



Digital Lives of Australians 2023

Readiness for emerging technologies

Foreword from Rosemary Sinclair AM, auDA CEO

Established in 2021, auDA's *Digital Lives of Australians* study explores the value of the internet in the everyday lives of Australian consumers and small businesses.

This year's report focuses on emerging technologies that utilise the internet: artificial intelligence (AI), robotics, virtual and augmented reality (including the metaverse), and blockchain. While each of these technologies have existed for some time, they have entered the mainstream in a way we had not seen previously. They continue to evolve at pace and are expected to support a range of new consumer and small business activities in coming years.

The 2023 survey measures Australian consumer and small business knowledge of these emerging technologies, along with the perceived usefulness of, and competence with, a range of activities they enable. It explores the associated benefits, concerns and attitudes more generally, to help understand how consumers and small businesses might harness value from these technologies over time.

The research found many consumers and small businesses have limited knowledge of these emerging technologies, and few currently see the usefulness for their lives and businesses.

However, those with advanced knowledge are more likely to recognise the potential social and economic benefits they can provide.

This highlights the importance of building understanding so that more Australians are ready and able to access benefits, such as improved efficiency in everyday tasks, productivity gains and cost savings.

The research also identified data security, privacy, cost and availability as key barriers for consumers and small businesses. Improving the affordability of emerging technologies, particularly robotics and augmented and virtual reality, will open doors for Australians to better access the benefits associated with these technologies, while ongoing regulatory developments and amendments to safeguard consumers and businesses will support increased take-up.

We hope that our *Digital Lives of Australians 2023* research provides industry, government, the business and educational sectors a strong understanding of Australians' readiness for emerging technologies and stimulates rich discussion that enables Australians to access further social and economic value from the internet and internet enabled technologies.



Rosemary Sinclair AM
auDA Chief Executive Officer



Methodology overview

The findings in this *Digital Lives of Australians 2023: Readiness for emerging technologies* report are drawn from a survey of 1,500 consumers (Australian adults in the general population) and 407 small businesses (owners, managers, or decision makers) with between 1 and 19 employees. Fieldwork was conducted between 20-28 July 2023.

This research builds on the *Digital Lives* research conducted in 2021 and 2022. This year's report provides a focussed snapshot on Australian consumer and small business knowledge and perceptions of and readiness to adopt emerging technologies. Key questions from the 2021 and 2022 studies were retained for comparison purposes.

Throughout the report these icons are used to indicate findings for consumers, small businesses and emerging technologies in focus.



Consumers



Small business



Artificial intelligence (AI)



Blockchain



Virtual and augmented reality



Robotics

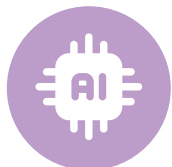
Technical details:

- Survey participants were sourced via commercial opt-in research panels and rewarded with points upon completion. Participation was on a voluntary, opt-in basis.
- Weighting was applied to reflect the general population more accurately, using rim weighting. Weighting for the consumer sample factored in age, gender, geographic location, education level and workforce participation. Weighting for the small business sample included industry sector and geographic location.
- The margin of error (at the 95% confidence interval) for the total consumer sample is +/- 2.5% and among small businesses is +/- 4.9%.
- Data differences described as 'significant' are statistically significant at a 95% confidence level. Significant differences are denoted with arrows.
- SEC Newgate Research is accredited to ISO 20252:2019 and is a partner company of The Research Society.

Disclaimer: In preparing this report we have presented and interpreted information that we believe to be relevant for completing the agreed task in a professional manner. It is important to understand that we have sought to ensure the accuracy of all the information incorporated into this report. Where we have made assumptions as a part of interpreting the data in this report, we have sought to make those assumptions clear. Similarly, we have sought to make clear where we are expressing our professional opinion rather than reporting findings. Please ensure that you take these assumptions into account when using this report as the basis for any decision-making. The qualitative research findings included throughout this report should not be considered statistically representative and cannot be extrapolated to the general population. This project was conducted in accordance with AS: ISO2025:2019 guidelines, to which SEC Newgate Research is accredited.

Emerging technologies in focus

Overview of the four emerging technologies explored in this research.



Artificial intelligence (AI)

AI refers to the ability of machines or computer systems to mimic human intelligence. AI systems can recognise patterns, make predictions, and adapt to new information without being explicitly programmed for each specific task. AI algorithms can also facilitate automated decision-making.

AI is present in many aspects of our everyday lives such as customer service chatbots, predictive text for emails, targeted ads for e-commerce, and smart home assistants. Social media and music and video streaming platforms use AI to personalise and curate the content users see in their feeds.



Virtual and augmented reality (including the metaverse)

Augmented reality (AR) is a technology built to 'extend reality', allowing users to experience the real world with interactive digital elements. This is achieved through a device such as a phone, tablet, headset or glasses layering digital images over the world you see around you. There are many applications for personal and business use, such as Google's Translate app that detects and translates text in images and video, and applications for warehouses to make product picking, packing and inventory management more efficient.

Virtual reality (VR) immerses you in virtual worlds or spaces through the use of a headset and a screen displaying the virtual environment. These headsets also use a technology called head tracking, which allows you to look around the environment by physically moving your head. The display will follow the direction you move, giving you a 360-degree view of the virtual environment.

The **metaverse** refers to a virtual reality space where people can interact with each other and digital objects in a shared, immersive environment.



Blockchain

Blockchain is like a digital ledger that securely records information and transactions in a transparent and decentralised way. Depending on the technological architecture of blockchains, i.e. whether they are public or private, blockchains have different attributes. Public blockchains such as Ethereum don't rely on a single authority; instead, many computers work together to keep the records immutable. The information is stored in sequentially linked 'blocks' forming an irreversible chain of recorded information. Blockchains can track and trade virtually anything, whether they are physical items (a house, car, land), or intangible assets (intellectual property, copyrights). Common examples of this technology include cryptocurrency (i.e. Bitcoin, Ether) and non-fungible tokens (NFTs).



Robotics

Robotics are the intersection of science, engineering and technology that produces machines called robots, that replicate or substitute human actions. Inserting a computer program into a robot gives it the ability to know when and how to carry out a task. They can be found in a range of settings including customer service in restaurants or hotels, assisting law enforcement, or supporting surgical procedures.

The internet continues to deliver wide-reaching value



This year's survey finds that the internet continues to play an invaluable role in the everyday lives of most Australian consumers and small businesses. Almost all consumers (98%) feel the internet adds at least some value to their lives. This is unchanged from 2021 and 2022.

