use). Those reluctant to tap are more likely to be Baby Boomers (aged 55-69). After a significant spike two years ago, the use of ApplePay and Android equivalents remains relatively static, with 22% using their smartphone regularly or occasionally to pay for products or services.

Fintech usage and appeal
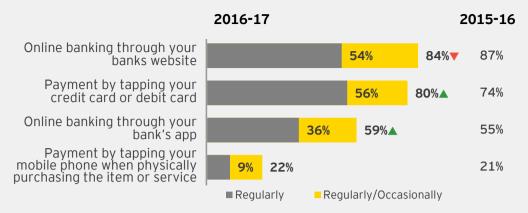
Fintech is an area of enormous growth and one in which Australia is competing well with other advanced economies. Over a third of Australians (37%) have adopted Fintech, placing it ahead of the global average adoption index of 33%. This represents a significant increase from an adoption level of 13% in 2015. This suggests that Fintech services in Australia have achieved initial mass adoption, having being taken up by the "early majority" of the population. A further 12% who have not yet used Fintech also anticipate to do so in the next 6 months, pointing to continuing uptake at a significant pace.

Adoption is highest among the younger cohorts (under 35 years of age), where it reaches almost one in two (49%), but declines to below one in five (19%) among those aged over 65 years.

"Australia has a world-class, highly innovative fintech industry. We're seeing growth in the number of new and established startups, and consumer demand is also growing rapidly. Strong support from both sides of federal government, their state counterparts and regulators is helping to create an environment in which Australian fintechs can thrive, and corporates are taking steps to improve their approach to collaboration."

Danielle Szetho,
CEO Fintech Australia

Digital payment methods

	2016-17	2015-16
Online banking through your banks website	54% / 84%▼	87%
Payment by tapping your credit card or debit card	56% / 80%▲	74%
Online banking through your bank's app	36% / 59%▲	55%
Payment by tapping your mobile phone when physically purchasing the item or service	9% / 22%	21%

■ Regularly   ■ Regularly/Occasionally
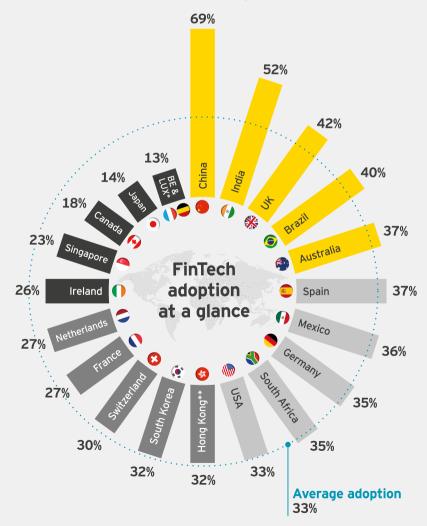
Note: Arrows denote significant differences between 2016-17 and 2015-16.
Source: *EY Digital Australia: State of the Nation 2016-17, 2015-16*.
Q. How frequently do you use the following payment methods when making a purchase or paying a bill...?
Base: Total consumers – 2016 (n=1,551), 2015 (n=1,500).

Fintech adoption across 20 global markets

FinTech adoption at a glance

China 69%, India 52%, UK 42%, Brazil 40%, Australia 37%, Spain 37%, Mexico 36%, Germany 35%, South Africa 35%, USA 33%, Hong Kong** 32%, South Korea 32%, Switzerland 30%, France 27%, Netherlands 27%, Ireland 26%, Singapore 23%, Canada 18%, Japan 14%, BE & LUX* 13%

Average adoption 33%

Note: The figures show fintech users as a percentage of the digitally active population.
All figures are shown in percentages.   *Belgium and Luxembourg   **Hong Kong SAR of China
Source: EY. 2017. *EY Fintech Adoption Index*. [ONLINE]
Available at: http://www.ey.com/gl/en/industries/financial-services/ey-fintech-adoption-index

Fintech in Australia

Defining fintech

Defining 'fintech' is challenging due to the sector's diverse and dynamic nature and the breadth of start-ups offering digital financial solutions. Our colleagues at EY member firms in the UK use the following working definition.

"In its broadest sense, we define fintechs as high-growth organisations combining innovative business models and technology to enable, enhance and disrupt financial services. This definition is not restricted to start-ups or new entrants, but includes scale-ups, maturing companies and even non-FS companies, such as telecommunication providers and e-retailers."

Source: EY: UK FinTech – On The Cutting Edge – February 2016

The EY fintech adoption index

Source: Ernst & Young. *EY FinTech Adoption Index, 2017*. [ONLINE]
Available at: www.ey.com/FinTechIndex

In June, EY launched the second edition of its global report on Fintech adoption. The 2017 study was conducted by EY Sweeney in 20 countries across the globe.

The report covers five broad categories of Fintech services from money transfer and payments, financial planning, savings and investments, borrowing to insurance. It classifies Fintech adopters as having used two or more different types of Fintech services offered by Fintech organisations and non-traditional providers in the past 6 months.

Similar to Australia, the report found drastically higher adoption of Fintech in most global markets compared to 2015. The strong increase was largely driven by the proliferation of Fintech solutions/offers available and in some markets adoption has now reached well over half the population.

Australian fintech census

Analysis by EY and Fintech Australia suggests Australia has more than 350 fintech companies. To profile the sector for the first time, EY Sweeney conducted a broad piece of research with a representative cross-section of the industry.

The fintech sector in Australia is evolving rapidly, but it is still a young industry. Two-thirds (64%) of the fintechs involved in our census research have only been in operation for two years or less. They are also lean businesses. The median number of employees is seven. Four in ten (43%) are also pre-revenue.

The rapid growth of the sector and its continued evolution is a strength, but the short tenure of many of the firms and the highly competitive global nature of the industry means there is also some fragility. See the report for details of the sector's success factors and challenges.

Source: Ernst & Young. 2016. *EY FinTech Australia Census 2016*. [ONLINE]
Available at: http://fintechauscensus.ey.com/.

Digital connection

Context is everything

Organisations need to adapt their products and services to intersect with consumers' digital lifestyle. It is imperative to understand what consumers are doing with their devices and how best to connect with them in different environments. The context – entertainment, social, financial – in which people use their smartphones and tablets is important. It changes customer expectations.

Across the board, customer experience has evolved from omni-platform to omni-channel, with implications for IT as well as marketing, product development, distribution, packaging, and finance/payment. In any context, it is all about an integrated and frictionless experience.

This year's survey has reinforced the level of connectedness and the associated challenges:

▸ **Always on:** Australians are obsessed with smartphones. Close to two-thirds check their phone or tablet when they wake up in the morning. Six in ten say it is one of the last things they do before going to sleep. This late-night interaction with flickering screens is probably contributing to smartphones having a net negative impact on sleep.

▸ **Empowering, but overwhelming:** 30% of Australians say they are addicted to their smartphones and 27% feel overwhelmed keeping up. Multi-screening and multi-tasking is the norm, with 63% admitting they often multi-task while using a smartphone or tablet.

▸ **Coping mechanisms:** Four in ten Australians disconnect from their devices to get some downtime. But mobile devices also have an increasingly positive impact in terms of giving people the 'sense of being in control'.

Digital device reliance

2016-17 % agree		2015 -16 %	2014 -15 %
Check smartphone/tablet when waking up in the morning	64%	66	65
Check smartphone/tablet just before going to sleep	60%	59	58
Spend more time on smartphone/tablet than talking with partner/friends	25%	23	21
Social life would be non-existent without a smartphone/tablet	25%	24	21

Note: Total agree (strongly agree/agree) shown.
Source: *EY Digital Australia: State of the Nation 2016–17, 2015-16, 2014-15.*
Q. To what extent do you agree or disagree with each of the following?
Base: Smartphone and tablet users – 2016 (n=1,427), 2015 (n=1,297), 2014 (n=1,262).

Digital technology
The double-edge sword

44%
Regularly switch off smartphone/tablet to have some downtime

30%
Are addicted to their smartphone or tablet
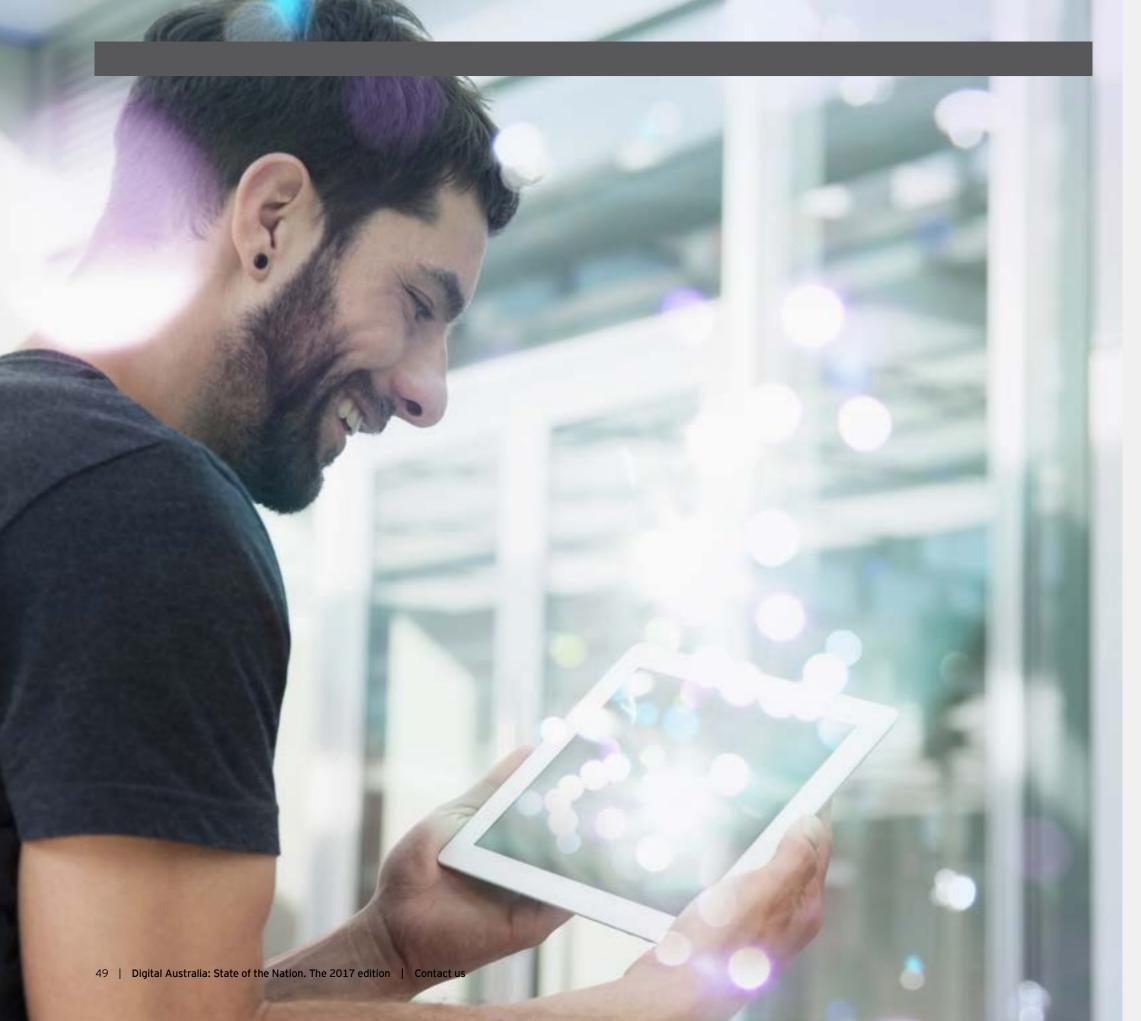
63%
Often multi-task while using a smartphone or a tablet
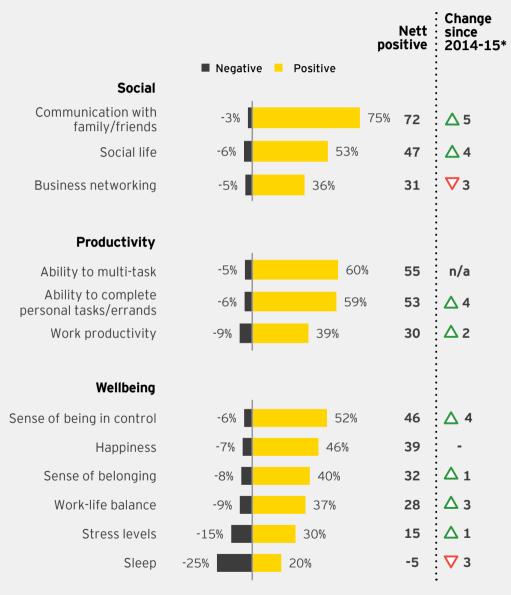
27%
Often feel overwhelmed keeping up with all the information at their fingertips via my smartphone/tablet

Note: Total agree (strongly agree/agree) shown.
Source: *EY Digital Australia: State of the Nation 2016–17.*
Q. To what extent do you agree or disagree with each of the following?
Base: Smartphone and tablet users (n=1,427).

Impact of smartphone and tablets

	Negative	Positive	Nett positive	Change since 2014-15*
Social				
Communication with family/friends	-3%	75%	72	△ 5
Social life	-6%	53%	47	△ 4
Business networking	-5%	36%	31	▽ 3
Productivity				
Ability to multi-task	-5%	60%	55	n/a
Ability to complete personal tasks/errands	-6%	59%	53	△ 4
Work productivity	-9%	39%	30	△ 2
Wellbeing				
Sense of being in control	-6%	52%	46	△ 4
Happiness	-7%	46%	39	-
Sense of belonging	-8%	40%	32	△ 1
Work-life balance	-9%	37%	28	△ 3
Stress levels	-15%	30%	15	△ 1
Sleep	-25%	20%	-5	▽ 3

Note: 'Nett positive' is calculated by subtracting 'Negative' scores from 'Positive' scores
*Change in % nett positive
Source: *EY Digital Australia: State of the Nation 2016-17, 2014-15.*
Q. What impact do smartphones and tablets have on each of the following aspects of your life?
Base: Smartphone/Tablet users – 2016 (n=1,427), 2014 (n=1,262).

Apps

Our research finds Australia suffering from 'app fatigue'. On average, consumers have around 24 apps on their smartphones, but say they only use a quarter of the apps on a daily basis. There is a real issue with app overload – two-thirds of Australians surveyed agreeing that they have a significant number of 'dormant' apps.

"*I went through a massive cull! I have them (apps) in categories and folders. Some waste my data and some weren't worth it to me. If I don't need it anymore I just delete it. I need to keep it all current.*" (Female, 22)
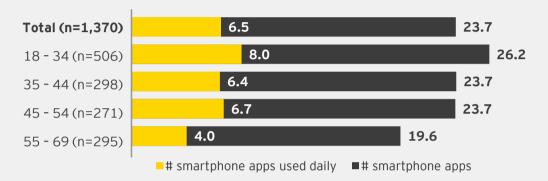
This app fatigue presents a conundrum for organisations seeking to improve their digital experience. Consumers are only interested in highly functional apps, such as iView or Uber, where the app is the service – or is integral to it. Otherwise, Australians are comfortable accessing content from slick, optimised web sites such as those used by newspapers. Given only 18% of consumers said they are disappointed if company doesn't have an app, businesses may need to rethink their app strategy.

Those developing apps can take comfort from the fact that Australians are willing to enable 'location services' (66%) and open to using 'push notifications' (60%) for specific apps (particularly those at the younger end of the spectrum).

"A native mobile app is not always the answer. Some brands have successfully optimised their website for mobile usage without the expense of building and maintaining a mobile app. Other brands successfully use aggregation apps, like Airbnb and Trivago, as their primary mobile platform. Consumers will go with the channel that delivers them the best experience."

Jennie McLaughlin,
EY Oceania Customer and Strategy Partner

Average number of smartphone apps
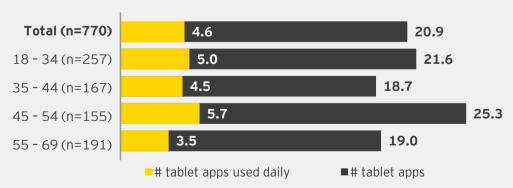
	# smartphone apps used daily	# smartphone apps
Total (n=1,370)	6.5	23.7
18 - 34 (n=506)	8.0	26.2
35 - 44 (n=298)	6.4	23.7
45 - 54 (n=271)	6.7	23.7
55 - 69 (n=295)	4.0	19.6

Note: Includes those who reported a value of '0', 'Don't know', 'Refusal' and 'N/A', which are recoded as '0'.
Source: *EY Digital Australia: State of the Nation 2016-17*.
Q. In total, how many apps do you have on your smartphone?
Q. Thinking about the last week, approximately how many different apps would you say you have used or accessed on a daily basis on your smartphone?
Base: Smartphone users. Bases as shown.

Average number of tablet apps
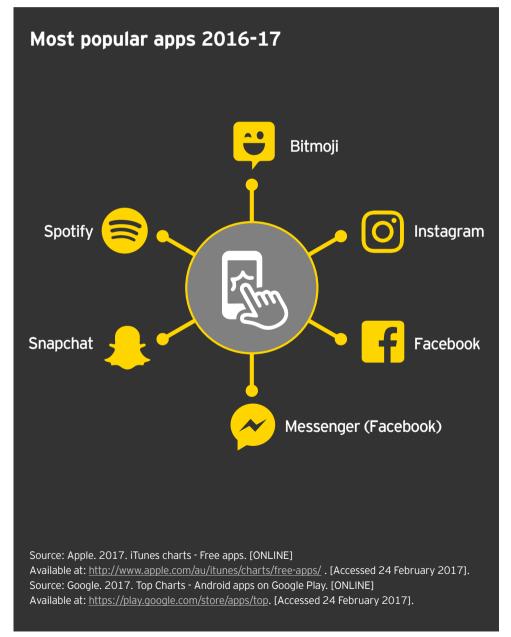
	# tablet apps used daily	# tablet apps
Total (n=770)	4.6	20.9
18 - 34 (n=257)	5.0	21.6
35 - 44 (n=167)	4.5	18.7
45 - 54 (n=155)	5.7	25.3
55 - 69 (n=191)	3.5	19.0

Note: Includes those who reported a value of '0', 'Don't know', 'Refusal' and 'N/A', which are recoded as '0'.
Source: *EY Digital Australia: State of the Nation 2016-17*.
Q. In total, how many apps do you have on your tablet?
Q. Thinking about the last week, approximately how many different apps would you say you have used or accessed on a daily basis on your tablet?
Base: Tablet users. Bases as shown.

App overload

| | Only a small number of apps used daily | 76% |
| A lot of apps on my device I don't use | 66% |

Age	18-34 (n=509)	35-44 (n=303)	45-54 (n=290)	65-69 (n=325)
App overload				
Only a small number of apps used daily	**79%**	76%	75%	**73%**
A lot of apps on my device I don't use	**68%**	66%	**60%**	67%

■ highest age group ■ lowest age group

Note: Total agree (strongly agree/agree) shown.
Source: *EY Digital Australia: State of the Nation 2016-17*.
Q. To what extent do you agree or disagree with each of the following?
Base: Smartphone and/or tablet users (n=1,427). Age bases as shown.

App enablement (% agree)

| Only enable location access for specific apps | 66% |
| Only enable push notifications for specific apps | 60% |

Age	18-34 (n=509)	35-44 (n=303)	45-54 (n=290)	65-69 (n=325)
App enablement				
Enable location access for specific apps	**72%**	69%	61%	**57%**
Enable push notifications for specific apps	**72%**	64%	55%	**41%**

■ highest age group ■ lowest age group

Note: Total agree (strongly agree/agree) shown.
Source: *EY Digital Australia: State of the Nation 2016-17*.
Q. To what extent do you agree or disagree with each of the following?
Base: Smartphone and/or tablet users (n=1,427). Age bases as shown.