However, this year fewer consider the internet 'invaluable - they couldn't live without it' (23%, down from 32% in 2022). A similar pattern is evident among small businesses. Slightly fewer feel the internet adds some value (94% vs 98% in 2022), and they are less likely to say their business could not function without it (36%, down from 42% last year).

This year, fewer consumers in the workforce say they depend on the internet for their job (51%, down from 58% last year). This is likely to reflect the steady return to physical workplaces following the shift to remote working during the COVID-19 pandemic.

Interestingly, consumer confidence in using the internet has weakened, albeit slightly and from a strong starting point.

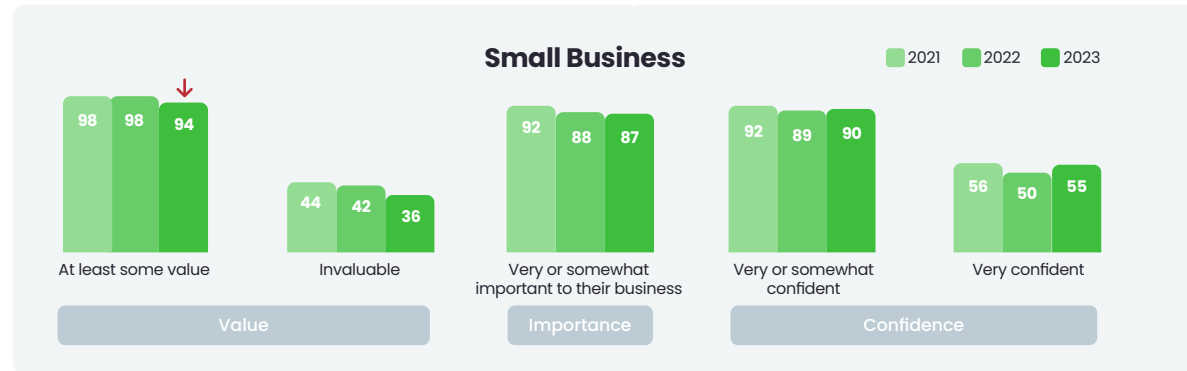
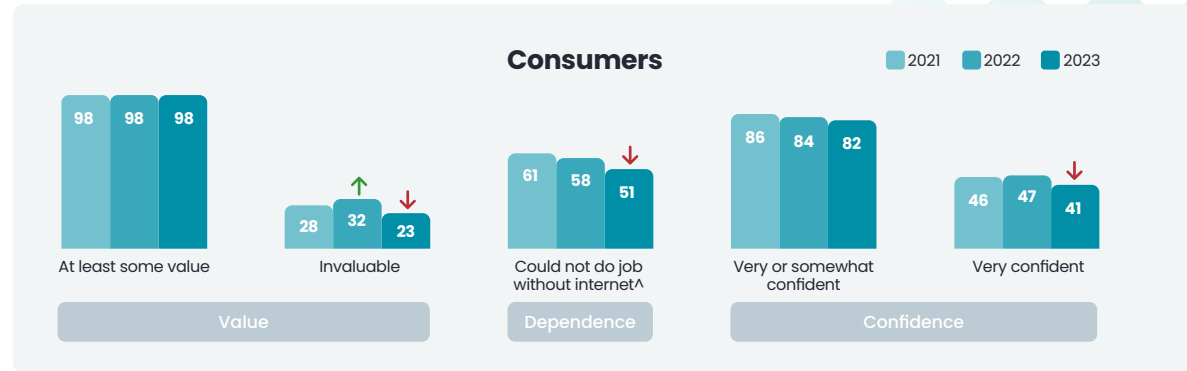
Most (82%) report feeling either somewhat or very confident compared to 84% last year and 86% in 2021.

No such decline is evident for small businesses, with nine in 10 (90%) confident overall, in line with last year (89%).

Verbatim comments from consumers indicate that confidence using the internet is most impacted by a lack of ability to do certain online activities, concerns about data security and privacy, and feeling anxious about a lack of help and support. These issues are more common among older consumers who didn't grow up with the internet.

Lower order issues affecting confidence included change fatigue (trying to keep up with the pace of change of the internet and associated technologies) and concerns about online scams and digital security. For most consumers the emergence of the technologies explored in this report does not appear to undermine their overall confidence using the internet.

Value of the internet - key metrics (%)



"I can use the internet enough to keep my business running. Traditionally, agriculture was a hands-on industry but now we are like everyone else – forced to go online."

Small business, Regional NSW
female aged 18-34



"I'm confident navigating the internet and finding information I'm after but I'm hesitant about whether I can trust the information I find and worried about security when I'm online."

Consumer, Metro NSW
female aged 35-49



"I need to use the internet daily for work purposes, but I am concerned about safety and security."

Small business, Metro VIC
male aged 50-69



Despite broad awareness, detailed knowledge of emerging technologies is somewhat limited



There are mixed levels of awareness about the emerging technologies. A majority of respondents have heard of AI and robotics, but few feel confident they could explain any of the technologies to others. Those operating small businesses know more about these technologies than consumers.

AI is the most well-known of the four technologies, with 63% of consumers and 80% of small businesses reporting they know *at least a little* about it. However, despite a proliferation of news and content about AI in the past 12 months, only 6% of consumers and 12% of small businesses would be confident explaining AI to others, while 37% of consumers say they know nothing at all or not much about it.

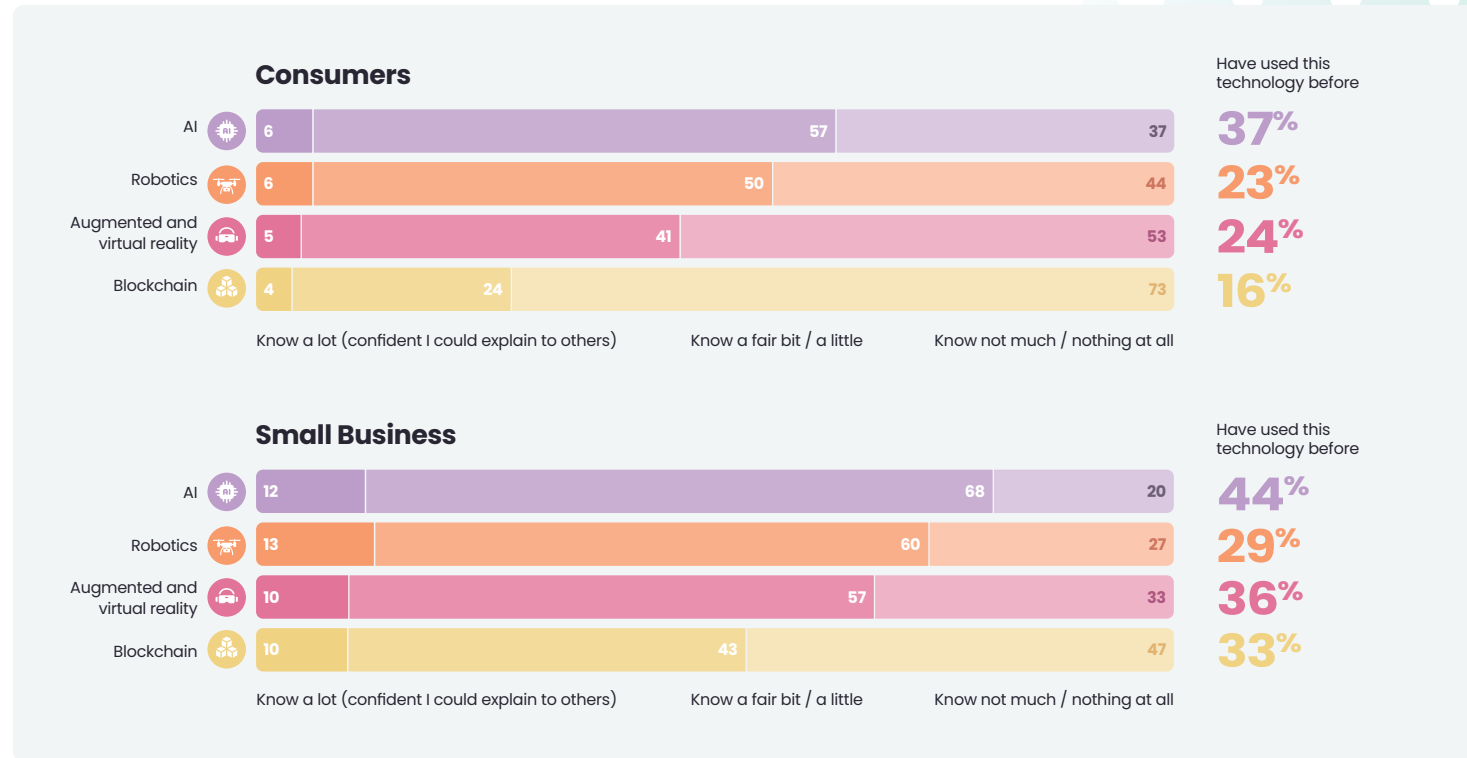
AI also has the highest reported usage among the four emerging technologies. More than a third of consumers (37%) say they've done at least one AI enabled activity before, and usage is higher among small businesses (44%).

Robotics is reasonably well understood, with 56% of consumers and 73% of small businesses knowing *at least a little* about it. However, only around a quarter of both consumers (23%) and small businesses (29%) report having used robotics.

Augmented and virtual reality is less well known, with fewer than half (47%) of consumers and just two thirds (67%) of small businesses knowing *at least a little* about it. More than a third (36%) of small businesses have had some experience of using virtual and augmented reality while around a quarter of consumers (24%) have done so.

Blockchain is the least well-known, with only 27% of consumers and 53% of small businesses knowing *at least a little* about it. Almost three quarters (73%) of consumers know very little about blockchain, indicating it is a way from reaching broad awareness in the way AI and robotics have already done. Blockchain also has the lowest usage to date, with only 16% of consumers and 33% of small business having done any activities that are underpinned by blockchain.

Knowledge and usage (%)



Across all four emerging technologies, knowledge and usage is higher among:



Younger consumers (aged 18-49 years)



Higher income households



Male consumers



Full-time and self-employed workers



Those who report higher confidence using the internet

AI enters the spotlight



ChatGPT propelled AI into the mainstream this past year and has become synonymous with AI technology but many Australian consumers started using AI long before ChatGPT came along – possibly without realising it.

AI has been used for more than a decade. However, it was the launch of the generative AI application ChatGPT in November 2022 that really caught the attention of the general public and regulators. Since this time, a range of so-called large language models and applications have been released.

In the *Digital Lives 2023* survey, only one in four consumers (25%) could name an application or tool that uses AI, when asked unprompted. Not surprisingly, ChatGPT is the most mentioned (14%). Unprompted awareness is higher among small businesses, with 40% able to name at least one AI tool or application and they too are most likely to mention ChatGPT (23%).

When prompted with a list of tools and apps that use AI, net awareness of any one of these rises to 79% among consumers and 87% among small businesses. When prompted, people are more aware of older AI-powered apps and tools like Siri, Alexa and Google (various) than ChatGPT. Surprisingly, only a third (34%) of all consumers and fewer than half (45%) of all small businesses say they've heard of ChatGPT when prompted.

These findings illustrate a high level of latent familiarity with activities that utilise AI yet emphasise a lack of knowledge about how AI underpins these technologies that are well entrenched in people's everyday lives.

Awareness of AI tools (%)



Awareness of any AI platform



The potential value of emerging technologies is not yet widely recognised by consumers



Participants were shown a range of activities enabled by the four emerging technologies and asked to select the activities they thought would be useful in their personal life and work life (if relevant).

Only a small proportion of consumers feel any of these activities would be useful. Apart from robot cleaning devices, no more than one in five consumers feel any of the activities would be useful either in their personal or working lives.