85%
of digital opinion leaders consider having an integrated digital experience that links websites, mobile/tablet apps, telephone and face-to-face service a major/moderate concern for the Australian digital economy

18%
of consumers are disappointed if a company doesn't have an app

---

Most popular apps 2016-17

Bitmoji

Spotify

Instagram

Snapchat

Facebook

Messenger (Facebook)

Source: Apple. 2017. iTunes charts - Free apps. [ONLINE]
Available at: http://www.apple.com/au/itunes/charts/free-apps/ . [Accessed 24 February 2017].
Source: Google. 2017. Top Charts - Android apps on Google Play. [ONLINE]
Available at: https://play.google.com/store/apps/top. [Accessed 24 February 2017].

Social media usage

Social media interactions have become an integral part of consumer behaviour. Our research finds Facebook continuing to dominate, with the highest total usage across all age groups and the highest daily usage. Given Facebook, at 80%, has a similar penetration as smartphone usage, optimising an organisation for social is now just as important as optimising a business for mobility.

Social strategies taking companies into unchartered territory

Organisations looking to move from merely having a social media presence to engaging actively with consumers are struggling with the expansiveness of the channel. Often starting in marketing, it quickly crosses over into customer service, product development, corporate reputation, issue management and even HR, raising questions of ownership and control.

Social also works on a timeframe – it's a fast-paced 360 degree dynamic platform that never sleeps. Consumers expect responses within the hour (if not immediately). Crises can escalate within minutes. Organisations need the right technology, process and resources to support it. Of course, this speed also has a huge upside for organisations geared up to harness social interactions and data. Social media posts are already alerting public transport operators to system issues before traditional dashboards flag the problem.
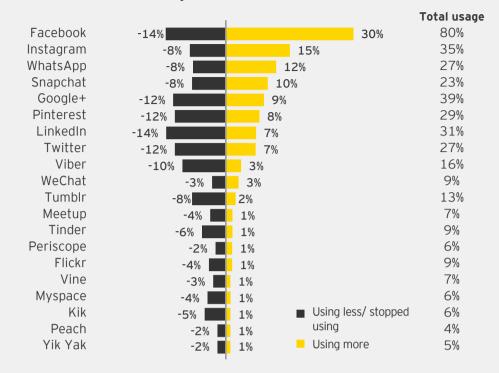
However, developing an effective social media operating model – one that both manages risk and extracts value from social data – requires a different service model and different technical and people capabilities:

▸ **Proactive:** To push, seed and create high-value content and customer interactions both paid and organic.

▸ **Reactive:** To listen, answer questions, take on board feedback, respond to customer complaints and manage issues before they turn into crises.

▸ **Analytic:** To capture and act on real-time insights into trends, campaign effectiveness, conversations, issues, trolls and social media events.

Those companies that haven't made a meaningful start around developing social capabilities and designing strategies will be left behind more sophisticated competitors.

Our survey shows consumers using a repertoire of different social media channels for different purposes, whether or not companies are in these platforms themselves. Organisations need to think about how their brand, products and services are presented and resonating across each of these networks. Already, we've seen the rapid rise of paid social media being used in addition to traditional digital advertising channels.

Social media usage

Network	Using less/ stopped using	Using more	Total usage
Facebook	-14%	30%	80%
Instagram	-8%	15%	35%
WhatsApp	-8%	12%	27%
Snapchat	-8%	10%	23%
Google+	-12%	9%	39%
Pinterest	-12%	8%	29%
LinkedIn	-14%	7%	31%
Twitter	-12%	7%	27%
Viber	-10%	3%	16%
WeChat	-3%	3%	9%
Tumblr	-8%	2%	13%
Meetup	-4%	1%	7%
Tinder	-6%	1%	9%
Periscope	-2%	1%	6%
Flickr	-4%	1%	9%
Vine	-3%	1%	7%
Myspace	-4%	1%	6%
Kik	-5%	1%	6%
Peach	-2%	1%	4%
Yik Yak	-2%	1%	5%

Source: *EY Digital Australia: State of the Nation 2016–17*.
Q. How would you describe your usage of the following social media networks compared to 12 months ago?
Base: Total consumers (n=1,551).

Daily social media usage by age

Base:	18-34 (n=520)	35-44 (n=312)	45-54 (n=323)	55-69 (n=396)
Facebook	74%	58%	53%	45%
Instagram	34%	17%	8%	3%
WhatsApp	21%	17%	6%	3%
Snapchat	29%	8%	2%	1%
Google+	11%	15%	12%	12%
Pinterest	10%	6%	4%	5%
LinkedIn	8%	5%	5%	2%
Twitter	15%	10%	8%	5%
Viber	9%	4%	3%	2%
WeChat	7%	6%	3%	1%
Tumblr	7%	3%	1%	1%
Meetup	3%	3%	1%	0%
Tinder	6%	3%	0%	1%
Periscope	4%	2%	0%	0%
Flickr	5%	2%	1%	0%
Vine	5%	2%	1%	0%
Myspace	5%	2%	1%	0%
Kik	4%	2%	0%	0%
Peach	4%	2%	0%	0%
Yik Yak	4%	1%	0%	0%

■ Highest age group
■ Lowest age group

Source: *EY Digital Australia: State of the Nation 2016–17*.
Q. How often do you use the following social media networks?
Base: Total consumers. Bases as shown.

Becoming social

Understanding the customer needs and organisation goals enables the focus to be on improving business outcomes and performance through social media. The alignment between the customers' perspective and that of the organisation is all important.

▸ **Model:** Organisations must decide whether they need a centralised, coordinated or consulting model to execute strategy, listen across markets, analyse data and coordinate fast responses.

▸ **Strategy:** Social media initiatives should align with business purpose to deliver better outcomes. Companies are moving away from the 'vanity' metrics (e.g. number of likes) and recognising the true value of social. We often find social is the lowest cost-to-serve channel. Plus, consumers who interact with a business through social media are often high value. They have greater product penetration than average customers and span all customer segments therefore by understanding the audience, content efficiencies can be gained.

▸ **Governance:** Although a channel filled with opportunity, social also comes with risk. Social media policies and controls should provide consistency in building/activating brand, avoid operational duplication, ensure efficient use of resources and assets, improve social media ROI and provide a framework to reduce ongoing risk.

▸ **Technology:** A multitude of new technologies and tools are available to support social media listening, relationships, reach and community. Organisations need to know the right platforms to meet their particular needs. Eventually, we expect most consumer-facing organisations will monitor brand sentiment in real time on a wall of screens – just as today contact centre managers track call resolution times and emerging issues.

"Social media can play a mainstream role in delivering on business outcomes, including in reducing cost to serve and retaining the most valuable customers. Organisations need to get a much better understanding of their social customers and develop new capabilities aligned with commercial goals and customer needs."
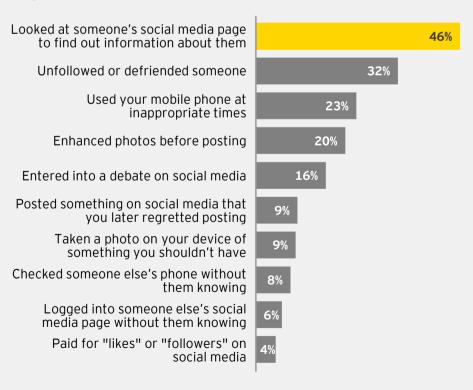
David McGregor,

EY Oceania Technology, Media & Entertainment and Telecommunications Partner

Reasons for using social media (2015-16)

Base:	Facebook (n=742)	Google+ (n=126)	LinkedIn (n=38)	Instagram (n=58)	Twitter (n=60)	Pinterest (n=42)
Keep up-to-date with friends or family	84%	16%	39%	43%	28%	7%
Communication with family and friends	73%	19%	18%	34%	30%	10%
Share stories, photos, or news about yourself	46%	13%	13%	55%	32%	21%
Entertainment	39%	44%	5%	33%	42%	26%
Learn about topics or general knowledge	25%	73%	32%	12%	52%	50%
Learn more about brands, products or services	16%	60%	18%	16%	32%	31%
Review or communicate with brands, products or services	14%	44%	21%	16%	27%	19%

■ Highest network ■ Lowest network

Source: *EY Digital Australia: State of the Nation 2015-16*.
Q. Which of the following describes how you use...?
Base: Use social media platform daily. Bases as shown.

Digital behaviours and etiquette

Looked at someone's social media page to find out information about them	46%
Unfollowed or defriended someone	32%
Used your mobile phone at inappropriate times	23%
Enhanced photos before posting	20%
Entered into a debate on social media	16%
Posted something on social media that you later regretted posting	9%
Taken a photo on your device of something you shouldn't have	9%
Checked someone else's phone without them knowing	8%
Logged into someone else's social media page without them knowing	6%
Paid for "likes" or "followers" on social media	4%

Source: *EY Digital Australia: State of the Nation 2016-17*.
Q. Which of the following have you done in the last 12 months?
Base: Total consumers (n=1,551).

Social media feedback

Three in ten Australians (and four in ten 18-34 year olds) have provided feedback to an organisation via social media in the last 12 months. Organisations often assume that this feedback is predominantly negative. In fact, our research shows that positive feedback outweighed negative across all age groups. Backing this up, half of the feedback received by digital opinion leaders in their businesses over the past 12 months was positive.

Organisations still trying to get a whole of customer view should add social media feedback to the growing pool of data they need to know about an individual. To provide exceptional service and identify new sales opportunities, businesses must know why, when and how customers are contacting them – including on social media. Organisations should also be able to identify customers on social media and online – not just through contact centres.

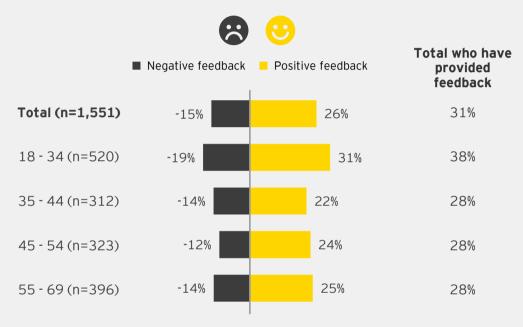## Where are you on the social media maturity curve?

For most companies, engaging with customers via social media will require them to move further up the social maturity curve.

We're seeing a broad spectrum of social media maturity in Australia. Many organisations are still using ad hoc social media tactics by isolated teams. A rare few have a 'holistic honeycomb' model where all employees are socially enabled to be brand advocates. It takes substantial change, considerable support and employee training to reach this powerful stage, where the organisation and its employees are set up for social success. Not all companies need to get there, but many should be starting to clearly define the roles and responsibilities of business units – and giving their employees clear guidance into tone of voice and purpose for this increasing important channel.
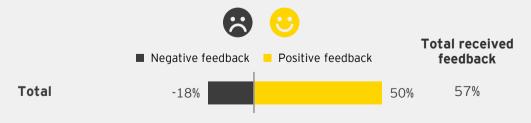
Social media feedback

Provided feedback to an organisation through social media in the last 12 months: Consumers

	Negative feedback	Positive feedback	Total who have provided feedback
Total (n=1,551)	-15%	26%	31%
18 - 34 (n=520)	-19%	31%	38%
35 - 44 (n=312)	-14%	22%	28%
45 - 54 (n=323)	-12%	24%	28%
55 - 69 (n=396)	-14%	25%	28%

Source: *EY Digital Australia: State of the Nation 2016–17*.
Q. Which of the following have you done in the last 12 months?
Base: Total consumers. Bases as shown.

My organisation has received a greater amount of feedback through social media in the last 12 months: Digital opinion leaders

	Negative feedback	Positive feedback	Total received feedback
Total	-18%	50%	57%

Note: Total agree (strongly agree/agree) shown.
Source: *EY Digital Australia: State of the Nation 2016–17*.
Q. To what extent do you agree or disagree with each of the following?
Base: Total Digital opinion leaders (n=131)

Communicating and connecting

Brand banter

Just as the digital environment has changed the way people purchase and interact with organisations, it is also changing the way brands are perceived.

In its simplest form, a brand is the layers of associations and emotions that are triggered when someone hears a brand name or sees a logo. There are both rational and emotional attributes. Traditionally, brands could be built and, to an extent, controlled through above and below the line communications, as well as through the experience of the product or service. While that still applies to a degree, brand management is changing markedly.

Brands are now being defined as much by a cloud of consumer commentary as they are by what the custodians of a brand can formally communicate and instil. With this loss of control over the associations and the ever growing volume of consumers positively and negatively critiquing experiences, business leaders need to determine how to best participate in this new dynamic. At the heart of it is a different type of engagement and relationship building.

New challenges to the advertising ecosystem
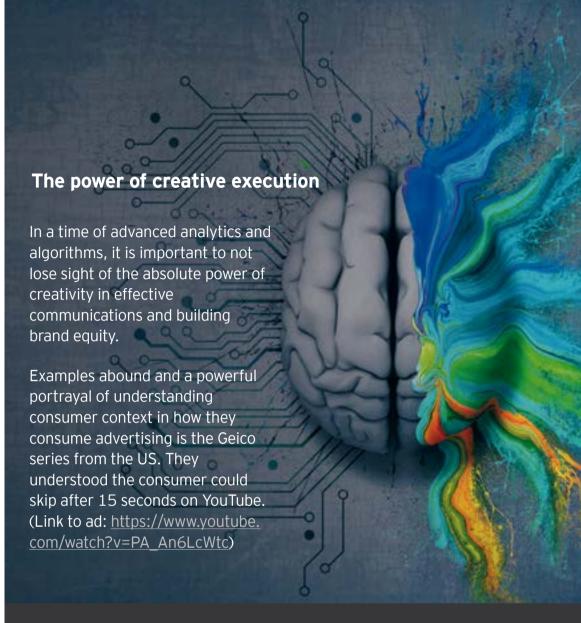
Alongside the challenge of managing the impact of social media on brand equity and positioning, are the challenges around connecting with consumers through paid media. Some of these include:

▸ Decreasing loyalty to destinations and commoditisation of content.

▸ Cross-platform and off-platform consumption.

▸ New competitors from unexpected sources.

▸ Difficulty understanding behaviours across screens and platforms.

▸ Concerns around transparency, data security, privacy, and ad-blocking.

One of the pathways through the extreme fragmentation is to better leverage the power of data analytics. Effective analytics helps to ensure the right messages are hitting the right people at the right time.

"It's about creating the analytics that capture the behaviour in the data so you can be super targeted. The risk today is that if companies don't have an effective data analytics strategy, they will blanket broadcast through social media and related channels. It means their messaging isn't clear, they create irrelevant noise and they de-value their brand. Customers disengage and you can't recover."

Conrad Bates,
EY Oceania EYC3
Managing Partner

The power of creative execution

In a time of advanced analytics and algorithms, it is important to not lose sight of the absolute power of creativity in effective communications and building brand equity.

Examples abound and a powerful portrayal of understanding consumer context in how they consume advertising is the Geico series from the US. They understood the consumer could skip after 15 seconds on YouTube. (Link to ad: https://www.youtube.com/watch?v=PA_An6LcWtc)

Ad blockers

9 out of 10 people who can skip ads... do[13]

In 2017, 87 million Americans will use an ad blocker[14]

In 2015, ad blocking resulted in global revenue losses of $21.8b[15]

Digital at work

Future of work

Our survey finds Australians feel positive about the digital technology increasingly embedded into the workplace, wit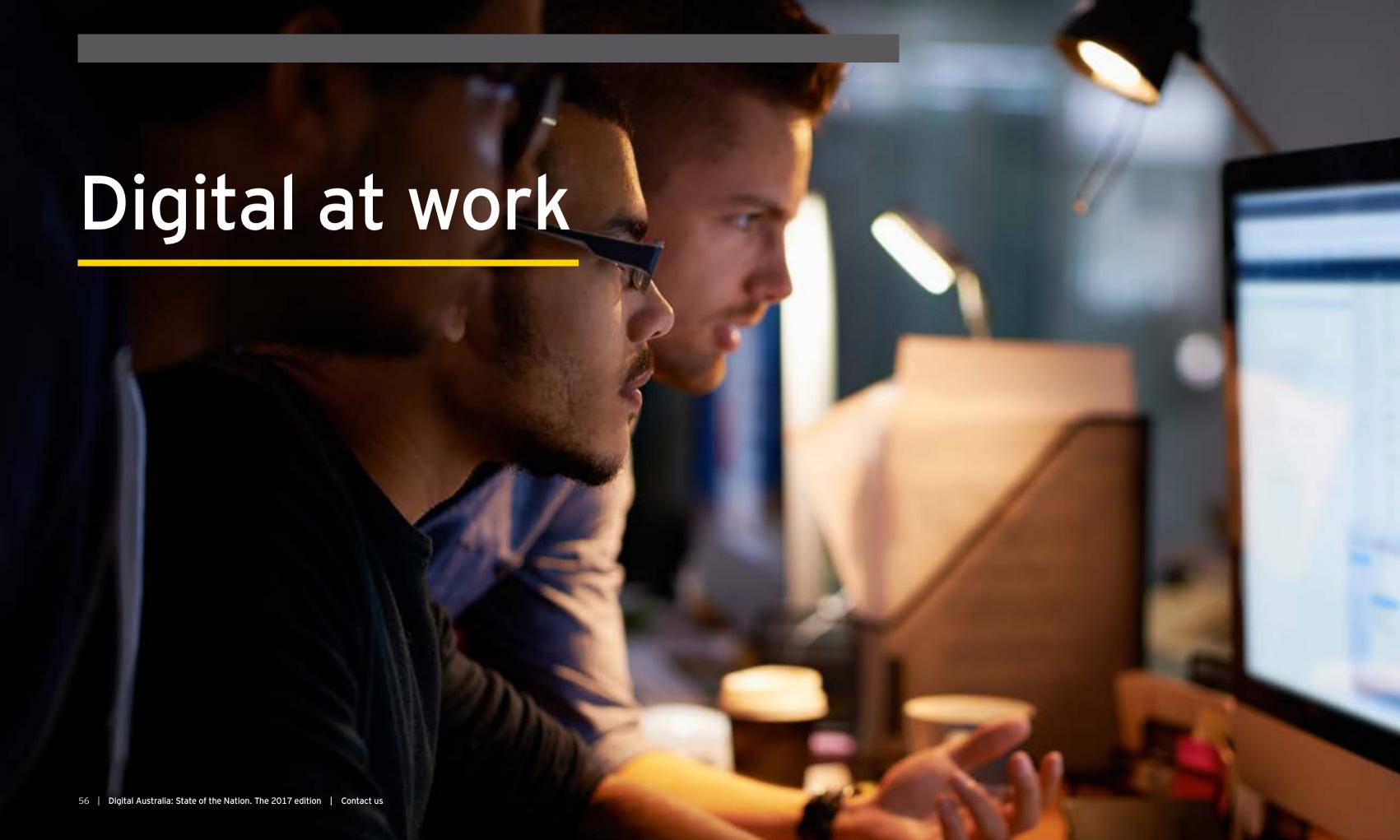h 36% saying they would struggle to do their job without their smartphone. While three quarters of workers admitted to using their devices for personal tasks at work, digital opinion leaders (66%) think having a mobile device makes people more productive.

The coming challenge

The next wave of disruptive technology to enter the workplace, particularly in back office operational areas, will present a bigger challenge for employees.