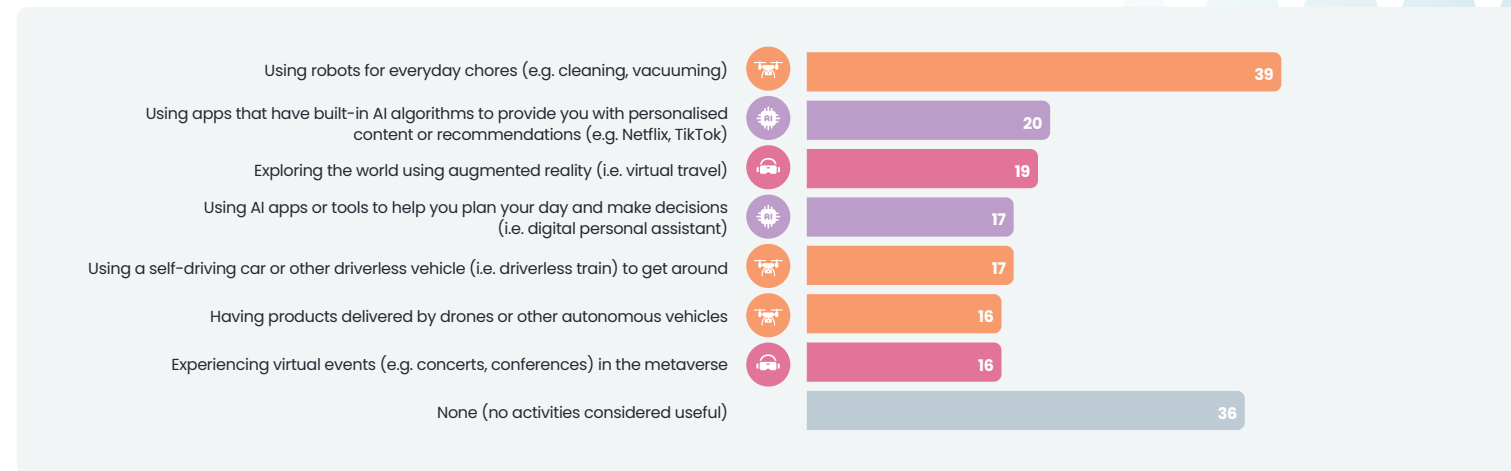
More than a third (36%) of all consumers feel that none of these activities would be useful in their personal life. This is significantly more common among:

- Older consumers (aged 50+ years)
- Retirees
- Households with no dependent kids at home
- Lower income households
- Those who report lower confidence using the internet
- Those who feel the internet adds little or no value to their lives.

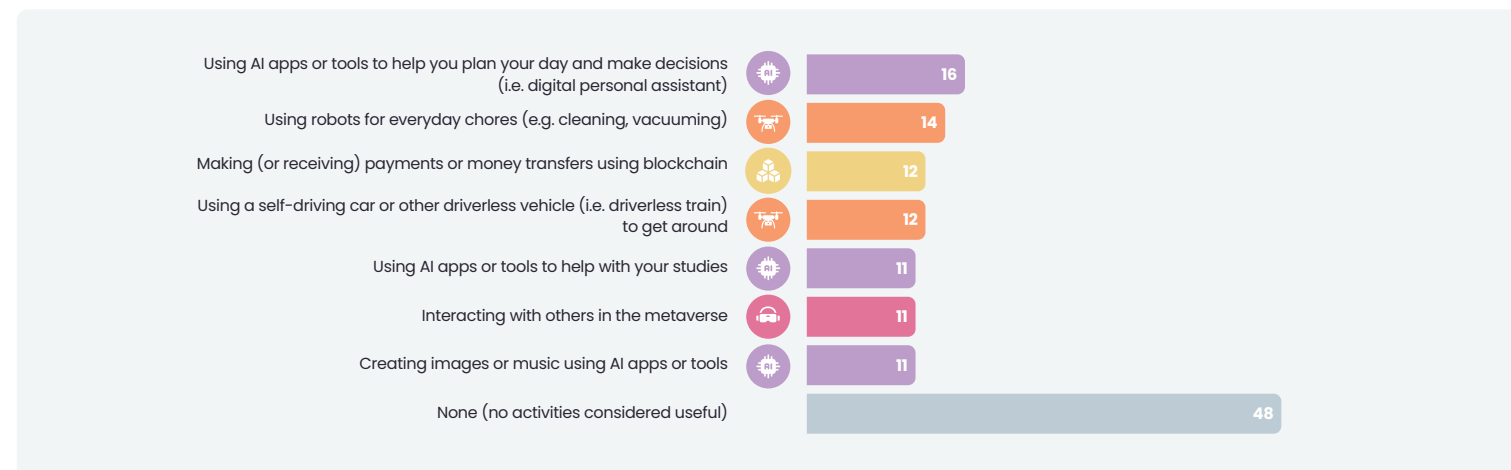
Almost half (48%) of those in the workforce see no use for these activities at work. This is more common among those who:

- Are employed part-time or casually
- Describe their occupations as a general labourer or manual worker, or a non-managerial office, sales or service worker (while professional, managerial or other executives are most likely to feel the activities are useful)
- Say they can do their job without the internet.

Emerging tech activities considered useful in personal life (%)



Emerging tech activities considered useful in work life (%)



Consumer readiness is limited to certain activities enabled by emerging technologies

A high proportion of consumers are new to these activities – either at beginner level (needing a lot of guidance) or have never used them before. They consider themselves most competent (although may still need some guidance) using:

- Apps with built-in AI algorithms to provide personalised content or recommendations (e.g. Netflix, TikTok)
- Robots for everyday chores (e.g. cleaning, vacuuming)
- AI apps or tools to help plan days and make decisions (i.e. like a digital personal assistant).

Among the small proportion of consumers who reported having tried these activities, they feel least competent having products delivered by drones or other autonomous vehicles, registering blockchain domain names (to use for a website or email address) and using a self-driving car or other driverless vehicle (i.e. driverless train).

It is likely that these results are due to limited knowledge about the underlying technologies, and limited exposure to these activities to date. It is also notable that the activities consumers feel most competent with are relatively 'passive' in terms of how they are used, whereas activities with lower competency might be considered more technical and those requiring a greater degree of skill to perform.



Consumer readiness is limited to certain activities enabled by emerging technologies cont.



The diagram below shows the intersection of perceived usefulness and self-rated competence for each activity and reveals three broad groupings that depict consumers' readiness for the emerging technologies.

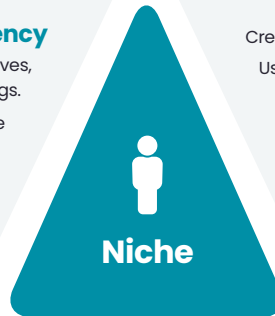
Consumer

Lower usefulness and competency

Relatively few consumers perceived these activities would be useful to their lives, and few felt confident in their ability to do these things.

Some of these activities (such as using AI to test and refine programming code) are complex in nature, requiring a high degree of skill and knowledge. Some (such as registering a blockchain domain name) would be one-off activities and some (such as using AI to help with studies) are relevant to only a small group of consumers. Others (such as activities within the metaverse) are still very new with limited availability at present.

For these reasons these activities are likely to remain niche for now and may not achieve the same widespread take-up as the established and growing activities.



- Creating images or music using AI apps or tools
- Using AI apps or tools to help with studies
- Using AI apps or tools to test and refine programming code
- Investing in cryptocurrencies, NFTs or other digital assets that use blockchain
- Making (or receiving) payments or money transfers using blockchain
- Registering blockchain domain names (to use for a website or email address)
- Interacting with others in the metaverse
- Playing interactive games in the metaverse
- Buying goods or services in the metaverse

Moderate usefulness and competency

These 'growing' activities had moderate levels of perceived usefulness and competence.

They are all anchored in already common day-to-day experiences (driving, delivery, planning, travel attending events) and therefore may have a relatively low learning curve. Current ability to perform these activities is restricted by limited opportunity to do them.

It can be reasonably expected that take-up of these activities will grow as they become more readily available, and if other barriers (such as cost) are reduced.



- Using AI apps or tools to help you plan your day and make decisions (i.e. like a digital personal assistant)
- Using a self-driving car or other driverless vehicle (i.e. driverless train) to get around
- Having products delivered by drones or other autonomous vehicles
- Exploring the world using augmented reality (i.e. virtual travel)
- Experiencing virtual events (e.g. concerts, conferences) in the metaverse

Higher usefulness and competency

Two activities stood out as having the most widespread perceived usefulness, and relatively high competence – using AI algorithms to deliver personalised content and robotic devices for household chores.

These 'established' activities have been available to consumers for some time and neither require a particularly high level of skill so can be easily adopted at a mainstream level.



- Using apps that have built-in AI algorithms to provide you with personalised content or recommendations (e.g. Netflix, TikTok)
- Using robots for everyday chores (e.g. cleaning, vacuuming)

Emerging technologies offer many benefits to consumers but data security and privacy are key concerns



The tables opposite and on the following page show the benefits and concerns that are most strongly associated with consumer activities enabled by each of the four emerging technologies.

When prompted, consumers see a range of potential benefits from activities enabled by the emerging technologies. Many activities, especially those that utilise robotics, promise benefits of **efficiency** (saving time or effort) and **convenience** (making things easier). In an increasingly busy world, these are highly valuable benefits that underline the potential value these technologies could bring to Australians.

Other benefits associated with certain activities include **organisation** (managing administrative tasks), **learning** (improving knowledge and understanding), **financial** (making or saving money), **connection** (interacting or communicating with others), **recreation** (fun and enjoyment), and **relaxation** (to unwind and feel calm).

These potential benefits are counterbalanced by a range of concerns that may be barriers to adoption of these activities. Worry about **data security** and **privacy** is a prominent concern, for activities across all emerging technologies (except robotics).

Other concerns include being too **expensive** to acquire or use (especially for robotics), that **quality** may be poor, that outputs may include **inaccuracies** or incorrect details, **access*** (the availability of these activities), physical **safety** (for autonomous vehicles), and **knowledge** (not knowing enough about them).

Skill deficits (not knowing how to use it or where to seek help) are not as significant of a barrier as the above but are more pronounced for certain digital activities. These include registering blockchain domain names, and exploring the world using augmented and virtual reality (to interact with others, attend virtual concerts, buy goods or services, play interactive games).



Artificial Intelligence

AI supports activities for content generation and curation, and automation of repetitive tasks.

| | Using AI apps or tools to help you plan your day and make decisions (e.g. digital personal assistant) | Creating images or music using AI apps or tools | Using apps that have built-in AI algorithms to provide you with personalised content or recommendations (e.g. Netflix, TikTok) | Using AI apps or tools to test and refine programming code | Using AI apps or tools to help with your studies |
|----------|--|---|--|---|---|
| Benefits | <p>77% Efficiency[^]</p> <p>Organisation 54%[^] Convenience 52%[^]</p> | <p>52% Recreation</p> <p>Efficiency 51%[^] Convenience 36%</p> | <p>51% Recreation</p> <p>Efficiency 48%[^] Convenience 43%</p> | <p>65% Efficiency[^]</p> <p>Productivity 44%[^] Relaxation 38%</p> | <p>67% Efficiency[^]</p> <p>Learning 56% Convenience 46%</p> |
| Concerns | <p>33% Data security[^]</p> <p>Privacy 31%[^] Accuracy 23%</p> | <p>29% Accuracy[^]</p> <p>Quality 26%[^] Knowledge 26%</p> | <p>40% Accuracy[^]</p> <p>Knowledge 38%[^] Privacy 28%</p> | <p>34% Quality</p> <p>Accuracy 31%[^] Data security 24%</p> | <p>37% Accuracy</p> <p>Expense 25%[^] Privacy 24%[^]</p> |

Emerging technologies offer many benefits to consumers but data security and privacy are key concerns cont.



Robotics

Robotics offers practical solutions to simplify routine tasks.

Benefits

| Using robots for everyday chores (e.g. cleaning, vacuuming) | Having products delivered by drones or other autonomous vehicles | Using a self-driving car or other driverless vehicle (i.e. driverless train) to get around |
|---|--|--|
| 80% Efficiency | 74% Efficiency [^] | 64% Efficiency [^] |
| Convenience 70% Relaxation 27% | Convenience 64% Financial 35% [^] | Convenience 56% Relaxation 33% [^] |

Concerns

| | | |
|---|---|---|
| 51% Expense | 47% Expense [^] | 56% Expense |
| Quality 25% [^] Access 21% [^] | Access 32% Accuracy 26% [^] | Access 44% Physical safety 39% |



Virtual and augmented reality

Activities enabled by VR and AR support human connection, recreation, inspiration and knowledge building.

| Interacting with others in the metaverse | Playing interactive games in the metaverse | Experiencing virtual events (e.g. concerts, conferences) in the metaverse | Exploring the world using augmented reality (i.e. virtual travel) | Buying goods or services in the metaverse |
|--|---|---|---|---|
| 61% Connection [^] | 62% Recreation | 63% Recreation | 70% Recreation | 70% Efficiency |
| Recreation 48% Efficiency 46% [^] | Relaxation 48% Learning 28% [^] | Efficiency 54% [^] Relaxation 48% | Relaxation 50% Learning 42% | Convenience 54% Financial 45% [^] |
| 45% Privacy [^] | 32% Expense [^] | 30% Access | 43% Expense [^] | 33% Data security |
| Data security 34% [^] Knowledge 24% [^] | Data security 28% Privacy 25% | Expense 28% Quality 28% [^] | Knowledge 32% Privacy 28% | Knowledge 32% Privacy 30% |



Blockchain

Blockchain is most typically associated with security (peace of mind) and financial benefits.

| Making (or receiving) payments or money transfers using blockchain | Investing in cryptocurrencies, NFTs or other digital assets that use blockchain |
|--|---|
| 50% Efficiency [^] | 72% Financial |
| Security 45% Financial 43% | Efficiency 35% [^] Learning 33% |
| 32% Data security | 33% Data security |
| Knowledge 29% [^] Accuracy 25% | Knowledge 31% [^] Accuracy 30% [^] |

Few small businesses recognise the potential value in activities enabled by emerging technologies



Small business participants were shown a range of activities enabled by the four emerging technologies and asked which activities would be useful to their business.