A wide range of high profile global commentators are predicting the coming reinvention of work will be like no other. While the displacement of labour by technology and globalisation isn't a new phenomenon, what is new is the predicted scale of the disruption and the extent of the displacement. Technology, including AI, robotics, virtual reality, the Internet of Things, and the sharing economy platforms will impact on blue, grey and white collar workers. One of the most significant threats is automation (through the introduction of RPA and AI).
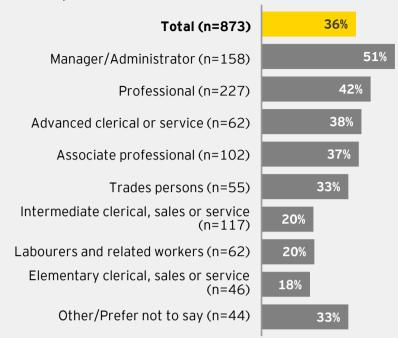
Automation anxiety

As roles increasingly become automated, there is the potential for workers to develop what is known as 'automation anxiety' - the fear of being replaced by a machine.

A fear of automation is confronting and it is something that has occurred throughout history, but the pace of change and the breadth of people it is affecting makes this different. To date, technology adoption at work has always increased demand for labour and higher order skills. But this next wave of technology has the potential to drive labour displacement - at all levels.

Algorithms have already uprooted white-collar work in the financial sector and are starting to do so in health care, with mobile health apps, robotic surgery and diagnoses by algorithm. In the media, algorithms are writing articles indistinguishable from those written by humans and have even recently composed a musical play.

Not all jobs will be affected, and not all affected jobs will be eliminated - as always, automation will both replace and supplement human labour - but jobs that are truly untouched will be the exception rather than the norm.

Struggle to do their job without their smartphone/tablet

Total (n=873)	36%
Manager/Administrator (n=158)	51%
Professional (n=227)	42%
Advanced clerical or service (n=62)	38%
Associate professional (n=102)	37%
Trades persons (n=55)	33%
Intermediate clerical, sales or service (n=117)	20%
Labourers and related workers (n=62)	20%
Elementary clerical, sales or service (n=46)	18%
Other/Prefer not to say (n=44)	33%

Note: Total agree (strongly agree/agree) shown.
Source: *EY Digital Australia: State of the Nation 2016–17*.
Q. To what extent do you agree or disagree with each of the following?
Base: Smartphone and/or tablet users who are employed. Bases as shown.

Usage of personal device while at work: Employees

	Regularly (At least once a day)	Regularly/occasionally (At least once a fortnight)
Personal tasks, such as internet banking or making restaurant reservations	34%	74%
Checking your social media	52%	70%
Emailing from a personal account	45%	75%
Streaming music or podcasts	22%	42%
Downloading movies or TV shows	12%	30%

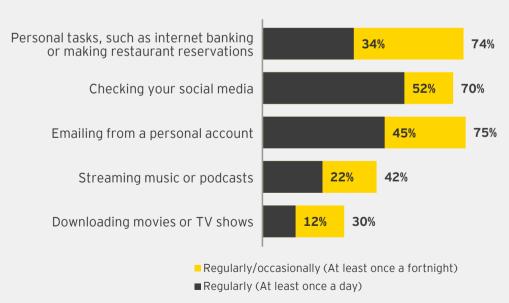■ Regularly/occasionally (At least once a fortnight)
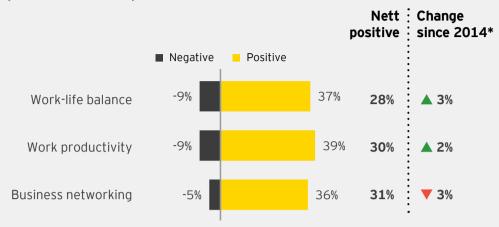■ Regularly (At least once a day)

Note: Total agree (strongly agree/agree) shown.
Source: *EY Digital Australia: State of the Nation 2016–17*.
Q. How frequently do you use your smartphone, tablet or computer at work for...?
Base: Employed or self-employed consumers (n=918).

Impact of smartphone and tablets

		Nett positive	Change since 2014*
	■ Negative ■ Positive		
Work-life balance	-9% 37%	**28%**	▲ 3%
Work productivity	-9% 39%	**30%**	▲ 2%
Business networking	-5% 36%	**31%**	▼ 3%

Note: 'Nett positive' is calculated by subtracting 'Negative' scores from 'Positive' scores
*Change in % nett positive
Source: *EY Digital Australia: State of the Nation 2016-17, 2014-15*.
Q. What impact do smartphones and tablets have on each of the following aspects of your life?
Base: Smartphone and/or tablet users - 2016-17 (n=1,427), 2014-15 (n=1,262).

Nett positive impact of smartphones and tablets

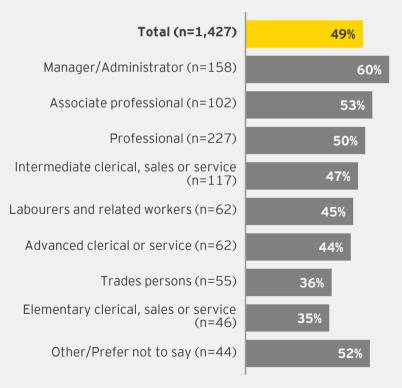|	
Total (n=1,427)	**49%**
Manager/Administrator (n=158)	60%
Associate professional (n=102)	53%
Professional (n=227)	50%
Intermediate clerical, sales or service (n=117)	47%
Labourers and related workers (n=62)	45%
Advanced clerical or service (n=62)	44%
Trades persons (n=55)	36%
Elementary clerical, sales or service (n=46)	35%
Other/Prefer not to say (n=44)	52%

Note: 'Nett positive' is calculated by subtracting 'Negative' scores from 'Positive' scores
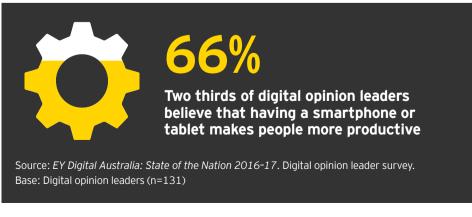Source: *EY Digital Australia: State of the Nation 2016-17*.
Q. What impact do smartphones and tablets have on each of the following aspects of your life?
Base: Smartphone and/or tablet users. Bases as shown.

New management paradigms needed

Business leaders need to remember that they are in control. The choices they make will define the experience of automation in their organisations. Old management paradigms are no longer viable in an environment where capability is no longer delivered solely by people, but by a mix of people and machines. Organisations need a systemic, integrated view of how this will play out in their organisations, so they can prepare people for the future.

To reduce automation anxiety, leaders must know what the future looks like and be open and transparent about the coming changes. Then they can be proactive about preparing people and assisting them to develop the skills they need to adapt to the future of work. This will both increase the return on digital investment and also minimise workforce disruption and brand risk. Australians will not look kindly on companies that keep them in the dark.

66%

Two thirds of digital opinion leaders believe that having a smartphone or tablet makes people more productive

Source: *EY Digital Australia: State of the Nation 2016–17.* Digital opinion leader survey.
Base: Digital opinion leaders (n=131)

The future of work will disrupt business, government and society

Disrupting business: The disruption of work is already spawning business model innovation. The ultimate resource that companies will use more efficiently is the human resource. Just as disruption unbundled music albums into songs, it will unbundle jobs into tasks, with each task performed in the most efficient manner.

Disrupting government: Gig economy start-ups are already challenging regulations governing the operation of hotels, restaurants, taxis and more. As the trend accelerates in the machine economy, governments will need regulatory regimes designed for the future – nimble, real-time and powered by big data and smart technologies.

Disrupting society: Income inequality could be greatly exacerbated by wholesale labour displacement and by the dismantling of key elements of the social safety net – requiring new solutions. Meanwhile, the machine economy promises to deliver an unprecedented "leisure dividend," with profound social implications.

The future of smart
Upsides

The machine economy drives huge society-wide benefits – from fewer medical errors to reduced traffic fatalities.

The "leisure dividend" frees up individuals to pursue other interests and unleashes a wave of entrepreneurship.

Companies gain tremendous increases in efficiency and productivity.

Government regulation becomes more nimble, real-time and responsive to the needs of citizens.

Better questions

How will workers and citizens be motivated in the machine economy?

How will governments adapt to remain relevant for the future of work?

How do you build a better working world in a world with less work?

With massive labor displacement ahead, how will we address income inequality?

Next gen workforce

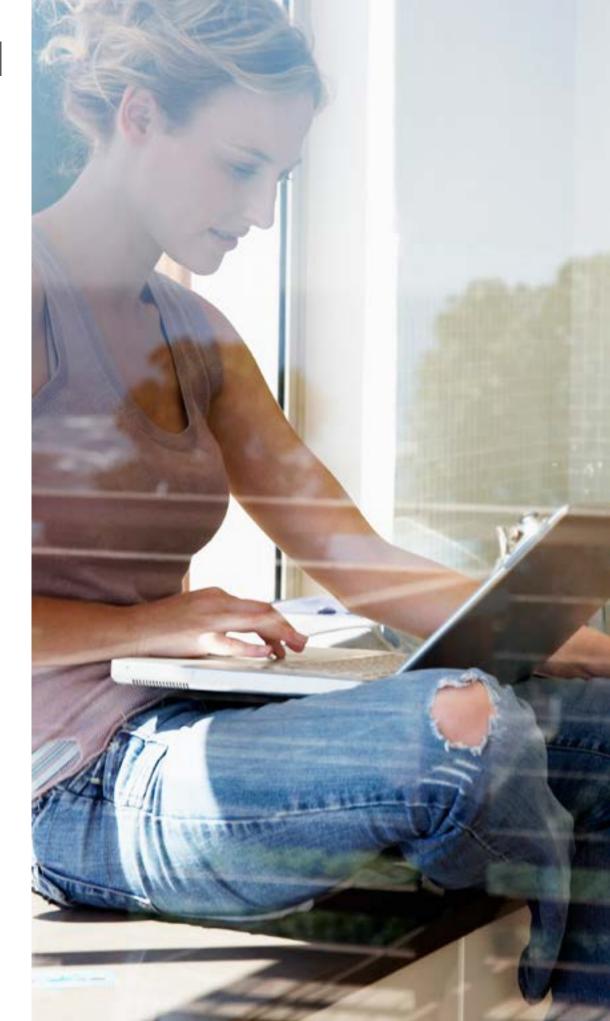Gen Z is entering the workforce now – bringing in a generation of employees very different than any we've known before. Organisations need to understand who Gen Z are and what they want from an employer.

Many Australian companies have already felt the full force of Gen Z as consumers. They are informed, equipped and have the highest expectations. Now Gen Z are about to become key players in talent strategies as well. Just as Gen Z are less loyal retail consumers – largely uninterested in traditional loyalty programs, cards and promotions – they are also harder to retain as employees.

What Gen Z want are the opportunity to explore what works for them, what they enjoy and experiment with to find the right career for their skills. Organisations need to harness this new talent supply model by leveraging:

▸ **The gig economy:** Giving business access to fluid human capital and talent at increasingly senior levels. Contingent workers allow organisations to swiftly upscale projects, adopt additional skill sets or shift resources as the business changes, providing more flexibility in labour costs and improving enterprise profit by shifting human capital from a semi-variable to a variable cost.

▸ **Internal resourcing platforms:** Platforms that allow people to work in different environments, ones that offer diverse and challenging experiences, can build deeper and more rewarding experiences into careers. Using these platforms, teams benefit through shared insights and transferred knowledge across industries, as individuals leverage past experiences, learn new skills and develop cross-cultural awareness. Employees move from static to dynamic career experiences vertically and horizontally across the organisation, improving retention, skills and productivity.

▸ **Open source problem solving:** Allowing the sharing economy to drive effective and efficient innovative solutions.

Is your contingent workforce out of control?

Digital is fundamentally altering the nature of work, driven as much by changing worker attitudes as much as it is by changing employer needs. Businesses and governments need access to highly skilled professionals for short-term projects to drive innovation and rapid change. At the same time, incoming generations of workers are looking for work opportunities that offer greater flexibility, more control, the ability to work from home and a greater variety of work.

Giggers help meet the enterprise need for workforce flexibility and organisational agility – while also delivering lifestyle choices to attract the next generation of employees. But they also represent significant risk.

For all the cost and flexibility benefits contingent workers offer a business, these employees are beyond the reach of organisational controls. Hired outside normal HR processes, they are often invisible to normal HR systems and business controls and fall outside of performance management practices, standards and expectations and are largely unaccountable. The security and IP risks of this 'shadow workforce' require urgent attention.

32% Australian workers are freelancers[16]

Freelancers are defined as those who have engaged in supplemental, temporary, project or contract-based work, within the past 12 months
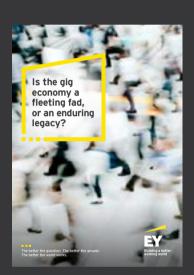
Why use giggers?

Control labour costs: Giggers allow organisations to move from fixed to flexible labour costs, enabling them to cut off capacity as soon as it is no longer needed.

Bolster capability: Around 56% of giggers are pulled in to complete projects where the specific expertise is beyond the capability of the existing workforce.

Go digital: Giggers support digital transformation by providing a bridge to integrate new products, services and technology, without having to expand full-time equivalent headcount.

Scale operations quickly: Giggers have long been used to meet the peaks and troughs of seasonal trends. Now, they're also being brought in to support drastic growth from new product innovation or to meet changing customer demands.

Drive and accelerate change: Organisations are increasingly using giggers to overcome resistance to change within legacy workforces.

Is the gig economy a fleeting fad, or an enduring legacy?

EY contingent workforce study

The contingent workforce has always existed, with some industries taking more advantage of it than others, for back-filling, accessing specialist skills and to meet short-term or project-based labour shortages. However, the traditional full-time workforce model has remained firmly in primary place. Recently this has begun to shift.

In June 2016, EY embarked on a Contingent Workforce Study to unearth key insights into the nature of the freelance or contingent workforce (the "gig economy").

The report looks at what motivates both the supply and demand sides of the gig economy and what organisations need to do to harness workers based on 214 decision-makers across private and public sector organisations and more than 1,000 contingent workers surveyed.

https://gigeconomy.ey.com/

Employee mobility

Australians increasingly expect work to offer the same slick, fast, flexible digital interactions they have at home and on their personal devices. But providing this type of seamless experience while also meeting compliance and operational support demands is a challenge – especially in the complex and increasingly regulated world of cross-border mobility.

Mobility used to involve ex-pats on 2-3 year secondments. But now the need for organisational agility, and employee demand for global experience, is adding new types of mobility candidates and scenarios. The growing numbers of business travellers and commuters who regularly cross borders for work are attracting the focus of immigration and tax authorities. Organisations need to deal with the resulting regulatory complexities at an unprecedented speed and scale in an increasingly demanding geopolitical environment.

Doing so in a seamless, convenient manner is further complicated by the fact that globally mobile employees typically have to interact with a large, disaggregated vendor mix. Moving someone across borders – even for a day – can require tax advice, immigration support, benefit delivery and HR processes in multiple jurisdictions.

Integrated mobility platforms

Digital mobility platforms are now being built to bring the entire vendor ecosystem under one digital umbrella and integrate services with other internal / HR systems. This not only deals with the complexity of cross-border travel in a highly efficient manner, it offers organisations the chance to:

▸ Build strikingly different employee experiences, with customer journeys designed for different personas – long-term ex-pats, business travellers or commuters.

▸ Run analytics across aggregated mobility data to understand what's driving mobility, where travel logistics can be applied to make major savings and where talent is going. The resulting data enables HR to build its business cases for investment and change aligned to corporate growth.

▸ Develop pre-emptive, automated controls to pre-approve travel and pre-assess risk.

"An integrated digital mobility platform gives HR solid financial analysis to back its organisational development plays and operational effectiveness – and massively enhanced employee experiences. Organisations that want to take advantage of this need to start thinking about mobility as an ecosystem. They need to decide who they're going to pull into an integrated, digital experience – and start building the future."

Nick Pond,
EY Global People Advisory
Services Mobility Leader

Digital business

The power of one

There has been a tectonic shift in the dynamics that define most sectors, with all consumer facing organisations wrestling with competing forces. Business norms of the past no longer apply as there is convergence and fragmentation occurring in equal parts. The disappearance of many iconic, global companies and products in recent years is a constant reminder that relevance is everything.

The most successful organisations have recognised the rapid shift that has occurred in customer mindset, disposition and behaviour. They know that the traditional ways of thinking about customers need to be sharpened. Talking about customer segments or generations is still relevant, but the focus needs to be on the individual – it's what could be called 'the power of one'. This is about ensuring that customers feel like their needs are understood and the experiences, products and services they receive are personalised. It will vary by category, but it's about recognising that the personal experience is as important as what is delivered.

Underpinning this in the most sophisticated organisations is the ability to know their customers better than the rest, predict behaviour and deliver in a seamless way. They are digital 2.0 organisations that use data as a strategic asset and build entire business models around leveraging insights to deliver exceptional products and services.

Over the coming pages we look at the digital performance index where the sectors delivering the best experiences are compared and contrasted with those falling short. We explore the drivers of success in digital and throw the spotlight on the importance of high-end data analytics linked to back office digital operations. Rounding it out, we put three topical areas in the spotlight – the sharing economy, participatory health and utilities in the digital age.

52% disappeared
Digital disruption has demolished 52% of the Fortune 500 since 2000*

36%
Judge a company by their online presence**

40%
Organisations that fail to offer consumers a high quality digital experience run the risk of losing me as a customer**

96%
of Digital opinion leaders believe that organisations that fail to leverage digital to drive innovation, optimise operations and offer their staff an improved working experience are becoming less competitive***

Digital performance

Given two in five Australians say they'll walk away from businesses that fail to offer them a high-quality digital experience, many organisations should be concerned about the static nature of this year's digital performance index. Consumers continue to distinguish between a wide variety of positive and negative digital experiences. Inherently enjoyable sectors, such as entertainment, social media, music and travel, maintain their positive rankings, while utilitarian sectors continue to fall short.

Consumers and digital opinion leaders are generally in consensus, with both giving the automotive and education sectors lower rankings this year. The strong exception is their divergent opinions on dating services. Consumers rank dating services as their second worst digital experience. Whereas, digital opinion leaders rank these services in the top seven, based on their smart interfaces and seamless delivery across platforms. It's an important reminder that digital experience is not everything. If the service itself isn't inherently valuable to consumers or the outcome is not what they are looking for, no amount of slick delivery will create brand loyalty.

Notably, this year's survey finds consumers themselves bringing digital into the customer experience – whether companies invite them to or not. More than a third of Australian consumers reach for a smartphone to conduct product research while in-store. A massive 87% use a mobile device while watching TV. Millennials in particular are connected to the internet throughout their waking hours via a smaller, mobile screen.

Organisations looking to move up in the rankings must consider how to optimise their content and services to fit with this new reality. This is not just about rendering content to work on mobile to support smartphone reliance, but also harnessing the new opportunities created by the multi-screen phenomenon, presenting increased meaningful engagement across the digital and physical customer journey. Companies now have the real-time capability to interact with customers in a known location, during a known activity, creating an incredibly rich buying experience.

"Leaders now have the confidence they can disrupt their own organisations. But they don't always know what that looks like. In our innovation design centres, we showcase the art of the possible, so executives can see the future. You need to know where you're going before you can decide how best to get there."