Like consumers, only a small proportion of small businesses feel any of the activities enabled by the emerging technologies might be useful to their business, either now or in the future. Around three in 10 feel that none of the activities could be of use to their business, either today or in the future.

As the chart shows, activities underpinned by AI and virtual and augmented reality seem to offer the greatest value to small businesses.

Using AI chatbots to provide customer service holds the widest appeal. However, while AI chatbots may be useful to small businesses, consumers may not be ready for this development. In a separate question in the survey, only 26% of consumers agreed they would be just as happy to interact with an AI chatbot as they would be with a human when they need service (44% disagreed). Small businesses that look to implement AI chatbots will need to consider these possible customer concerns. Refer to page 21 for more on consumer expectations around the use of AI.

Small business participants feel most competent with activities that use AI such as:

- Providing customer service via chatbots
- Generating marketing communications and content using AI apps or tools
- Creating drawings and plans with AI tools.

They are least competent with robotics related activities: automated guided vehicles, self-driving cars or other driverless vehicles, and sending or receiving goods using drone delivery.

Emerging tech activities considered useful to small business (%)



Few small businesses recognise the potential value in activities enabled by emerging technologies cont.

The diagram below shows the intersection of perceived usefulness and self-rated competence for each activity among small business participants. This reveals two broad groupings that depict their readiness for the emerging technologies.



Small business

Lower usefulness and competency

Relatively few small businesses perceived these activities would be useful, and few felt confident in their ability to do these things.

There may be several reasons for the limited usefulness including that these activities may not be relevant to many small businesses due to the nature of their business. As such, these may remain niche activities.



Niche

- Using a self-driving car or other driverless vehicle (i.e. driverless train) to get around
- Sending or receiving goods using drone delivery
- Using automated guided vehicles to transport items within your business premises
- Registering blockchain domain names (to use for a website or email address)
- Creating smart contracts (e.g. leases or agreements) using blockchain
- Using virtual reality to showcase products to potential buyers
- Providing staff training or simulation exercises using VR

Higher usefulness and competency

While there were no activities that might be considered 'established' among small businesses, several activities appear to have potential to grow.

These activities were most widely viewed as useful by small businesses and it is easy to see why. Many relate to important day-to-day business functions such as customer service, production, marketing, and communications.

Current competence was relatively higher for these activities however only a small proportion considered themselves to have an 'advanced' skill level with any of these activities. Increasing capability will be essential for the ongoing adoption of these activities, along with addressing the concerns detailed over the following pages.



Growing

- Using AI apps or tools to generate marketing communications and content, including social media posts or blogs
- Creating images or music using AI apps or tools
- Using AI chatbots to provide customer service
- Using AI apps or tools to create drawings and plans
- Using AI apps or tools to test and refine programming code
- Using robotics to automate repetitive tasks (e.g. assembly, packaging)
- Making (or receiving) payments or money transfers using blockchain
- Promoting your business or selling products / services in the metaverse
- Having virtual meetings with colleagues or clients in the metaverse

Small businesses expect emerging technologies to drive efficiency but cost and availability are barriers



The tables opposite and on the following page show the benefits and concerns most strongly associated with small business activities enabled by each of the four emerging technologies.

Among small businesses, **efficiency** (saving time or effort) is considered the main benefit, or a close second, for all the activities that were explored across each of the emerging technologies.

Other benefits varied by activity and included **productivity** (improving business performance), **financial** (making or saving money), **connection** (interacting or communicating with others), **convenience** (making things easier), **learning** (improving knowledge and understanding), **inspiration** (prompting new ideas), and **quality** (better outcomes or experiences).

A primary concern among small business is **inaccurate or incorrect details**, especially for the activities related to AI and blockchain. Given these tools would be used to generate customer-facing content or communications, this is an understandable concern as it could lead to reputational issues for businesses if something goes wrong.

Other concerns are that it will be **expensive** to acquire or use the tools needed for these activities, a perceived lack of **availability** at present, and uncertainty about the **quality** of outputs. Concern about **data security** and **privacy** are most prevalent for activities that use AI and blockchain.

Knowledge or skill deficits (don't know enough, don't know how to use it, expect it to be difficult, too time consuming to learn/use) are most pronounced for activities using augmented and virtual reality. This technology seems to have an expectation of a large learning curve.



Artificial Intelligence

AI can help small business to be more efficient and productive across various business activities. It also offers a source of inspiration and financial benefits.

| | Using AI apps or tools to generate marketing communications and content, including social media posts or blogs | Creating images or music using AI apps or tools | Using AI apps or tools to test and refine programming code | Using AI chatbots to provide customer service | Using AI apps or tools to create drawings and plans |
|----------|--|---|---|--|--|
| Benefits | <p>62% Efficiency</p> <p>Productivity 40% Inspiration 33%</p> | <p>46% Efficiency</p> <p>Convenience 37% Inspiration 36%</p> | <p>63% Efficiency</p> <p>Learning 43% Financial 37%</p> | <p>56% Efficiency</p> <p>Connection 42% Financial 37%</p> | <p>64% Efficiency</p> <p>Convenience 34% Productivity 34%</p> |
| Concerns | <p>27% Accuracy</p> <p>Quality 20% Privacy 13%</p> | <p>34% Privacy</p> <p>Time consuming to learn/use 25% Access 25%</p> | <p>35% Accuracy</p> <p>Data security 26% Quality 24%</p> | <p>25% Accuracy</p> <p>Data security 20% Access 18%</p> | <p>28% Accuracy</p> <p>Data security 28% Access 26%</p> |

Small businesses expect emerging technologies to drive efficiency but cost and availability are barriers cont.



Robotics

Robotics offers the potential to expedite business activities in operations and transport.