Bill Farrell,
EY Oceania Advisory Partner

Digital performance index

Sector	2016-17	2015-16 %	2014-15 %
Entertainment, TV, films and media*	30%▲	24	23
Social media	27%	-	-
Music	23%	22	20
Travel	21%	22	21
Computer/Console games	13%	15	17
Hotels**	7%	-	-
Financial services	7%	8	5
Real estate	6%	7	6
Clothes and footwear	4%▲	2	2
Lifestyle	4%	7	6
Health, fitness and sport***	2%	-	-
Newspapers	1%	6	7
Groceries	-2%▲	-6	-4
Telecommunications	-2%▼	0	-2
Beauty and health products	-3%	-5	-4
Education	-4%▼	-1	-3
Restaurants**	-4%	-	-
Magazines	-5%	-4	-6
Automotive	-8%▼	-5	-5
Investment and superannuation	-11%	-11	-11
Insurance	-11%	-13	-16
Gambling	-13%	-14	-15
Utilities	-16%	-17	-16
Dating services*	-17%	-	-
Government	-26%	-29	-24

Note: Index calculation = % best sector − % worst sector. Arrows denote significant differences between 2016 and 2015. Sectors without 2015-16 and 2014-15 are new sectors added in 2016-17.
*Sector combined from 'Entertainment' and 'TV, films and media' since 2015-16.
**Sectors split from 'Hotels and restaurants' since 2015-16.
***Sector name changed from 'Sport' since 2015-16.
Source: *EY Digital Australia: State of the Nation 2016-17, 2015-16, 2014-15*.
Q. Overall, which of the following industry sectors or categories do you think offer the best digital experiences?
Q. Which of the following industry sectors or categories do you think offer the worst digital experiences?
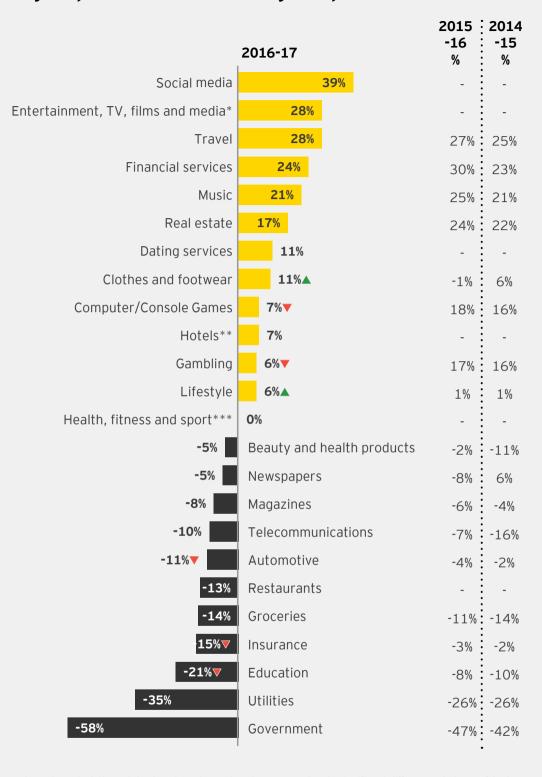Base: Total consumers – 2016 (n=1,551), 2015 (n=1,500), 2014 (n=1,498).

As organisations shape their offer and leverage the power of digital, there is the opportunity to 'invent the future' with customers and to leverage the ability to co-create and co-design to deliver new ideas. This is particularly powerful with younger consumers who are more inspired by the spirit of entrepreneurialism and innovation than any other generation. It's a concept that can also be harnessed at work with the idea of 'intrapreneurs' – empowering those within the business.

In the era of the empowered customer, digital presence and the experience delivered plays a pivotal role in driving the sense of personalisation and creating engagement. The benchmark often isn't immediate competitors, but rather the organisations that set the pace outright in the connected world.

"Any digital strategy and transformation should start with the vision of the customer experience and the values you want to stand for. We went back to the customer values set down by our founder. The principles hold true today, they are just executed in an omnichannel environment. The start point is to define the desired relationship with the customers and the type of experience you want them to have, then technology can be used to deliver on that vision."

Digital opinion leader,
Retail sector

Digital performance index: Digital opinion leaders

Sector	2016-17	2015-16 %	2014-15 %
Social media	39%	-	-
Entertainment, TV, films and media*	28%	-	-
Travel	28%	27%	25%
Financial services	24%	30%	23%
Music	21%	25%	21%
Real estate	17%	24%	22%
Dating services	11%	-	-
Clothes and footwear	11%▲	-1%	6%
Computer/Console Games	7%▼	18%	16%
Hotels**	7%	-	-
Gambling	6%▼	17%	16%
Lifestyle	6%▲	1%	1%
Health, fitness and sport***	0%	-	-
Beauty and health products	-5%	-2%	-11%
Newspapers	-5%	-8%	6%
Magazines	-8%	-6%	-4%
Telecommunications	-10%	-7%	-16%
Automotive	-11%▼	-4%	-2%
Restaurants	-13%	-	-
Groceries	-14%	-11%	-14%
Insurance	15%▼	-3%	-2%
Education	-21%▼	-8%	-10%
Utilities	-35%	-26%	-26%
Government	-58%	-47%	-42%

Note: Index calculation = % best sector – % worst sector. Arrows denote significant differences between 2016 and 2015. Investment and superannuation was not asked of digital opinion leaders in 2016-17.
*Sector combined from 'Entertainment' and 'TV, films and media' since 2015-16.
**Sectors split from 'Hotels and restaurants' since 2015-16.
***Sector name changed from 'Sport' since 2015-16.
Source: *EY Digital Australia: State of the Nation 2016-17, 2015-16, 2014-15*.
Q. Overall, which of the following industry sectors or categories do you think offer the best digital experiences?
Q. Which of the following industry sectors or categories do you think offer the worst digital experiences?
Base: Total Digital opinion leaders – 2016 (n=131), 2015 (n=167), 2014 (n=167).

Digital readiness assessment

Does your business strategy work in a digital world?

You may be spending money on digital, but are you experiencing the transformational benefits that digital can bring? It's easy to jump to quick, siloed, tactical digital initiatives. But these short-term initiatives will not unlock the true potential of a digital enterprise.

To unlock your digital agenda, you need a clear vision of where you are starting from. You need to understand digital across all the parts of your business and assess the sum of these parts. This gives you essential context against which to make decisions about all of your digital initiatives, helping you to identify priorities and develop a common digital vision for your organisation.

EY **Digital Readiness Assessment** will give you that context. This online, interactive assessment and benchmarking tool supports you to benchmark digital maturity across seven focus areas.

You will receive clear data on the performance of each area of your organisation, showing your current ability to navigate the digital world. Your DRA data will generate ideas on how to adjust your business strategy to reduce the risk of digital disconnection and seize opportunities with your digital investment.

> To find out more about having a **digital readiness assessment** conducted for your business, visit
> https://digitalreadiness.ey.com/
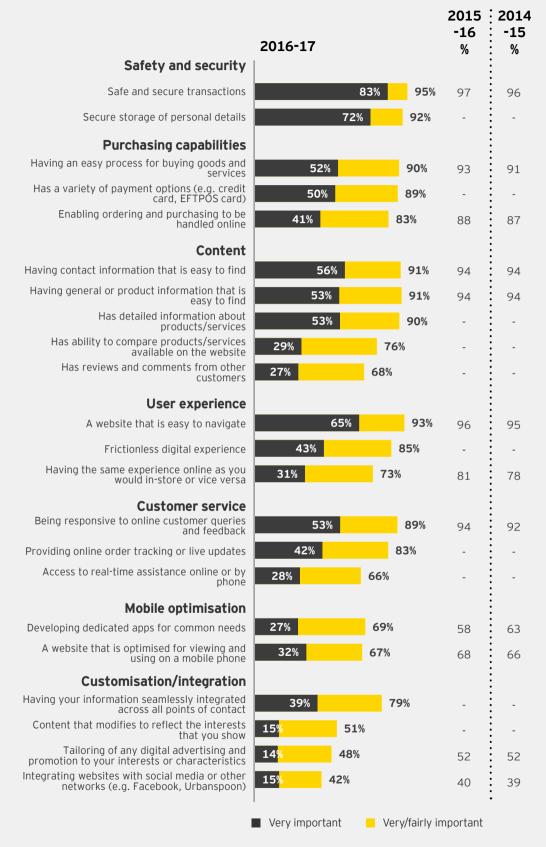
Drivers of the digital experience

The importance rankings synthesise 22 statements from the consumer survey into seven categories. They help organisations understand what elements are critical to high-quality digital experiences and where improvement efforts should be concentrated.

As in previous years, the 'hygiene' factors of safety and security, both in terms of usage and storage of personal details, continue to top the list. Once safety and security is delivered, consumers expect features that make their lives easier: hassle-free purchasing, useful content and a great user experience. In this regard, real-time assistance – online or by phone – is important to two-thirds of consumers.

But organisations need more than a quality frontline digital customer interface. More than four out of five Australians are demanding online tracking and live order updates. Almost 80% want their information seamlessly integrated across all points of contact. Whether customers come into a store, make a call, connect via social or send an email, organisations need know who people are and what they prefer, so the experience can be personalised. Delivering on these expectations will require a frontline customer experience grounded in relevant data, linked with a robust digital back office capability.

Drivers of high quality digital experiences
Importance index* (max=3)

Source: *EY Digital Australia: State of the Nation 2016–17*. Consumer survey.
Base: Total consumers – 2016 (n=1,551),
*The Importance Index is derived by assigning scores for each statement (3='Very important', 2='Fairly important', 1= 'A little important', and 0='Not at all important'). The average scores for each statement are netted into categories to form category scores. These category scores are then divided by the number of component statements to form an average score, which is used as the Experience Index.

Digital experience needs

	2016-17		2015-16 %	2014-15 %
Safety and security				
Safe and secure transactions	83%	95%	97	96
Secure storage of personal details	72%	92%	-	-
Purchasing capabilities				
Having an easy process for buying goods and services	52%	90%	93	91
Has a variety of payment options (e.g. credit card, EFTPOS card)	50%	89%	-	-
Enabling ordering and purchasing to be handled online	41%	83%	88	87
Content				
Having contact information that is easy to find	56%	91%	94	94
Having general or product information that is easy to find	53%	91%	94	94
Has detailed information about products/services	53%	90%	-	-
Has ability to compare products/services available on the website	29%	76%	-	-
Has reviews and comments from other customers	27%	68%	-	-
User experience				
A website that is easy to navigate	65%	93%	96	95
Frictionless digital experience	43%	85%	-	-
Having the same experience online as you would in-store or vice versa	31%	73%	81	78
Customer service				
Being responsive to online customer queries and feedback	53%	89%	94	92
Providing online order tracking or live updates	42%	83%	-	-
Access to real-time assistance online or by phone	28%	66%	-	-
Mobile optimisation				
Developing dedicated apps for common needs	27%	69%	58	63
A website that is optimised for viewing and using on a mobile phone	32%	67%	68	66
Customisation/integration				
Having your information seamlessly integrated across all points of contact	39%	79%	-	-
Content that modifies to reflect the interests that you show	15%	51%	-	-
Tailoring of any digital advertising and promotion to your interests or characteristics	14%	48%	52	52
Integrating websites with social media or other networks (e.g. Facebook, Urbanspoon)	15%	42%	40	39

■ Very important   ▬ Very/fairly important

Note: Needs without 2015-16 and 2014-15 data are new attributes added in 2016-17.
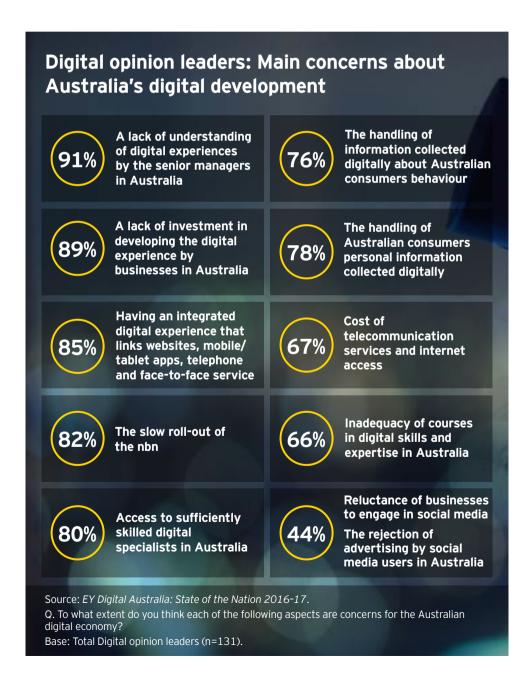Source: *EY Digital Australia: State of the Nation 2016–17, 2015-16, 2014-15*.
Q. How important are each of the following for organisations that wish to provide high quality digital experiences?
Base: Total consumers – 2016 (n=1,551), 2015 (n=1,500), 2014 (n=1,498).

With significant retail brands disappearing over the last 12 months, along with other familiar brands currently experiencing difficult trading conditions, the writing is on the wall for those who aren't moving on these opportunities. Companies staying still are actually falling further behind their new competitors, with the window for putting robust digital capability in place getting smaller and smaller. Disruptive start-ups come without legacy baggage, and they can design systems with the customer at the centre.

"The leaders in digital performance are those with the huge advantage of having been able to start with a blank piece of paper. It's far harder for companies with legacy processes to join up their organisations as a digitised whole to transform their organisations into a connected, digital system. But this is what's required to deliver that frictionless digital experience consumers are craving."

David McGregor,

EY Oceania Technology, Media & Entertainment and Telecommunications Partner

Digital opinion leaders: Main concerns about Australia's digital development

91% A lack of understanding of digital experiences by the senior managers in Australia

76% The handling of information collected digitally about Australian consumers behaviour

89% A lack of investment in developing the digital experience by businesses in Australia

78% The handling of Australian consumers personal information collected digitally

85% Having an integrated digital experience that links websites, mobile/tablet apps, telephone and face-to-face service

67% Cost of telecommunication services and internet access

82% The slow roll-out of the nbn

66% Inadequacy of courses in digital skills and expertise in Australia

80% Access to sufficiently skilled digital specialists in Australia

44% Reluctance of businesses to engage in social media / The rejection of advertising by social media users in Australia

Source: *EY Digital Australia: State of the Nation 2016–17.*
Q. To what extent do you think each of the following aspects are concerns for the Australian digital economy?
Base: Total Digital opinion leaders (n=131).

Aspects which organisations tend to fall short on: Digital opinion leaders

Aspect	%
Frictionless digital experiences	44%
Having information seamlessly integrated across all points of contact	37%
A website that is optimised for viewing and using on a mobile	26%
Being responsive to online customer queries and feedback	18%
Tailoring of any digital advertising and promotion to individual interests or characteristics	18%
Having a consistent experience online as you would in-store or vice-versa	18%
Content that modifies to reflect the interests that customers show	16%
A website that is easy to navigate	16%
Providing online order tracking or real-time updates	13%
Access to real-time assistance online or by phone	12%
Having contact information that is easy to find	10%
Having an easy process for buying goods and services	9%
Having the ability to compare products/services available on the website	9%
Enabling ordering and purchasing to be handled online	8%
Having detailed information about products/services	7%
Integrating websites with social media or other networks	7%
Having a variety of payment options	6%
Secure storage of personal details	5%
Having reviews and comments from other customers	5%
Having general or product information that is easy to find	5%
Safe and secure transactions	5%
Developing dedicated apps for common needs	2%

Source: *EY Digital Australia: State of the Nation 2016–17.*
Q. In your experience, which of the following aspects do organisations tend to fall short on in their digital consumer offering and should focus on improving?
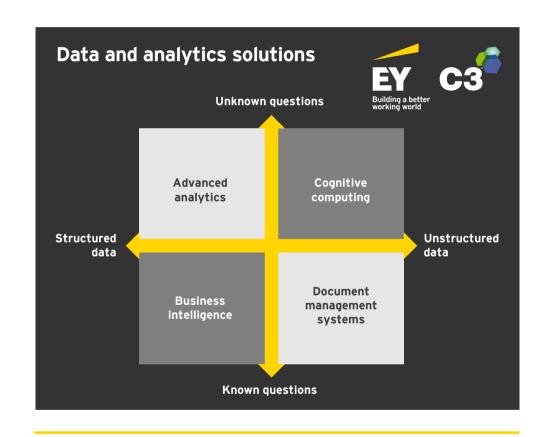Base: Total Digital opinion leaders (n=131).

Data analytics and digital operations

According to digital opinion leaders, the two most likely places for organisations to fall short are in delivering a frictionless digital experience and having information seamlessly integrated across all points of contact.

The digital world unlocks a two-way flow of customer insights that, harnessed correctly, can create a virtuous circle of value. Focusing on a single view of a customer gives a more personal, connected and consistent engagement. Organisations are able to use analytics to identify specific customer behaviours or account events to trigger the 'best next action'. This might be the offer of a new service, upgrade or a move to pre-empt issues. Organisations can also use analytics to see churn triggers, so they can resolve an issue quickly to avoid losing the customer, turning a pain point into a positive experience. Customers need to be viewed individually, holistically and continuously.
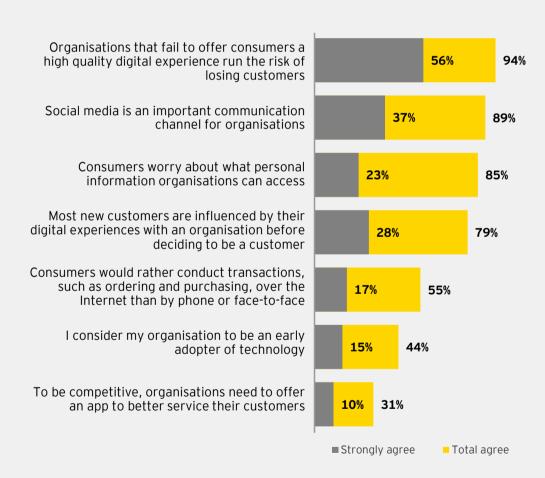
Predictive customer analytics is exciting and the Holy Grail in the digital world, but equally it can be intimidating and everyone thinks the next organisation is doing it better. The reality is that different organisations have different needs and are at different levels of maturity. The key is to understand where you sit and how you can go to the next level. The following framework, developed by EYC3, may help shape your thinking.

Data and analytics solutions

EY C3 — Building a better working world

- Unknown questions
- Structured data
- Unstructured data
- Known questions
- Advanced analytics
- Cognitive computing
- Business intelligence
- Document management systems

"What will enable digital to flourish is a single customer view – the intersection of a wide range of data on a customer powered by algorithms. At the moment it can be quite fragmented in many industries, but the convergence of data and insight, delivered in a simple and meaningful way, to create a single customer view will truly change the experience of customers."

Chris Bennetts,
TfNSW

Engaging consumers: Digital opinion leaders

Statement	Strongly agree	Total agree
Organisations that fail to offer consumers a high quality digital experience run the risk of losing customers	56%	94%
Social media is an important communication channel for organisations	37%	89%
Consumers worry about what personal information organisations can access	23%	85%
Most new customers are influenced by their digital experiences with an organisation before deciding to be a customer	28%	79%
Consumers would rather conduct transactions, such as ordering and purchasing, over the Internet than by phone or face-to-face	17%	55%
I consider my organisation to be an early adopter of technology	15%	44%
To be competitive, organisations need to offer an app to better service their customers	10%	31%

■ Strongly agree ■ Total agree

The data analytics need to be intrinsically linked to digital operations. Companies can only create truly individual customer experiences, and give the right response to real-time events, if they have digital operations, with automation and artificial intelligence in the back office. Any routine or repetitive operational tasks utilising digital data can now be rapidly programmed to be performed by Robotic Process Automation (RPA), which uses software 'bots' performing rule-based, high-volume, repetitive tasks. RPA performs just as a human would, except substantially faster, with 100% accuracy, up to 24 hours a day, leading to significant productivity improvements compared to paper-based, manual processes.

In 2016, 42% of major organisations were either starting robotics proof of concepts or moving into full operational phases[17]. This year, we anticipate continued rapid adoption, with leading organisations developing a full-scale digital capability.

The next step will be organisations pushing into cognitive automation, where artificial intelligence supports judgement calls. Right now, few organisations are implementing automation focused on replicating human judgement at any sort of scale. The hesitation is in part due to concern about the risks – things like the potential for a negative impact on customers and staff, combined with challenges around compliance for those in highly regulated industries such as financial services.