Benefits

Concerns

| | Using automated guided vehicles to transport items within your business premises | Using robotics to automate repetitive tasks (e.g. assembly, packaging) | Sending or receiving goods using drone delivery | Using a self-driving car or other driverless vehicle (i.e. driverless train) to get around |
|---|--|--|---|--|
| 62% Efficiency | 56% Efficiency | 75% Efficiency | 36% Efficiency | |
| Financial 36% Connection 33% | Convenience 35% Financial 32% | Convenience 52% Connection 32% | Quality 30% Convenience 28% | |
| 31% Access | 32% Access | 28% Access | 36% Expense | |
| Expense 24% Accuracy 21% | Expense 32% Knowledge 18% | Privacy 21% Time consuming to learn/use 20% | Access 26% Quality 17% | |



Virtual and augmented reality

Virtual and augmented reality can enable new ways for small businesses to connect and interact with staff and customers.

| Providing staff training or simulation exercises using virtual reality | Having virtual meetings with colleagues or clients in the metaverse | Promoting your business or selling products / services in the metaverse | Using virtual reality to showcase products to potential buyers |
|--|---|---|--|
| 53% Learning | 54% Efficiency | 51% Efficiency | 47% Efficiency |
| Efficiency 40% Financial 37% | Connection 43% Learning 36% | Financial 48% Connection 41% | Connection 40% Quality 37% |
| 34% Expense | 30% Quality | 30% Expense | 31% Expense |
| Data security 28% Time consuming to learn/use 26% | Privacy 21% Knowledge 19% | Access 23% Privacy 23% | Privacy 22% Access 22% |



Blockchain

Blockchain offers potential efficiency and financial gains for small businesses.

| Making (or receiving) payments or money transfers using blockchain | Creating smart contracts (e.g. leases or agreements) using blockchain |
|--|---|
| 52% Financial | 59% Efficiency |
| Efficiency 45% Security 44% | Financial 57% Security 40% |
| 24% Privacy | 30% Privacy |
| Data security 23% Accuracy 23% | Access 27% Accuracy 25% |

Small businesses expect emerging technologies to drive efficiency but cost and availability are barriers cont.

The previous *Digital Lives* studies in 2021 and 2022 found that small businesses value the internet most for the ability to connect with customers and promote their business. The emerging technologies explored in this year's survey provide new ways for small business to achieve these outcomes.

Saving time by doing things more efficiently and/or effectively is a promise of many new technologies and the technologies explored in this survey are no different. In addition to the perceived benefits of activities enabled by emerging technologies, the survey also found that many small businesses believe AI (62% agree) and robotics (59% agree) will free them up to spend time on other important business activities.

It's important that businesses keep pace with technology changes to be able to leverage productivity and efficiency gains. There is also a role for government and industry to support small businesses to ensure they are equipped with the knowledge and skills required to adopt these emerging technologies and realise the potential benefits they can provide.



Emerging technologies are here to stay but their potential impacts are unclear



Few consumers believe technologies such as AI and robotics are merely a short-term fad, but the longer-term societal or economic value those technologies could offer is not obvious (let alone known).

Fewer than one in five consumers agree that robotics and AI are passing fads (19% and 18% respectively), with no long-term potential, yet less than half definitively disagree with this statement, and more than a third are unsure – highlighting not just the public’s lack of understanding but also that these technologies are associated with many unknowns.

This uncertainty is more pronounced for the anticipated long-term viability of blockchain, and augmented and virtual reality.

A likely reason for this uncertainty is that many consumers do not know how these technologies will deliver positive social and economic benefits. Articulating and demonstrating the potential for these technologies to add value to the everyday lives of Australian consumers and small business’ will be paramount to their continued adoption and longevity.

Almost one in two consumers agree that robotics will have a positive impact on society. It may be that the more tangible, visible nature of this technology – seen for example in autonomous vehicles and robot cleaners – allows an easier demonstration of their inherent value.

Of the four technologies explored in this study, blockchain has the most uncertainty regarding its potential social and economic impacts. The results suggest that it may remain a niche offering for the foreseeable future.

Attitudes towards emerging technologies (%)



With knowledge comes greater appreciation, but also stronger caution



The charts opposite and on the following page highlight attitudinal differences between those with higher or lower knowledge about each emerging technology.

Those with greater knowledge of emerging technologies are more likely to agree the technologies will deliver positive social and economic outcomes, and to recognise benefits such as providing users with more time, improved efficiency and productivity, and fostering digital inclusion by enabling people to connect in ways not previously possible.

However, they are also more likely to feel that more regulation is needed, perhaps due to their insights into the potential risks associated with these technologies.

Since the research was undertaken in July 2023, the government committed to progressing work to enhance the privacy protections provided to individuals and ensure Australian businesses have clarity about what information is covered by the *Privacy Act 1988* (Cth) and how to best protect this information.

Further, the government has signalled its intention to soon release its 2023-2030 National Cyber Security Strategy. The government is also working on the national Digital Identity system and underlying legislation, which aims to ensure personal and sensitive information is kept private and secure. It is expected that emerging technologies will play a role in the delivery of Digital Identity services.

These policy developments and regulatory reforms are essential to build and enhance Australians' trust and confidence in the digital economy and digital services provided by governments and industry¹.

Attitudes towards emerging technologies: by level of knowledge (% agree)