"Transformation projects often used to take two years. With RPA, we can transform a finance process in several weeks – and it works every time. It's creating a strong belief in disruption and giving organisations real options to accelerate benefit delivery alongside other process optimisation initiatives."

Bill Farrell,
EY Oceania Advisory Partner

"It is no good having a great digital external customer experience layer unless it is supported by digital operations. Unless organisations address both of these interconnected environments they run the risk of failing to meet customer expectations. To create an end-to-end digital customer journey in an increasingly competitive and growth-constrained environment, financial services organisations are significantly increasing their investments in technologies such as robotic and intelligent automation."

Andy Gillard,
EY APAC Financial Services Digital Operations Leader

Defining automation

Robotic Process Automation (RPA) is where the mainstream emphasis lies at the moment. It looks to automate repeatable high volume tasks that don't require human judgment. It is 'non-invasive' for organisations in that it can be overlaid on existing systems and doesn't require an IT overhaul. 42% of major organisations surveyed in 2016 are either building a mature RPA or are launching RPA proof of concepts.

The next generation is Artificial Intelligence or **cognitive automation.** This is built on logic and machine learning which allows certain 'human' judgement decisions to be made by the software. 16% of major organisations are building mature cognitive automation or launching proof of concepts.

Analytics: don't forget the human element

While data and analytics have been a part of business for a long time, it's only in recent years that they have come to the attention of executives and managers as a powerful way to create competitive advantage. That's because there has been an explosion of data, coming not only from every corner of the enterprise and consumers across the globe, but also from a dizzying array of sources - audio, video, geospatial, telemetric and sensor data. Computing power, now available at dramatically reduced costs, has added enormous new capabilities to the equation, making many applications and use cases of analytics commercially feasible.
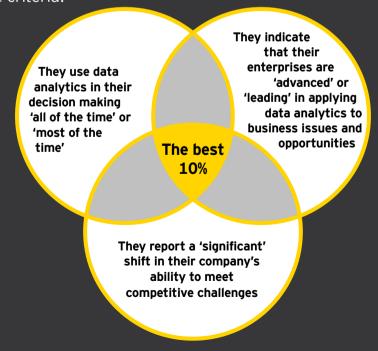
However, many organisations are still struggling to derive value from their data and analytics initiatives and capabilities. In an EY and Forbes Insights survey of 564 executives in large global enterprises, most admit that they still do not have an effective and aligned business strategy for competing in a digital, analytics-enabled world, and continue to struggle with change management issues in getting business users to adopt analytic insights.

What separates the leaders in data and analytics excellence from those organisations struggling with their programs?

There is a segment of executives in the survey whose enterprises have achieved higher levels of maturity. These leading organisations are seeing competitive advantage as a result of their data and analytics initiatives. Their experiences, practices and results provide a road map for other organisations to consider on their own analytics journeys.

"Data and analytics are disruptive. They change the way decision-makers think about business problems, and open their eyes to opportunities of which they may have not been aware. They may even provide insights that go against an organisation's accepted wisdom. Ultimately, data and analytics can set organisations in entirely new, and more innovative, directions."

The survey results identify the top 10% of enterprises as representing "The Best," or those organisations that meet three criteria:

They use data analytics in their decision making 'all of the time' or 'most of the time'

They indicate that their enterprises are 'advanced' or 'leading' in applying data analytics to business issues and opportunities

The best 10%

They report a 'significant' shift in their company's ability to meet competitive challenges

For more information on this Forbes Insights and EY study, visit www.ey.com/CA/EY-Forbes-Insights-Analytics

2.0 Data organisations

"The drive to know more about customers, markets, and internal operations is not new. Large enterprises have been investing in data and advanced analytics for years to improve understanding and decision-making.

What's different today? The stakes are higher than ever. In an area of widespread business disruption, leaders aren't using advanced analytics to simply improve existing activities - the strategic use of data is transforming traditional process-driving organisations to become more competitive, increase revenues and profits and reduce risk, and guiding them to new initiatives. These organisations use data as a strategic asset and build entire business models around leveraging insights to deliver exceptional products and services. This is in stark contrast to traditional organisations that are process-based, where the data generated is frequently seen as a secondary by-product. Such traditional organisations are now being disrupted by the leading '2.0 organisations' of the information age."

Source: Forbes Insights/EY Report on Data and Advanced Analytics.

Chatbots are taking over more of the customer conversation

Chat apps are widely used in Australia with 33% of people surveyed in Australia having used WhatsApp, WeChat or Viber in the past 12 months. The three largest messaging apps and Messenger (by Facebook) have a user base of more than 3 billion[18].

With 94% of digital opinion leaders believing that consumers will walk away from organisations who fail to offer a high-quality digital experience, 'conversational commerce' will soon be an essential element of the customer experience strategy. Progressive organisations are harnessing the power of chat and using 'chatbots' and other automated programs to engage with customers – who expect fast, fluid and relevant interactions.

This means chatbots will become an increasingly important part of the user experience, helping to smooth over moments where organisations currently lose customers. For example, 69% of online transactions are abandoned in the shopping cart[19]. Chatbot shopping assistants could help drive those sales and provide on-demand advice for customers confused or put off by lengthy checkout processes.

Bots can also aggregate huge ranges of services and information onto one intuitive platform. A chatbot for an airline, for instance, can check flight times, buy tickets, book transport and accommodation all as part of one command, rather than consumers having to perform each function separately.

Organisations will also use bots to engage with customers over online messaging platforms. Adding bots into the messaging mix brings the brand to the customer on a platform where they feel comfortable. And, when bots have filtered the consumer's demand, human beings can seamlessly take over the conversation to tackle the more complex service issues.

Properly implemented, chat conversations can also provide a wealth of data about customer preferences, and the nuances of what can transform a simple request for information into a sale. Chat tools can track factors from tone of voice to speed of response, all of which could subtly impact on customers' ultimate reactions – further improving the overall experience.

Creating value through conversational bots

1 **Accessibility:** Aggregating a wide range of services and information on to one intuitive platform.

2 **Efficiency:** Cutting out steps, alleviating confusion and streamlining the experience for customers.

3 **Personal touch:** Using AI to learn consumer preferences and to build knowledge over time.

4 **Improved understanding:** Optimising the level of understanding of customers.

5 **Consistency of brand experience:** Automatically embedding crucial elements relating to tone and brand language.

Source: David Nicholas, EY Americas Leader – Innovation and Alliances, EY. 2016. *Your customers are trying to text you something. Are you listening?.* [ONLINE] Available at: https://betterworkingworld.ey.com/better-questions/customers-text-listening.

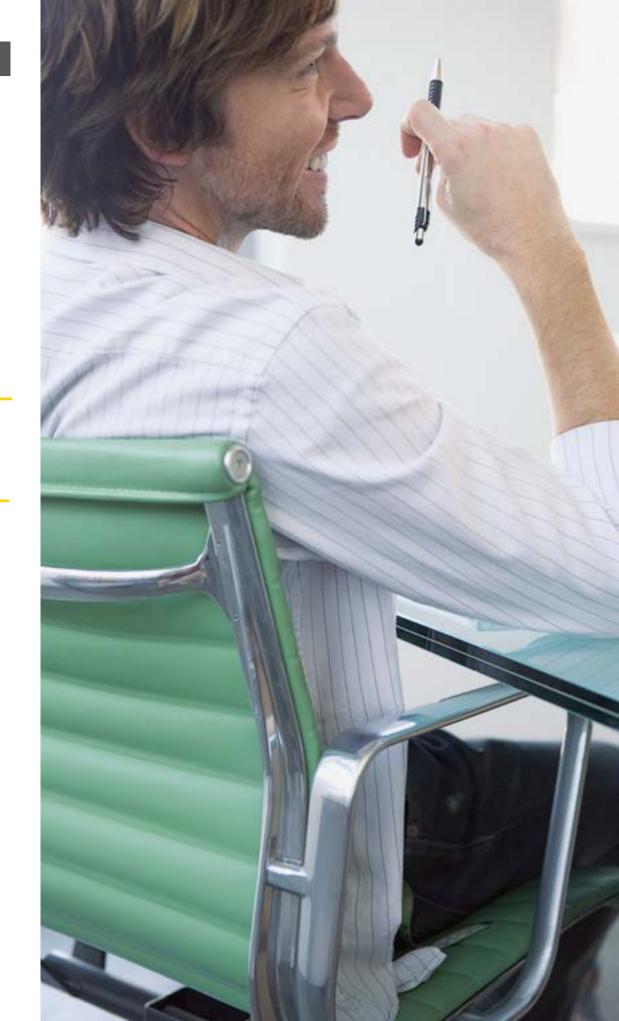## Truthbots: Transforming corporate communications

The role of chatbots extends beyond engaging with customers on their purchase journey or through product/service enquiries. There is significant momentum building in the corporate communications space. Comments and conversations across social networks and review sites continues to accelerate and the traditional means of 'managing the message' no longer cuts it.

The rise of peer-to-peer messaging means that the way organisations communicate (and think about communication) needs to change. Corporate communications teams have historically fulfilled their role as 'the primary source of truth' by operating as the executive suite's 'official broadcast centre.' Given we live in an always-on, hyper-connected world in which one-way broadcasting is less effective, it may be time for a strategy refresh and bots can play a pivotal role.

Organisations need to rethink how people create, consume and share to effectively manage corporate communications in a digital world. This is not about bots replacing humans, but about deploying staff into the areas that make the most sense. Bots still need to be controlled by a human lens – and critical moments in the customer journey still need human interaction. The focus should be on the balance between both.

"Chief Communications Officers should pivot their teams to operate more as curators of conversations, rather than stewards of approved content."

Keith Strier,
EY Global Technology
Sector Digital Leader

The sharing economy

One of the biggest areas of innovation and disruption in recent years has been the rapid rise of the sharing economy. Australians have absolutely embraced the wide range of sites and apps that have come online, with 41% having used at least one in the past twelve months, and 15% having been a part of the provision/delivery of services. Food and drink services top the list, followed by accommodation and ride-sharing.

There is also a high degree of involvement in the sharing economy as providers. Close to one in seven Australians (15%) have provided a product or service through the sharing economy in the past year.

The sharing economy is still relatively immature and will continue to evolve.

Usage of websites/apps by age

Base:	18-34 (n=520)	35-44 (n=312)	45-54 (n=323)	55-69 (n=396)
None of these	37%	52%	62%	72%
Food and drink delivery (e.g. Deliveroo, UberEats)	38%	28%	24%	12%
Peer-to-peer accommodation (e.g. Airbnb, Stayz)	18%	10%	10%	9%
Ride sharing (e.g. Uber, Go Catch)	22%	14%	6%	2%
Budgeting or finance management tools (e.g. Splitwise, Pocketbook)	14%	11%	6%	5%
Learning community (e.g. Skillshare, WeTeachMe)	13%	8%	6%	3%
Recipe box or meal delivery (e.g. Light n' easy)	10%	10%	8%	2%
Crowdfunding (e.g. Kickstarter, GoFundMe)	11%	6%	5%	5%
Customised on-demand couriers (e.g. zoom2u, Sherpa)	8%	5%	4%	2%
Task outsourcing (e.g. AirTasker, PetHomeStay)	8%	5%	4%	1%
Car sharing (e.g. Flexicar, Go Get)	6%	5%	1%	0%

■ Highest age group   ■ Lowest age group

Source: *EY Digital Australia: State of the Nation 2016-17*.
Q. Which of the following types of websites or apps have you used in the last 12 months, either as a provider or a user?
Base: Total consumers. Bases as shown.

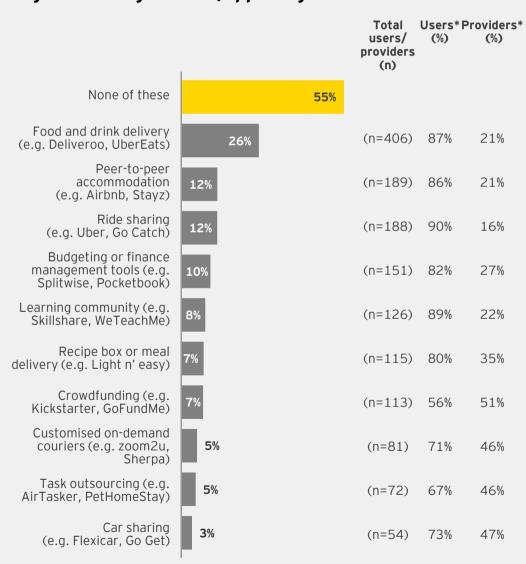## Participants in the sharing economy

41% Users

15% Providers

Note: User and Provider figures include those who do both.
Source: *EY Digital Australia: State of the Nation 2016-17*.
Q. Which of the following types of websites or apps have you used in the last 12 months, either as a provider or a user?
Base: Total consumers (n=1,551)

Digital sharing website/app usage in last 12 months

		Total users/ providers (n)	Users* (%)	Providers* (%)
None of these	55%			
Food and drink delivery (e.g. Deliveroo, UberEats)	26%	(n=406)	87%	21%
Peer-to-peer accommodation (e.g. Airbnb, Stayz)	12%	(n=189)	86%	21%
Ride sharing (e.g. Uber, Go Catch)	12%	(n=188)	90%	16%
Budgeting or finance management tools (e.g. Splitwise, Pocketbook)	10%	(n=151)	82%	27%
Learning community (e.g. Skillshare, WeTeachMe)	8%	(n=126)	89%	22%
Recipe box or meal delivery (e.g. Light n' easy)	7%	(n=115)	80%	35%
Crowdfunding (e.g. Kickstarter, GoFundMe)	7%	(n=113)	56%	51%
Customised on-demand couriers (e.g. zoom2u, Sherpa)	5%	(n=81)	71%	46%
Task outsourcing (e.g. AirTasker, PetHomeStay)	5%	(n=72)	67%	46%
Car sharing (e.g. Flexicar, Go Get)	3%	(n=54)	73%	47%

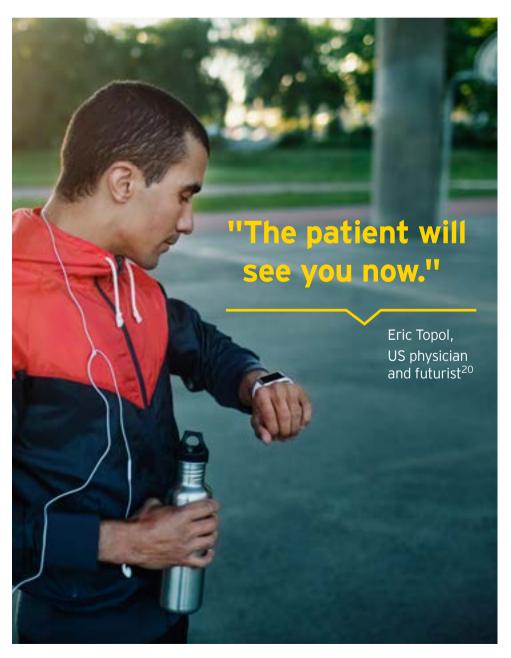*Note: User and provider figures include those who are both and therefore do not add to 100%.
Source: *EY Digital Australia: State of the Nation 2016-17*.
Q. Which of the following types of websites or apps have you used in the last 12 months, either as a provider or a user?
Base: Total consumers (n=1,551)

Participatory healthcare

"The patient will see you now."

Eric Topol,
US physician
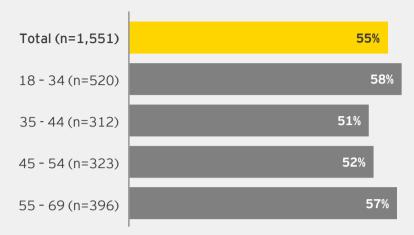and futurist[20]

The impatient patient

Australians are enthusiastically using devices and the online world to not just track and monitor their health, but to also self-diagnose and identify treatment strategies. In the survey, we found 55% of Australians had searched for a health-related answer online.

The scale of this self and social diagnosis was underlined earlier this year when Google announced that one in every twenty searches online is health-related[21]. To help users get accurate information, 'Dr. Google' now provides health cards at the top of the page when Australians search for common health conditions.

"Instead of trying to pretend that that isn't a problem and that people aren't finding bad information on the internet, what health cards are meant to do is provide accurate and reliable information created in partnership with medical doctors and to make sure there is a source of information online that people can trust."

Isobel Solaqua,
Google Health Condition
Cards Project Manager[22]

Searched online for health problem information and/or treatment

Total (n=1,551)	55%
18 - 34 (n=520)	58%
35 - 44 (n=312)	51%
45 - 54 (n=323)	52%
55 - 69 (n=396)	57%

Source: *EY Digital Australia: State of the Nation 2016–17*.
Q. Which of the following have you done in the last 12 months?
Base: Total consumers. Bases as shown.

Health reimagined: a new participatory health paradigm

Defining participatory health

Participatory health is a relatively new stream of thought in the literature of patient engagement. It is usually described in terms of a transformation in the patient-provider relationship and is premised upon individuals taking active responsibility for their health. To do this, they draw upon digital technologies; look to peer and social networks for support; and, act as an equal partner in shared clinical decision-making. In a clear move away from medical paternalism, the individual becomes the centre of the action, curating and navigating their health and their care as an equal partner.
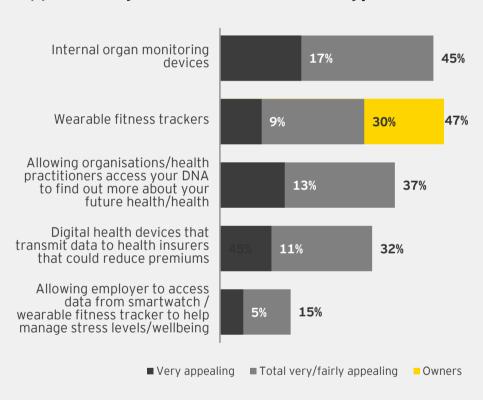
Source: EY's *Health Reimagined* report
http://www.ey.com/au/en/industries/health/ey-health-reimagined-a-new-participatory-heath-paradigm

Australians are also some of the earliest adopters and most avid users of digital healthcare technology and they are keen to embrace what's next. Our survey found that the number of those who find devices that monitor internal organs appealing is on par with the number who use or find wearable fitness trackers appealing. This was highest amongst members of Gen Y (18-34) (53%).

Personal health data is one of the most valuable digital currencies today, with significant proportions of Australians prepared to share the data if there is a direct benefit for them.

▸ **DNA:** 37% say it is appealing to allow organisations/health practitioners access to their DNA to find out more about their future health.

▸ **Premium reduction:** Close on one-third of Australians surveyed (32%) say that it is appealing for digital health devices to transmit data to health insurers to reduce premiums.

▸ **Workplace stress and wellbeing:** The positive levels of support in providing data to health and related organisations doesn't translate to the workplace. Only 15% of people surveyed say it is appealing for employers to access data from smartwatches/wearable fitness trackers to help manage stress levels/wellbeing. The trust simply doesn't seem to be there.

Appeal of digital healthcare technology

Source: *EY Digital Australia: State of the Nation 2016–17*.
Q. To what extent are each of the following digital devices and digital innovations appealing to you?
Base: Total consumers (n=1,551)

The future of healthcare

The propensity of Australians to self-diagnose online and to track their health through wearables and other related apps, underlines the consumer and technology-led transformation that is happening in healthcare. Further driving the growth will be the mounting disruptive pressure in our health system from rising costs, growing consumer expectations and new technologies. For advanced economies like Australia, the challenges of sustainability and growth can no longer be dealt with by traditional industry responses and practices. Already, a long-awaited transformation is underway, with participatory healthcare important in the way forward.

In the global EY report on participatory health, research was conducted in Australia as a 'test market' to better understand consumer receptiveness to new health service delivery models coupled with the level of interest in using digitally-enabled health solutions.

The detailed data from the study is shown opposite. In essence, it reveals that Australians are receptive to a change in the traditional approaches, with digitally enabled communication, connection, evaluation and fulfilment at the forefront.

The emerging health digisphere as captured in the diagram overleaf depicts the future health ecosystem.

Imagine the possibilities...
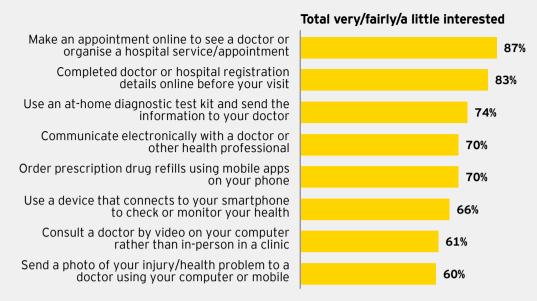
Julie's life may just have been saved by the power of data-driven insights.

Julie wears a smart watch that connects to a cloud-based analytics platform. In real time it crunches through Julie's data, as well as the sensory data of millions of other people. As the smart watch wirelessly streams blood pressure, pulse and glucose levels, the analytics platform combines this insight with the insight from Julie's myHealth Record. The platform predicts that Julie has a high likelihood of experiencing cardiac arrest in the next 90 days without proper preventive attention.

The analytics platform alerts Julie's health care provider. Following a series of tests, her specialist concludes that lifestyle and elevated blood pressure have caused a build-up of plaque in Julie's coronary arteries. By using analytic models of several million patients with similar diagnoses and genetics, as well as additional data sets, such as electronic medical records, real world data and genomic markers, the cardio specialist determines the best treatment for her condition. Julie needs a very specific and new genomic plaque cholesterol reducing medicine designed specifically for her, a change in diet, exercise and weight loss.

Had Julie not been aware of her condition for 60 more days, she likely would have required stents or an invasive heart bypass. In 90 days, she could have suffered cardiac arrest and died.

Future interest in using digital technologies

Total very/fairly/a little interested

Make an appointment online to see a doctor or organise a hospital service/appointment	87%
Completed doctor or hospital registration details online before your visit	83%
Use an at-home diagnostic test kit and send the information to your doctor	74%
Communicate electronically with a doctor or other health professional	70%
Order prescription drug refills using mobile apps on your phone	70%
Use a device that connects to your smartphone to check or monitor your health	66%
Consult a doctor by video on your computer rather than in-person in a clinic	61%
Send a photo of your injury/health problem to a doctor using your computer or mobile	60%

Source: EY. 2016. *Health Reimagined*. [ONLINE] Available at: http://www.ey.com/Publication/vwLUAssets/EY_-_Health_reimagined:_a_new_participatory_health_paradigm/%24FILE/ey-health-reimagined-2016.pdf
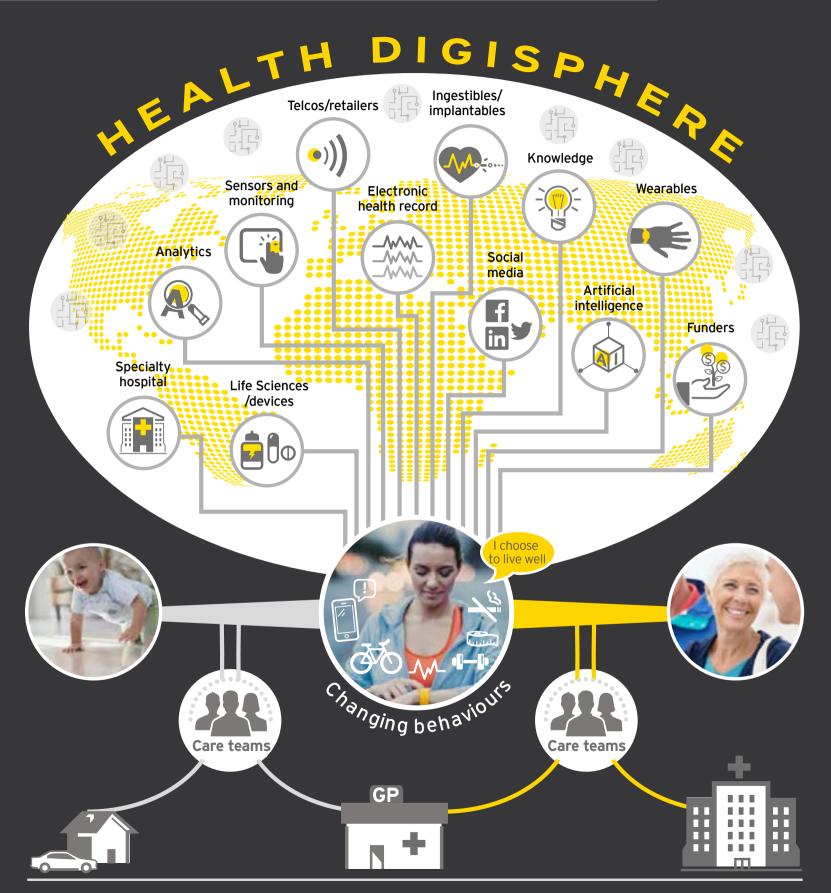Q. If these services were available in the future, how interested might you be in using them?
Base: Total respondents (n=1,761)

Receptivity to non-traditional service delivery models

Total agree/somewhat agree

Be treated by a health professional instead of a doctor for minor / non-urgent health problems, vaccinations and basic health screenings	59%
Take medications or treatments that have been customized to my genetic profile in order to treat certain diseases or disorders	47%
Have non-urgent treatment, vaccinations and health screenings by a health professional at a retail pharmacy facility located in a store	45%
Undergo genetic / DNA testing to confirm a diagnosis or whether I might develop certain diseases or disorders	43%
Have a health condition treated with a "high-tech" product such as a digestible sensor that delivers medication targeted to specific areas of the body	37%
Be treated by a health professional instead of a doctor at an Emergency Department in a hospital	32%
Be treated by a health professional instead of a doctor for urgent or complex health problems or screening procedures	27%
Travel overseas for health care if it is cheaper but of equivalent quality to care in Australia	19%
Receive / prescription / advice or undergo treatment / surgery by a robotic device	19%

Source: EY. 2016. *Health Reimagined*. [ONLINE] Available at: http://www.ey.com/Publication/vwLUAssets/EY_-_Health_reimagined:_a_new_participatory_health_paradigm/%24FILE/ey-health-reimagined-2016.pdf
Q. To what extent do the following statements accurately reflect your views?
Base: Total respondents (n=1,761)

HEALTH DIGISPHERE

Telcos/retailers

Ingestibles/implantables

Knowledge

Sensors and monitoring

Electronic health record

Wearables

Analytics

Social media

Artificial intelligence

Funders

Specialty hospital

Life Sciences /devices

I choose to live well

Changing behaviours

Care teams

Care teams

GP

Digital utilities

The energy sector is undergoing a major transformation with the rapid rise in technology and applications in the sector.

Today's energy companies are facing sweeping industry changes that impact the way energy is produced, distributed and used. This disruption is forcing a major re-think of the energy player's traditional business models.

Digital and new industry technology is at the centre of the disruption bringing many risks. But it also provides a once-in-a-generation opportunity for utility companies to drive innovation across the traditional energy value chain – from reinventing customer experience while decreasing cost to serve, to optimising infrastructure productivity in the face of rising costs, to managing a smart digital network to enable a two-way flow of energy.

Standing still is not an option. The urgency to respond to critical affordability, availability and access objectives requires a reinvention of traditional energy businesses. A key enabler is targeted digital innovation that drives a step change in performance and manages growing business risk.

Utilities are already making bolder moves to adopt digital technology in response to disruption. They are drawing lessons from adjacent industries such as telecommunications, financial services and oil & gas, for example:

▸ **A changing customer:** Influenced by digital experiences in other industries, today's customer is informed, connected and accustomed to personalised, proactive service. Utility customers want more choice, more control over their energy usage and real-time communications; for example, being warned in advance about the potential for unusually high bills, maintenance or outages. They will be demanding new services such as energy savvy home services and electric vehicles. Consumers are also becoming energy producers and managers, representing a powerful shift that will prompt today's utilities to re-examine their role if they are to avoid becoming mere infrastructure providers.

▸ **A new competitive market:** Energy players of the future will need to respond quickly, not only to disruption in technology, but also from aggressive new market entrants. Industries such as communications, broadcasting, healthcare, transportation and hospitality have already been turned upside down by the likes of Netflix, Airbnb and Uber who are leveraging under-utilised capacity and new delivery platforms into the mass market.

Imagine if...

utilities could deepen their engagement with customers to better meet their needs, lower costs and dramatically increase business performance.

Appeal of sharing household data

Allowing providers access to household data (e.g. energy consumption) **5%** **16%**

■ Very appealing ■ Total appealing

▸ **A collision of digital and energy technologies will allow the reinvention of the way energy is produced and distributed in a new de-centralised energy world:** Many aspects of today's digital life, such as social media, the cloud and mobility have been around for some time. However, it is the mashup of these established digital technologies with a raft of newer technologies such as robotics, drones, analytics and AI that has the potential to unlock new value by rethinking the way energy is generated and managed. For example, the way networks are maintained is being rethought with innovations such as drones remotely monitoring assets, digital imaging to detect anomalies, and digital scheduling to proactively manage scarce maintenance crews. Utilities in the future are building real-time visibility of their customers, assets and workforce that will enable them to make decisions that drive better customer service, improved asset productivity, lower operating costs and improved workforce safety.

"The danger is to think that a new digital world is just about the technology. The real challenge is to identify high value areas to digitally innovate and create breakthrough experiences for customers. Culture has to be central to this change."

Stuart Hartley,
EY Asia-Pacific Energy and Power and Utilities Advisory Leader

Beyond the technology

While it is true that utilities have traditionally lagged other industries in terms of offering customers a quality digital experience, we see evidence that progress is being made. Around Australia, energy companies are using digital as an opportunity to re-define the customer relationship through:

▸ Seamless customer service in "moments that matter" including billing, moving house and outage management.

▸ Value-based pricing and innovative energy aggregation offerings.

▸ Contestable metering services and energy solutions.

▸ Off-grid storage, solar generation services and electric vehicle charging.

▸ Peer-to-peer trading.

Digital energy retailer

A recent EY report on the energy sector identified six key characteristics of 'the energy organisation of the future'[23]...

Customer-centric: It's time to move the focus from managing assets and connecting homes to truly enhancing the energy customer experience.

Hyper-connected: Utilities will need to build an integrated and secure ecosystem that leverages digital intelligence, mobility and other capabilities to integrate information about its workforce, assets and customers and enable "always on/always visible" functionality.

Proactive and predictive: Utilities must take on a new proactive approach enabled by better use of digital technologies and data insights to drive the optimum productivity of assets, operations and customer service, and by embracing new technologies such as big data, machine learning and AI to drive predictive decision-making.

Adaptive: Innovation and agility will be critical to the success of the utility of the future. Utilities must be looking ahead to predict unknown disruption and seize business opportunities. They will need new commercial and innovation skills to enable them to react nimbly, and make smarter decisions.

Automated: Utilities will need to adopt a production line approach and operate with simplicity, scale and speed to drive productivity and reduce costs. They will need to embrace new technologies such as robotics, IoT and big data to transform the way they deliver services.

Performance focused: Energy players must align all capabilities and processes around a clear business purpose and prioritise investments with a laser focus on end- to-end, quantified business outcomes.

A key imperative for energy players is that change must now be accelerated – there is no time for slow incremental change programs of the past. Energy players that are seizing the potential of digital are taking bold action to target impressive paybacks. They are rethinking where they should compete and what capabilities they need to win. And those that are making the most of digital to re-imagine their future realise that this is a transformation that goes beyond technology to embrace a more agile, customer-centric mindset that is underpinned by a clear business purpose.

Digital grid

The digital transformation of the grid will dramatically improve both grid operations and the customer experience. One of the biggest challenges in Australia will be determining how to best connect elements of the new network value chain to the legacy systems that support them. Key questions include:
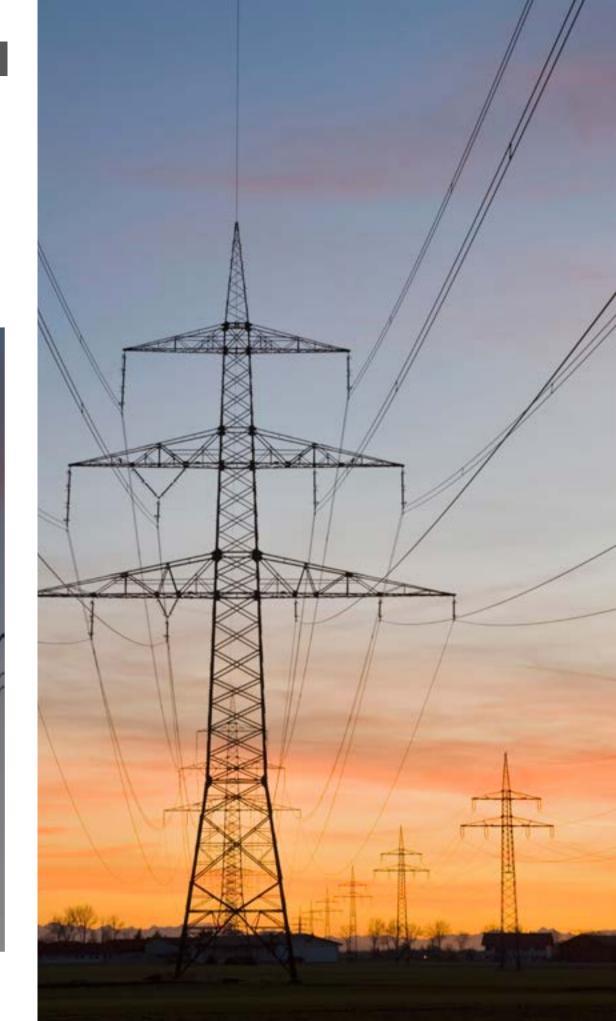
How can utilities use information from the smart network to give customers better information more quickly about important areas such energy usage and service interruptions?

How can smart appliances (and meters) be connected to support smarter energy use when we experience increased network demands from events?

How can utilities harness network data to drive better insight into future asset management plans and avoid or defer the need to fund additional infrastructure?

How can both digital and the network be used to balance demand and supply in the increasing multi-directional flow model, including readiness for a new industry value chain including virtual power plants, electric vehicles and different renewables?

How can a network player become the 'energy platform of the future' leveraging their data to drive and host innovative new energy services to grow revenues?

Digital government

The role of government

Digital offers government the opportunity to simultaneously improve policy effectiveness, enable cheaper, faster service delivery and meet the expectations of citizens and businesses to have a convenient online experience. At EY, we see the role of government in the digital economy through three lenses, as:

1. **Leader and policy-setter:** Leading by example and designing and facilitating compliance with regulatory frameworks that support digital infrastructure and data sharing.

2. **Participant:** Collaborating with citizens and sectors to improve efficiency and effectiveness, especially in Future Cities.

3. **Observer:** Allowing the economy to invest in and derive value from digital and data assets.

Digital is critical to policy value – not just service delivery
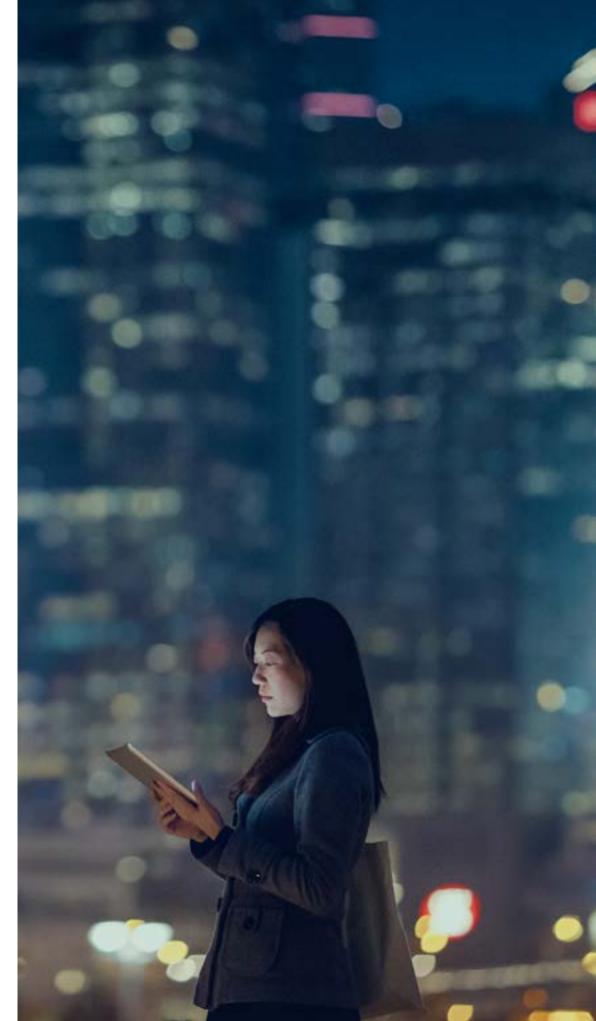
Although digital service delivery is important, the biggest return on investment in digital government will come from using the data generated to inform policy design. In this regard, New Zealand is an exemplar, sharing data securely across agencies to assess policies for their cross-government value. Last year, New Zealand launched this type of 'investment approach' to vulnerable children and families – a move intended to lead to the first citizen-centric approach in applying a co-ordinated service response to prevention, intensive intervention, trauma reversal and transition to independent adulthood.

Unhindered by the complexities of a federation, New Zealand has found it easier to forge ahead quickly in this area. However, for the last two years, Australia has also been building its capability to optimise policy outcomes by gaining data-driven insights across departmental domains, not just within departments.

Harnessing these insights is giving policy makers confidence about investing in early interventions. This is delivering substantial benefits. For example, knowing that investing an extra dollar in early childhood will save in 30 years in healthcare or social welfare – or understanding how a housing program supports education outcomes – will both improve policy outcomes and save millions in government outlays. Data analytics is also enabling policy makers to understand any unintended consequences, allowing them to refine policies accordingly.

Digital improves policy agility

To this point, the agility enabled by digital delivery will allow government to implement policy changes – big and small – more quickly. When delivery systems are underpinned by an automated back office and digital platforms, policy refinements can be made swiftly, system wide, without disruption. At the same time, policy makers will have real-time performance reporting data, enabling them to make continuous improvements.

Digital service delivery

This year's findings reveal Australian citizens of all ages have an increasing appetite for, and facility to interact with, digital government services. Across the generations, individuals are already connecting with family members, friends, communities and businesses via digital channels, increasing their comfort to engage with government online.

High use of and comfort with digital government services

Over the past 12 months, 87% of Australians surveyed have accessed at least one government service online, with myGov the most commonly used service. Digital access is slightly higher among 18 to 34 year olds (89%), but is spread remarkably evenly across all age groups, including 85% of 55 to 69 year olds. Our findings suggest government is proving highly successful at engaging citizens from across the generations with its digital services.

Despite some high-profile issues, only 18% of respondents say they are not comfortable dealing with Government departments and agencies via digital channels. It's a clear message that citizens of all ages welcome the simplicity, speed and convenience delivered by digital services, underscoring the importance of the Federal Government's digital transformation agenda.