Higher knowledge = know a lot or a fair bit

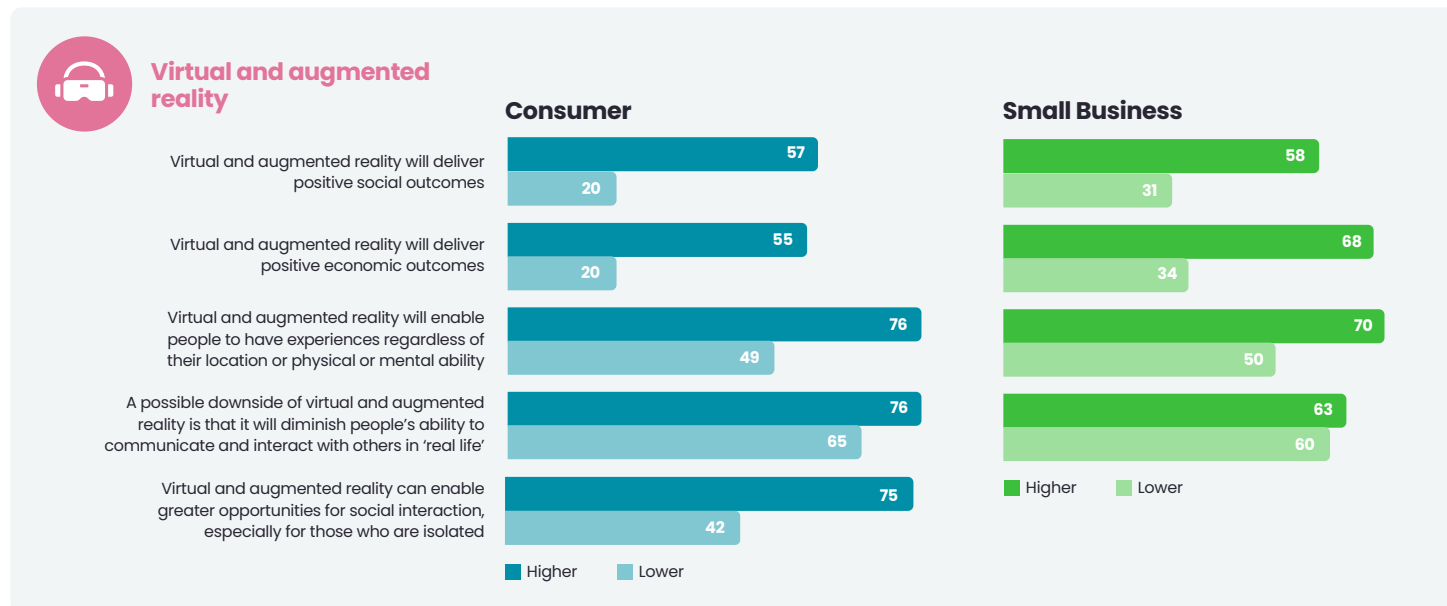
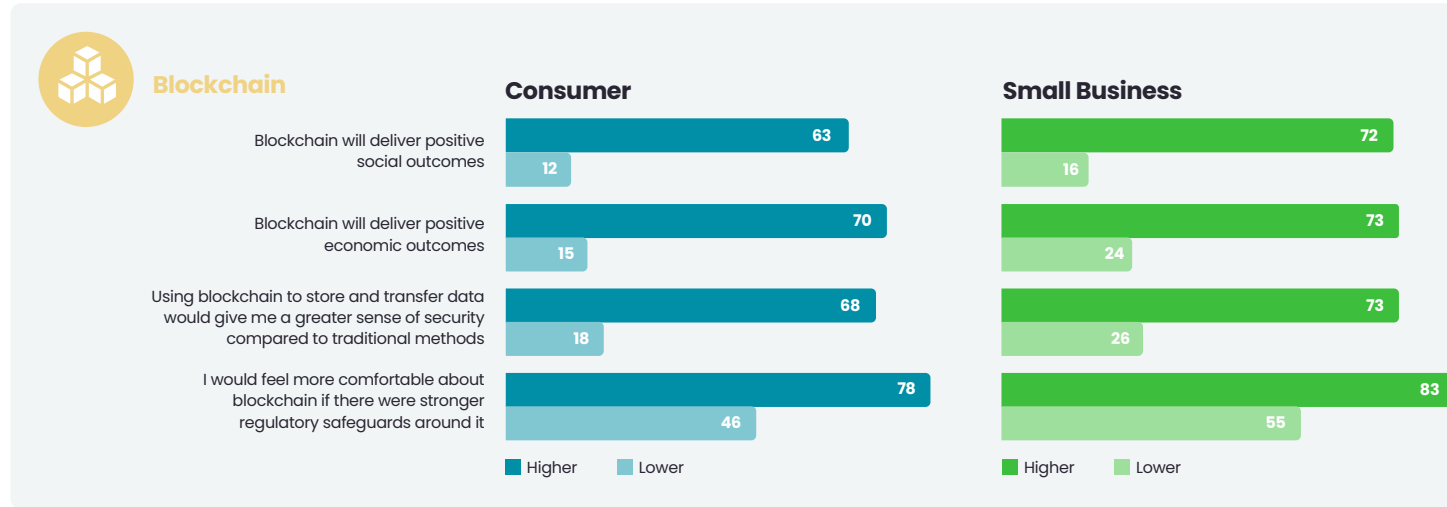
Lower knowledge = know not much or nothing at all

¹To find out more about auDA's approach to digital policy matters, see the [auDA Public Policy Agenda](#) and [auDA's public policy submissions page](#)

With knowledge comes greater appreciation, but also stronger caution cont.



Attitudes towards emerging technologies: by level of knowledge (% agree) cont.



Those with lower knowledge tend towards suggested negative impacts of the emerging technologies, such as AI causing unemployment, and virtual and augmented reality diminishing people's ability to interact in 'real life'. This reflects a common cognitive bias – the negativity bias – which explains our tendency to place more emphasis on the negatives than it does on equal positives. Less knowledge may mean that people don't know or understand the benefits and fill in the blanks with negative assumptions. By providing people with benefit led information, this could help people to correctly fill in these blanks and prevent a negativity cascade.

It's also common for people to have a low level of understanding about something when there are high levels of abstraction – such as in the case of emerging technologies. By providing tangible anchor points for these abstract and unfamiliar technologies, the benefits could be better realised. For example, providing evidence of emerging technologies benefiting society (i.e. earlier or more accurate detection of diseases in healthcare, detecting financial fraud, streamlining warehousing, logistics and shipping, reducing isolation for people in remote areas or with disabilities) could help shift anchors away from assumptions gleaned from negative media coverage or even sci-fi movies.

The new rules for using AI



Organisations wishing to utilise AI tools and apps must be mindful of strong expectations from consumers that they use these tools responsibly and are transparent about their use.

As seen earlier, concern about data security and privacy are among the biggest barriers to greater take-up of activities that leverage emerging technologies such as AI. When prompted with a list of six considerations for businesses that use AI tools, having appropriate privacy and security measures in place emerges as the most important issue.

A clear majority of both consumers and small businesses feel it's very or extremely important that businesses that use AI implement the processes listed in the table opposite.

With strong convictions around their importance, these safeguards may represent 'permission to play' for businesses that wish to leverage the potential benefits AI can offer. These findings suggest there may be negative consequences for businesses that fail to meet these expectations and highlight the strong demand for controls to be enforced as AI permeates into business functions – possibly in the form of regulatory controls.

While most of these steps relate to internal processes, the perceived importance of disclosure about the use of AI tools presents an especially interesting point of consideration and raises the question: what would adequate disclosure look like? In the absence of official disclosure rules or laws, businesses and sectors may look to develop their own standards.

Very or extremely important

| Consumers | | Small Business |
|-----------|--|----------------|
| 80% | Have appropriate privacy and security measures to protect personal data | 80% |
| 77% | Have appropriate measures in place to ensure ethical use of AI | 77% |
| 77% | Ensure outputs from AI apps or tools have been fact checked and are accurate | 75% |
| 76% | Have continuous human oversight and control | 77% |
| 75% | Ensure outputs from AI apps or tools are fair, ethical and unbiased | 75% |
| 72% | Disclose to customers and other stakeholders when and how AI is being used by the business | 72% |

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