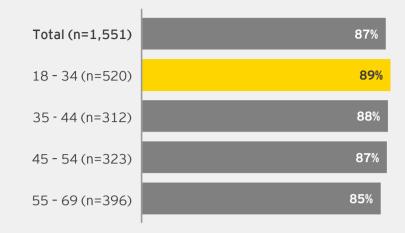Asked which government services they would like to see online, citizens put employment, money and tax services at the top of the list. Women are more likely than men to want online access to health and wellbeing services (81%). Baby boomers are more likely than younger citizens to want services for seniors (88%), citizens' rights (80%), emergency and safety (76%), and community support (76%) to be available online.

Opportunities for improved digital experience

Some citizens believe government is doing a good job in using technology to improve the services it provides – and many are satisfied with current services. More than half (58%) of citizens say they are satisfied with the MyGov service in general. 48% of citizens think myGov makes it easy to engage with a range of government services online. Again, this finding is largely consistent across age groups, ranging from 50% of 18 to 34 year olds to 46% of 55 to 69 year olds.

As myGov and many other services continue to improve the digital experience, making them device agnostic, simplifying processes and building functionality, we expect these ratings to improve in coming years.
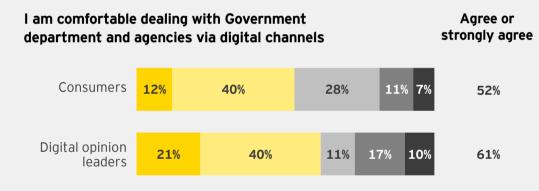
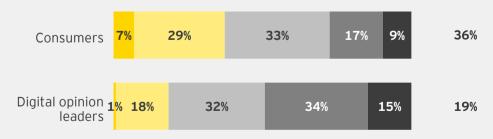## Accessed Government services online in the last 12 months

Total (n=1,551)	87%
18 - 34 (n=520)	89%
35 - 44 (n=312)	88%
45 - 54 (n=323)	87%
55 - 69 (n=396)	85%

Source: *EY Digital Australia: State of the Nation 2016–17.*
Q. Which of the following government services have you accessed or used online in the last 12 months?
Base: Total consumers (n=1,551).

Engaging with Government services online

I am comfortable dealing with Government department and agencies via digital channels

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Agree or strongly agree
Consumers	12%	40%	28%	11%	7%	52%
Digital opinion leaders	21%	40%	11%	17%	10%	61%

The Government is doing a good job in using technology to improve the services it provides

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Agree or strongly agree
Consumers	7%	29%	33%	17%	9%	36%
Digital opinion leaders	1%	18%	32%	34%	15%	19%

■ Strongly agree ■ Agree ■ Neither agree nor disagree ■ Disagree ■ Strongly disagree

Note: 'Don't know' figures not shown.
Source: *EY Digital Australia: State of the Nation 2016–17.*
Q. To what extent do you agree or disagree with each of the following statements?
Base: Total consumers (n=1,551). Total Digital opinion leaders (n=131)

Strong overall satisfaction ratings

Aggregate data from 14 different state and federal online services shows 'overall' satisfaction across all services sits at 60%. Smartraveller, the Department of Veterans' Affairs and Service NSW drew the top ratings.

For some services, digital is actually better than phone, or even face-to-face interactions. For example, the National Disability Insurance Scheme is examining the use of artificial intelligence to guide citizens through its services online, with an intelligent agent known as 'Nadia'. Because users are interacting with technology, they can move at their own pace and don't feel under pressure to keep up, no matter how long their selections take. In this experience, software is perceived as being more 'patient' than a call centre operator.

Integrated, user-centred design

Satisfaction levels will be further improved when more departments integrate all channels to create true, end-to-end digital service delivery. For example, if a citizen has already reported a problem via a call centre, their next online interaction should reflect that information and any advice given by call centre operators. This capability is already being established and supported by the Digital Transformation Agency's 13 Digital Service Standards, which are focused on driving integrated user-centred design throughout all government services.

User-centred design, and the willingness to experiment, will assist in constant improvement. Sometimes the best result comes from asking citizens what's important to them. Designers don't always get it right, with well-intended features occasionally creating inadvertent stumbling blocks. For example, when a designer set a 1,000-word limit in an online form entry for a medical history, users were put off, thinking they had to write that number of words.
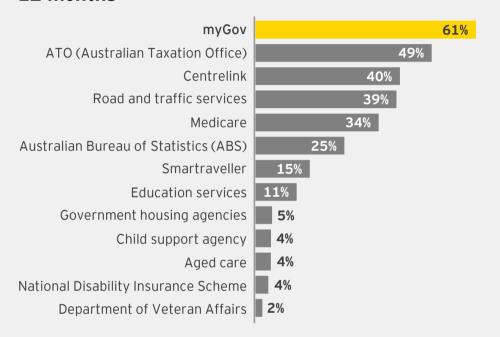
Risk-based decision support

Departments also need to right-size delivery, recognising not all needs are as complex as others. Risk-based decision support will identify which services require minimum attention, enabling straight-through processing. It will also determine eligibility early, allowing services to be delivered as quickly as possible – important where delays can impact outcomes.

At the same time, more complex services will require people to intervene. In this case, smart systems should guide human resources to focus on the moments and the issues that matter.

In this regard, government will be able to make real-time decisions about a citizen's needs, allowing departments to identify those who prefer human interaction and stream them to the service and outcomes that best fits their requirements.

Government services accessed/used online in last 12 months

Service	%
myGov	61%
ATO (Australian Taxation Office)	49%
Centrelink	40%
Road and traffic services	39%
Medicare	34%
Australian Bureau of Statistics (ABS)	25%
Smartraveller	15%
Education services	11%
Government housing agencies	5%
Child support agency	4%
Aged care	4%
National Disability Insurance Scheme	4%
Department of Veteran Affairs	2%

Source: *EY Digital Australia: State of the Nation 2016–17*.
Q. Which of the following government services have you accessed or used online in the last 12 months?
Base: Total consumers (n=1,551).

Overall satisfaction with Government services accessed/used online in last 12 months

60% Satisfied*

Note: Weighted average of satisfaction scores across the list of Government services online used in QX1c, excluding 'Other'
Source: *EY Digital Australia: State of the Nation 2016–17*.
Q. Using a scale from 1 to 5, where 1 is 'Very dissatisfied' and 5 is 'Very satisfied', how would you rate your online experience with…?
Base: Have accessed or used government services online in the last 12 months (n=1,335).
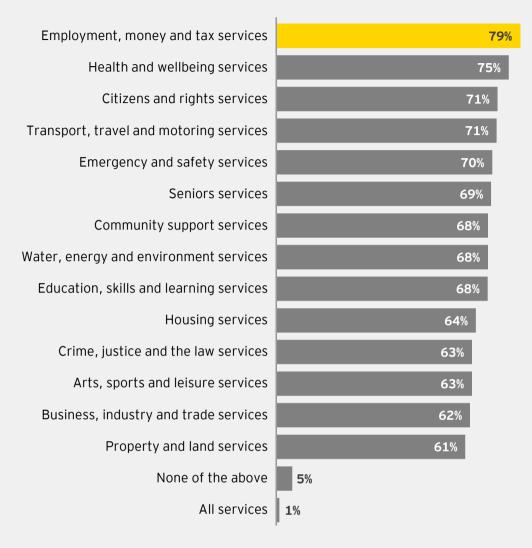
Citizens working for free

Australians' appetite for playing games can be harnessed to bring about social good, generate co-design opportunities and bring citizens into delivery. Governments around the world are engaging with citizens by putting them in control of data and creating gaming situations. For example, a council in the UK is empowering its local community by making more than 570 types of government data accessible to citizens in a format that can personalised and shared in customised mashups. This has led to people sharing their recycling success stories, with data showing their performance against other neighbourhoods. Also in the UK, the government is using gaming to get citizens involved in capturing information on animal populations.

Australian agencies are already opening up their data feeds for similar purposes. For example, Transport for NSW made its real-time transport information available to app developers and multiple apps resulted. The result is improved communications and customer satisfaction for a fraction of the capital investment the agency would otherwise have had to invest in its own app development.

This and many other initiatives have pushed Australia up the global rankings for open data. An important supporting capability is the data.gov.au website, which provides a platform to easily find, access and reuse data from government agencies, with approximately 50 thousand data sets available for public access. This access to data can provide new opportunities for innovation.

What helps digital government services succeed?

1 **Defining digital success correctly:** Change will not come from simply developing apps but by empowering a different interaction between citizens, the market and government.

2 **Starting small, thinking big:** Nothing supports momentum more than early success. Governments that have led by example, started with a big idea, then carefully selected the first, second and third implementation.

3 **Explaining the benefits of a digital experience to the public:** And to each contributor. Participants will engage in digital interactions if they believe they have something to gain.

4 **Finding the real reason for resistance:** Legislation is rarely the real blockage. Resistance must be recognised and addressed.

5 **Extending digital beyond service delivery to policy design:** Additional benefits will arise when we can apply digital innovation to predict risk before it occurs.

6 **Fostering market co-creation:** The role of government is to drive innovation through strong policy design, funding and implementing key assets and setting and regulating data and privacy guidelines. This will allow citizens, providers and other innovators to create value from these assets.
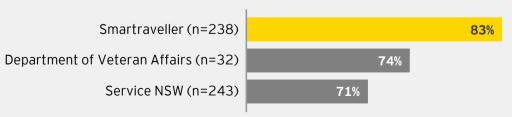
Government services desired online

Employment, money and tax services	79%
Health and wellbeing services	75%
Citizens and rights services	71%
Transport, travel and motoring services	71%
Emergency and safety services	70%
Seniors services	69%
Community support services	68%
Water, energy and environment services	68%
Education, skills and learning services	68%
Housing services	64%
Crime, justice and the law services	63%
Arts, sports and leisure services	63%
Business, industry and trade services	62%
Property and land services	61%
None of the above	5%
All services	1%

Source: *EY Digital Australia: State of the Nation 2016-17*.
Q. Which of following Government services do you think should be available online?
Base: Total consumers (n=1,551).

Satisfaction with Government online services - top 3

Smartraveller (n=238)	83%
Department of Veteran Affairs (n=32)	74%
Service NSW (n=243)	71%

Note: Total satisfied (Very satisfied/satisfied) shown.
Source: *EY Digital Australia: State of the Nation 2016-17*.
Q. Using a scale from 1 to 5, where 1 is 'Very dissatisfied' and 5 is 'Very satisfied', how would you rate your online experience with…?
Base: Consumers who have used services. Bases as shown.

Data sharing

Our findings suggest government needs to get better at promoting the benefits of digital services to the public. Australians are quite comfortable sharing their data with banks, retailers and online providers, yet they are divided on the issue of data sharing between government departments and agencies. The Digital Transformation Agency is currently working to tackle this issue.

Not quite half (46%) support data sharing if individuals don't have to provide information multiple times, with men (52%) more supportive than women (41%). But one in five citizens (21%) are explicitly against it, perhaps because they lack confidence in the government having adequate security systems/procedures in place to ensure privacy. Only a third (34%) of Australians are supportive of police accessing personal data to help community safety.

> "Every day, Australians willingly share their data with Facebook and Netflix. Citizens will engage naturally with government in just the same way if they understand the value proposition. Government needs to present citizens with a vision of the future and conduct open and regular dialogue with the public around the steps being taken to move Australia towards this future."
>
> Joana Valente,
> EY Oceania Digital Government Leader
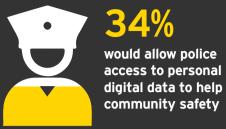
Provide once, use many times

Proving that, within strong legislative and privacy parameters, a 'tell us once' integrated government platform is possible even with legacy systems, Belgium solved the personal data sharing issue 23 years ago. The Government established the Crossroads Bank of Social Security (CBSS) to manage the secure sharing of information across 2,000 social security authorities. By accessing information at the source, the capability eliminated 230 of 280 forms and statutory declarations, saving employers some 1.7 billion Euros per year. The move, which was pushed through by determined federal leadership, has transformed the social security system in Belgium.

The CBSS demonstrates that a 'provide once' system can be established without a centralised single source of data. It also was strongly guided by privacy regulation, using a 'citizen opt in' approach. Data is only shared with other agencies who need to have it – and only with explicit agreement from the citizen – reducing the burden on both citizens and businesses.

Appeal of data sharing

34% would allow police access to personal digital data to help community safety

31% would allow car insurers access to data collected from a telematics device in the car, in order to reduce premiums
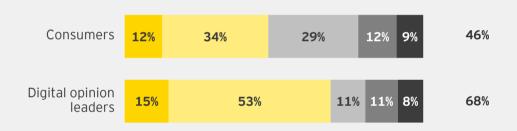
Source: *EY Digital Australia: State of the Nation 2016–17.*
Q. To what extent are each of the following digital devices and digital innovations appealing to you?
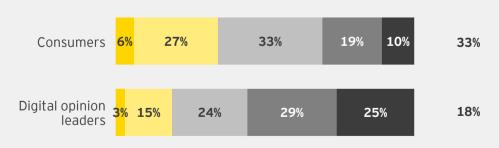Base: Total consumers (n=1,551)

Data sharing

I support government departments and agencies sharing data so that individuals do not have to provide the same information multiple times

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Agree or strongly agree
Consumers	12%	34%	29%	12%	9%	46%
Digital opinion leaders	15%	53%	11%	11%	8%	68%

I am confident that the government has adequate security systems and processes to ensure my privacy is protected when sharing my personal information between agencies/departments

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Agree or strongly agree
Consumers	6%	27%	33%	19%	10%	33%
Digital opinion leaders	3%	15%	24%	29%	25%	18%

■ Strongly agree ■ Agree ■ Neither agree nor disagree ■ Disagree ■ Strongly disagree

Note: 'Don't know' figures not shown.
Source: *EY Digital Australia: State of the Nation 2016–17.*
Q. To what extent do you agree or disagree with each of the following statements?
Base: Total consumers (n=1,551). Total Digital opinion leaders (n=131)

Digital policy/regulation

Our survey found a strong mandate for the Federal Government to play an even more active role in enforcing transparency in how consumer information is used. Almost four in five (78%) people interviewed supported a more assertive approach. However, less than a third (31%) of Australians believe the Government should play a more active role in monitoring online activity.

Promoting digital innovation

Nine out of ten digital opinion leaders, and more than half of consumers, believe the government should promote digital innovation with funding or programs, even if it challenges traditional businesses.

EY agrees. We also believe the best way for government to promote digital innovation is to lead by example. Around 20% of the economy is delivered by government, giving it the potential to both model best practice and upskill the workforce with digital capabilities.

When to intervene?

Government needs to be clear on when to get out of the way of the market and when to intervene. Market forces should usually be allowed to work freely to deliver digital products and services. But not when the desired outcomes go beyond profit. In these cases, government has a role as a vision-setter, owner and guide to the market.

For example, if we allow the healthcare market to evolve without government guidance, a pure market solution may not always deliver equity of service access. Governance needs to be reformed to embrace government's role to evolve to one of an 'enabler', with an increasing role of oversight and management of, for example, transport or health systems.

To this point, the Government needs to consider digital innovation requirements at two levels:

▸ **Localised capability:** Recognising the importance of innovation within specific communities of interest.

▸ **National capability:** Allowing both localised and national services to be accessed in a unified manner. Without national capabilities and standards, market innovation can be stifled, as innovators lack the ability to drive adoption of their product or service.

In both cases, capabilities can be delivered by government, by industry or by government-industry partnership.

Promoting innovation

The government should promote digital innovation in businesses (e.g. new technologies, new ways of using technology) by providing funding or running programs, even if it challenges traditional businesses

55% Consumers agree

90% Digital opinion leaders agree

Source: *EY Digital Australia: State of the Nation 2016-17*.
Q. To what extent do you agree or disagree with each of the following statements?
Base: Total consumers (n=1,551). Total Digital opinion leaders (n=131)

Government policy and regulation

Governments should force organisations to be more transparent or upfront about how they use the consumer information they capture
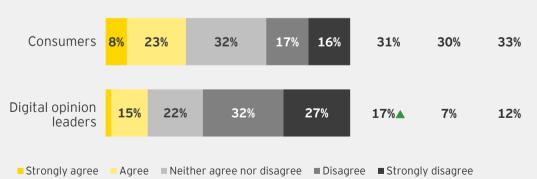
				Agree or strongly agree		
				2016-17	2015-16	2014-15
Consumers	35%	43%	17%	78%	79%	80%
Digital opinion leaders	21%	49%	21%	8%	70%	69%	69%

The Government should take a more active role in monitoring the online activity of people

						Agree or strongly agree		
						2016-17	2015-16	2014-15
Consumers	8%	23%	32%	17%	16%	31%	30%	33%
Digital opinion leaders	15%	22%	32%	27%		17%▲	7%	12%

■ Strongly agree   ■ Agree   ■ Neither agree nor disagree   ■ Disagree   ■ Strongly disagree

Note: 'Don't know' figures and labels under 2% not shown. Arrows denote significant differences to previous year.
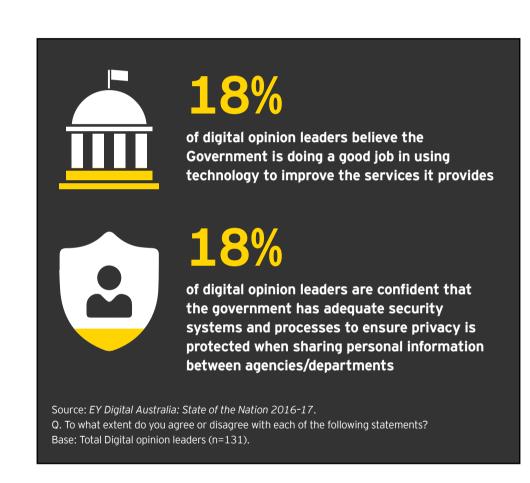Source: *EY Digital Australia: State of the Nation 2016-17, 2015-16, 2014-15*.
Q. To what extent do you agree or disagree with each of the following statements?
Base: Total consumers – 2016 (n=1,551), 2015 (n=1,500), 2014 (n=1,498)
Total Digital opinion leaders – 2016 (n=131), 2015 (n=142), 2014 (n=167)

Educating the population for digital

As part of its Innovation and Science Agenda, the Commonwealth is already investing in essential STEM (science, technology, engineering and maths) programmes to prepare Australian children for the opportunities of the digital 21st century.

We believe government also has a greater role to play in building digital confidence and capability in citizens. In an increasingly digital economy, individuals need to be more aware of digital risks and understand how to protect themselves from scammers and cyber-criminals. The Government is already providing cyber security resources to help businesses manage this risk. Do we also need to include 'digital self-defence' in our education systems?

Government could also usefully lead a conversation to dispel the myths and fears about AI. People are scared of a future where machines can mimic human behaviour. But neural networks are built by humans, using data and working to rules they are given by humans. Eventually, government may need to consider underpinning rules for AI use regarding human safety.

18%

of digital opinion leaders believe the Government is doing a good job in using technology to improve the services it provides

18%

of digital opinion leaders are confident that the government has adequate security systems and processes to ensure privacy is protected when sharing personal information between agencies/departments

Source: *EY Digital Australia: State of the Nation 2016–17*.
Q. To what extent do you agree or disagree with each of the following statements?
Base: Total Digital opinion leaders (n=131).

Setting rules and establishing national capabilities

Where government does need to provide guidance and regulation is in developing national capabilities to support integrated digital public services. For example:

▶ **Identity management:** National systems need unique identifiers for consumers and businesses.

▶ **Integration and connectivity:** All participants must be able to securely access and exchange information across the ecosystem. Government should provide the layer and protocols to develop a centralised data and analytics capability to better inform digital delivery operations.

▶ **National standards:** Are needed to promote the adoption of consistent standards and protocols to facilitate information exchange.

▶ **Security:** Government must provide policies and regulations around data privacy, cybersecurity, safety and, where needed, liability, incentives and taxation.

▶ **Transparency:** Is essential, ensuring the rules built into digital solutions such as process automation and artificial intelligence (AI) are always exposed, allowing for auditability and supporting trust.
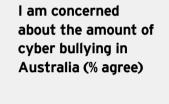
Cyber bullying

Cyber bullying is a major issue in Australia. It is having a negative impact on society overall, and has adverse effects on individuals' confidence and self-worth. It is often discussed in the context of school-age children, but is equally an issue for older Australians.

Six in ten Australians are concerned about the amount of cyber bullying in Australia. It is a confronting statistic and it is a view shared equally by the community at large and digital opinion leaders.
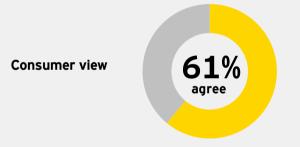
Addressing cyber bullying (and bullying in general) is generally seen to be a shared responsibility that stretches across the government at all levels, corporates, NFPs, major institutions and the community at large. The government is invariably seen as being the lead player by the community and the strong consensus was that not enough is being done – only one in five Australians agree that the government is taking adequate action to protect against cyber bullying.
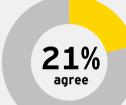
Cyber bullying

	I am concerned about the amount of cyber bullying in Australia (% agree)	The government is taking adequate action to protect against cyber bullying (% agree)
Consumer view	**61%** agree	**21%** agree
Digital opinion leader view	**63%** agree	**9%** agree

Note: Total agree (strongly agree/agree) shown.
Source: *EY Digital Australia: State of the Nation 2016-17*.
Q. To what extent do you agree or disagree with each of the following statements?
Base: Total consumers (n=1,551), Total Digital opinion leaders (n=131)

Cyber security and privacy
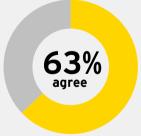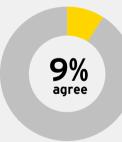
Consumer security and privacy concerns

Australians continue to be concerned about what personal information organisations can access – and what they might do with this data. Soon, new privacy regulation will increase the imperative for organisations to give customers transparency, choice and control.

The four in five consumers who believe organisations should be more transparent about how they use the customer information they capture will soon get their wish. From 22 February 2018, the Notifiable Data Breaches amendment to the Privacy Act will dramatically increase visibility of inadequate security around personal information. Companies will be required to notify the Privacy Commissioner and members of the public if their data has either been compromised or even shared inappropriately with third parties.

Based on US and European experience of mandatory breach reporting, the new regulations are likely to increase the cost of data breaches four or five-fold – and not just because non-compliance will incur both compensation payments and civil penalties of up to $1.8 million. The cost of compliance will include incorporating notification obligations into existing processes and procedures – as well as third party contracts. Organisations will also need data breach incident response plans supported by scenario-testing exercises. This is an area that will require proactive engagement of management and also Boards as the potential brand damage of an incident can be catastrophic.

In the next few years, organisations can expect additional privacy compliance challenges requiring better management and control of consumer data. As media coverage of notifiable data breaches plays on consumer fears, politicians will come under pressure to do more to protect privacy. Eventually, we expect Australia to move closer to the global 'gold standard': the EU's General Data Protection Regulation (GDPR).

From May 2018, the GDPR will impose a strict data protection compliance regime with penalties of up to 4% of worldwide corporate turnover. Under the new regime, individuals will hold the right to have personal data erased and to prevent processing if personal data is no longer needed for its original collection purpose, or if the individual withdraws consent. Compliance will require a granular level of control that few Australian companies currently have over customer data.
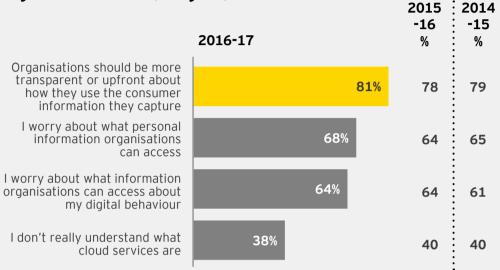
"Currently, organisations are getting by with general privacy policies. To meet future consumer and regulatory pressure, businesses will have to enshrine privacy by design into new products and services."

Anthony Robinson,
EY Oceania Financial Services and Cyber Security Partner

"Privacy and data security need to be more than just complying with policies and regulations, it's got to be embedded in the culture."

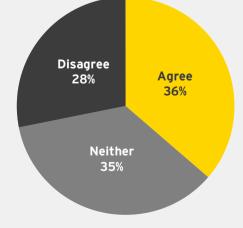Digital opinion leader, Automotive sector

Digital concerns (% agree)

	2016-17	2015-16 %	2014-15 %
Organisations should be more transparent or upfront about how they use the consumer information they capture	81%	78	79
I worry about what personal information organisations can access	68%	64	65
I worry about what information organisations can access about my digital behaviour	64%	64	61
I don't really understand what cloud services are	38%	40	40

Note: Total agree (strongly agree/agree) shown.
Source: *EY Digital Australia: State of the Nation 2016–17, 2015-16, 2014-15.*
Q. To what extent do you agree or disagree with each of the following?
Base: Total consumers – 2016 (n=1,551), 2015 (n=1,500), 2014 (n=1,493).

Comfortable with trusted organisations using personal data

I am comfortable with organisations I trust using my data to provide me with better products, offers and/or services

Disagree 28%
Neither 35%
Agree 36%

Note: 'Don't know' figure not shown
Source: *EY Digital Australia: State of the Nation 2016–17.*
Q. To what extent do you agree or disagree with each of the following?
Base: Total consumers – 2016 (n=1,551).

> "All organisations should have the mindset of a bank when it comes to managing customer data. You have to continually stay ahead and respect that customer information is one of the most valuable currencies. It's different terrain because the threat level escalates every day."

Jenny Young,
EY Oceania Technology, Media & Entertainment and Telecommunications; and Customer Leader

> "One of the main drivers of digital advancement is trust and safety. You need a digital environment where consumers are comfortable providing personal details to transact because they know their personal information is protected by the organisation."

Digital opinion leader, Automotive sector

Customer identity access management model

Build in privacy issues with:

- ▸ Transparent, fair and proportionate data collection.
- ▸ Data use only for the notified purposes of collection.
- ▸ Data storage security standards and deletion/de-identification once used for the notified purpose.
- ▸ Data minimisation to reduce duplication of information holdings
- ▸ Anonymity/pseudonymity for sensitive areas.
- ▸ Individual control over the use of one's data.

Cyber security
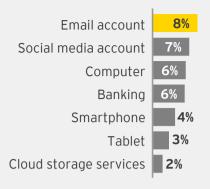
Cyber security is the body of *people, processes and technologies* designed to protect networks, computers, applications and data from attack, damage or unauthorised access.

The risks have not changed, but the impact and likelihood of an issue has as a function of:

- ▸ The volume of data.
- ▸ The velocity of technological change.
- ▸ The volatility of the corporate and regulatory environment.

As a consequence, cyber security is increasingly seen as a 'top 3' risk by boards.
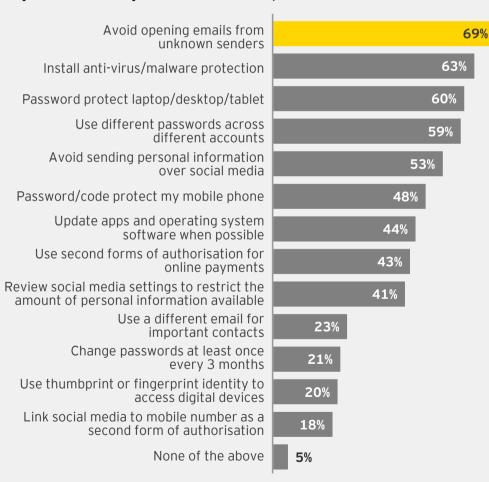
Experience of security breach in last 12 months

Device/Account	%
Email account	8%
Social media account	7%
Computer	6%
Banking	6%
Smartphone	4%
Tablet	3%
Cloud storage services	2%

Source: *EY Digital Australia: State of the Nation 2016–17*.
Q. In the last year, have you had a security breach or been hacked on any of the following devices or accounts?
Base: Total consumers (n=1,551)

Cyber security measures adoption

Measure	%
Avoid opening emails from unknown senders	69%
Install anti-virus/malware protection	63%
Password protect laptop/desktop/tablet	60%
Use different passwords across different accounts	59%
Avoid sending personal information over social media	53%
Password/code protect my mobile phone	48%
Update apps and operating system software when possible	44%
Use second forms of authorisation for online payments	43%
Review social media settings to restrict the amount of personal information available	41%
Use a different email for important contacts	23%
Change passwords at least once every 3 months	21%
Use thumbprint or fingerprint identity to access digital devices	20%
Link social media to mobile number as a second form of authorisation	18%
None of the above	5%

Source: *EY Digital Australia: State of the Nation 2016–17*.
Q. Which of the following security measures have you, or do you take to protect your privacy and personal identity?
Base: Total consumers (n=1,551)

Trust in a digital world

The standpoint of consumers is clear. Organisations need to have the right processes and systems in place to protect them. It's a challenging imperative that spans not just protection, but also what happens if there is a breach.

In a digital world where every organisation is a digital business, consumer trust will be a major point of difference. It will be the foundation of brand equity and will build loyalty.

"Trust isn't something that can be claimed. It's something that has to be earnt over time and increasingly today is reinforced by peer endorsement. With most organisations seeing themselves as a digital business and undergoing some form of transformation, the risks associated with losing trust become all the more profound. Leadership needs to be obsessed with ensuring that customers are confident and that there's no anxiety around how personal data is being managed. Get it right and it will be a competitive advantage that will continue to build."

Marc L'Huillier,
EY Oceania EY Sweeney
Managing Partner

Embed cyber into BAU risk management

1 **Identify the unknown unknowns:** Identify and risk assess your data assets and critical systems. Define value and business ownership. Link to risk appetite.

2 **Don't fly blind:** Identify the real threats you face. Focus on the risks that matter. Keep up to date with emerging threats.

3 **One size does not fit all:** Not all controls are equal. Prioritise remediation and BAU activities on controls that reduce the risks you face, and on the assets that matter.

4 **Prepare for the worst:** It is no longer possible to prevent all cyber attacks. A capable and determined adversary will get though. Think about detection and response, as well as prevention. Business resilience is overtaking privacy as the primary concern.

5 **Third parties are your weakest link:** Due diligence. Contractual requirements. 'Trust but verify'. Specify control requirements. Tier by risk - gain appropriate assurance.

6 **Test the effectiveness of your approach to cyber risk management:** Internal audit external advice.

Enhanced password authentication

Consumers report specific attacks against their own digital information. The most common security breaches are hacked email accounts, enabling perpetrators to send fraudulent emails on their behalf, likely as part of a detailed identify theft.

In response, consumers are becoming more cyber savvy. More than two-thirds know not to open emails from unknown senders and 63% use some form of anti-virus protection. Almost three in five Australians use different passwords across different accounts. However, the more effort required, the less likely people are to take security measures. Only one in five consumers change their passwords every three months.

This issue will be an ongoing challenge for companies, who must authenticate individuals remotely to protect the data they hold on behalf of these consumers – while also providing a hassle-free digital experience. The answer will be found in new technologies that go beyond passwords and usernames to quickly and easily give organisations confidence that the person using a device is genuine.

Likely candidates include: voice recognition, where customers speak pre-determined phrases; palm vein recognition; and heartbeat patterns recorded from wrist band monitors. Those wanting an alternative to biometrics may turn to behavioural monitoring. For example, software loaded onto a phone can authenticate identity by tracking how quickly a user presses buttons and by recognising the patterns of their swipe behaviour and app usage.

Given the inconvenience involved in users maintaining secure passwords, it's time for organisations to start exploring these new solutions to improve both trust in digital actions and the user experience itself.

"Simple, trusted digital interactions increase service uptake and have a positive impact on community and business engagement. If organisations can simplify authentication while improving the security and trust around an interaction – that will be an important differentiator."

Anthony Robinson,
EY Oceania Financial Services and Cyber Security Partner

"When it comes to authentication and verification, there's no shortage of technology options, but you've got to make sure they are deployed properly. At the top of the list needs to be ensuring it resonates with customers, they understand how it works and see it as enhancing the experience and delivering clear benefits. If it falls short in the customer's eyes, they won't embrace it and confidence will be undermined."

Gary McInnes,
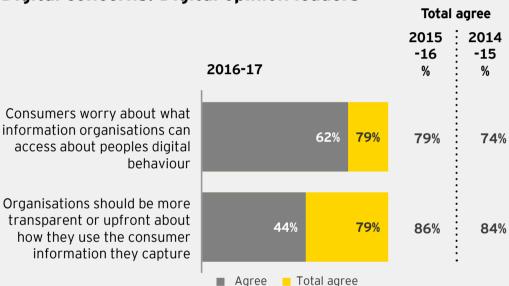EY Oceania Customer Leader for Financial Services

77% of participants are comfortable using voice biometrics if it meant tighter security[24]

1 in 5 consumers would be happy to share their DNA... if it would help secure their financial and personal information[25]

Digital concerns: Digital opinion leaders

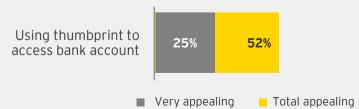|	2016-17	Total agree 2015-16 %	2014-15 %
Consumers worry about what information organisations can access about peoples digital behaviour	62% / 79%	79%	74%
Organisations should be more transparent or upfront about how they use the consumer information they capture	44% / 79%	86%	84%

■ Agree ■ Total agree

Source: *EY Digital Australia: State of the Nation 2016-17, 2015-16, 2014-15*.
Q. To what extent do you agree or disagree with each of the following?
Base: Total Digital opinion leaders - 2016 (n=131), 2015 (n=142), 2014 (n=167).

Personal security

Using thumbprint to access bank account	25%	52%

■ Very appealing ■ Total appealing

Source: *EY Digital Australia: State of the Nation 2016-17*.
Q. To what extent are each of the following digital devices and digital innovations appealing to you?
Base: Total consumers (n=1,551).

Blockchain

Blockchain or distributed ledger technology is quickly gaining traction around the world, particularly in industries like financial services and insurance. The technology's potential lies in its ability to make a ledger more transparent, trustworthy and efficient. It can also streamline the customer experience, making something that may have taken days to process capable of being processed in an instant and with more accuracy.

The potential applications are many and varied, with some of the more advanced developments having occurred in:

▸ **Clearing and settlement:** The technology has the potential to replace the need for a trusted intermediary to manage transactions (e.g. a clearing house) and it can make audit and tax functions easier.

▸ **Trade finance and supply chain:** Trade finance and the associated management of the supply chain can be highly complicated given the exchange occurs across multiple jurisdictions, and involves multiple physical goods and documents. Blockchain can play an increasing role in these transactions.

▸ **Insurance claims management:** Significant improvements in the claims management process, effectively reducing paperwork and the level of handling of a claim.

▸ **Internet of Things:** This involves combining the IoT with blockchain to manage and store critical data. For example, all information relating to a product from manufacturing to usage and beyond. Anything related to a product could be reliably stored in the ledger and verified.

▸ **Consumer goods:** The ability to track the source and provenance of goods. For example, EY created the first wine blockchain with EZ Lab. Similarly, there is significant work going into creating blockchain approaches for fresh food (fish, fruit and vegetables, etc.)

▸ **Registries:** Vehicle licences and other registered information (land registry, birth death & marriages, etc.) can all be stored on incorruptible registries.

As blockchain solutions are rolled out by major organisations and government departments, it will be important for the way it works to be articulated to customers in simple terms and for the benefits to be conveyed. There is increasing concern about privacy and cyber security in Australia and, while blockchain reduces the risk, it does have the potential to create anxiety in the short term where a transaction process changes.

What is blockchain?

A blockchain is a type of database that takes a number of records and puts them in a block - similar to collating them onto a single sheet of paper. Each block is then "chained" to the next block, in a linear, chronological order, using a cryptographic signature.

This process allows blockchains to be used as ledgers, which can be shared and corroborated by anyone with the appropriate permissions. These distributed ledgers can be spread across multiple sites, countries or institutions. They are verifiable and not vulnerable to corruption.

About this study

Digital opinion leader coverage

Attitudes to Australian digital economy

‣ Digital attitudes

‣ Perception of the local digital economy in comparison with leading countries

Digital experiences

‣ Best and worst sector digital experiences

‣ Digital experience needs

Government and the digital economy

‣ Support of government's approach to the digital economy

‣ Attitudes to government's role in digital

‣ Support of nbn

Future digital technology

‣ Next big thing in digital

‣ Popularity of future devices and digital innovations

Classification

‣ Age and gender

‣ Type of organisation

‣ No. of employees

‣ Annual turnover

‣ Industry sector

Research approach

Digital Australia: The State of the Nation is a wide-ranging report that is based on three types of research.

‣ **Extensive quantitative research:** A representative survey of 1,551 Australians (18-69 years) and 131 'digital opinion leaders' drawn from the commercial and government sectors.

‣ **Deep dive qualitative research:** A series of in-depth interviews with some of Australia's top digital decision-makers and industry thinkers.

‣ **Aggregate research:** Publicly available data from a diverse range of sources.

‣ **Subject matter experience:** Insight from a wide range of EY digital professionals and thought leadership programs.

EY's in-house research professionals, EY Sweeney, conducted this research program.

Core consumer survey coverage

Digital devices

‣ Devices used

‣ Online activities and devices used for each

‣ Time spent on devices

‣ Smartphone/tablets usage (occasions and apps)

Attitudes and impact

‣ Attitudes and behaviours of smartphone/tablet users

‣ Digital attitudes

‣ Digital concerns

‣ Smartphones/tablets – impact and usage situations

‣ Social media faux-pas

Digital experiences

‣ Best and worst sector digital experiences

‣ Digital experience needs

Work and study life

‣ Device usage at work

Social media networks

‣ Social media usage frequency and situations

‣ Social media movers and shakers

‣ Sharing economy - usage / provision

Government and the digital economy

‣ Online government service needs

‣ Perceptions and support of nbn

‣ Attitudes to the government's role in digital

Cybersecurity

‣ Security measures

‣ Security breaches in the last 12 months

Entertainment consumption

‣ Access to unauthorised content

‣ Music consumption

‣ TV shows and movie consumption

Expenditure

‣ Once -off digital payments

‣ Monthly digital payments

Future digital technology

‣ Fintech usage

‣ Appeal of digital innovations

‣ Perception of the local digital economy in comparison with leading countries

Classification

‣ Age and gender

‣ Residence

‣ Employment status

‣ Annual household income

Digital@EY

Why is your best digital strategy a human one?

Human insight is needed to navigate the extraordinary choices that digital presents us. Human ingenuity, judgement and creativity drive innovation and the development of new technologies that free us to focus on what really matters. It will be the right combination of minds and experience to realize the future potential of technology – and to plan for that future from every perspective.

At EY, we believe that for an organization to harness the potential of digital, it should be considered as part of the whole, and not as some discrete function. It's a way of thinking and behaving and needs to be embedded across the entire value chain, from strategy and design through to execution and the management of risks.

We see 'business issues' not 'digital' ones. We protect and grow our clients' businesses by providing business services fit for a digital world. We can do this because we are able to draw on people from across our organization, our alliances and networks to create the right digital ecosystem. With the right combination of experience, independent thought, creativity and judgement, we can help our clients choose how to drive a digital agenda today and plan for their digital future with confidence.

Focus areas

No matter where clients are on their digital journey, our holistic approach can help them confidently navigate digital disruption. Learn more about our five areas of focus.

‣ Incubation and innovation

‣ Trust

‣ Enterprise strategy

‣ Continuous experience implementation

‣ Operations

www.ey.com/digital

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