AUSTRALIAN COMPETITION & CONSUMER COMMISSION

Digital platform services inquiry

Interim report 7: Report on expanding ecosystems of digital platform service providers

September 2023

Acknowledgement of country

The ACCC acknowledges the traditional owners and custodians of Country throughout Australia and recognises their continuing connection to the land, sea and community. We pay our respects to them and their cultures; and to their Elders past, present and future.

Australian Competition and Consumer Commission
23 Marcus Clarke Street, Canberra, Australian Capital Territory, 2601

ACCC September 2023
www.accc.gov.au

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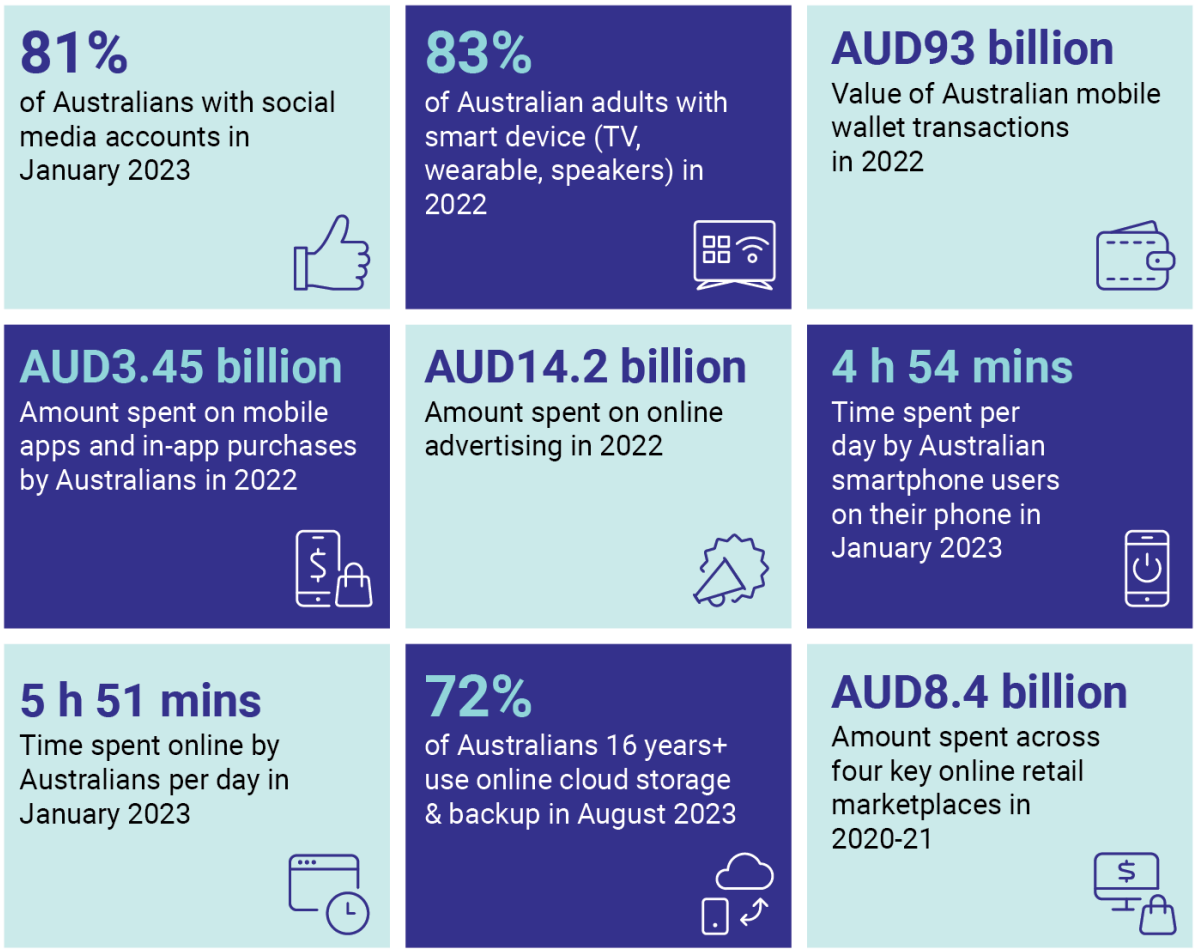
Executive Summary

This seventh interim report (Report) in the ACCC's five-year Digital Platform Services Inquiry (Inquiry) considers the expanding ecosystems of providers of digital platform services in Australia. The objective of this Report is to look at the broader impact on competition and consumers from the growing reach of large digital platform service providers.

Digital platform service providers have increasing reach

The Report focusses on the expansion of Alphabet (Google), Amazon, Apple, Meta and Microsoft. These firms each offer a variety of goods and services in Australia which have a significant impact on individuals, on our society, and on our economy. Online products and services are now integral to our everyday activities. As we increasingly study, work and play online, we become more reliant on services provided by large digital platforms.

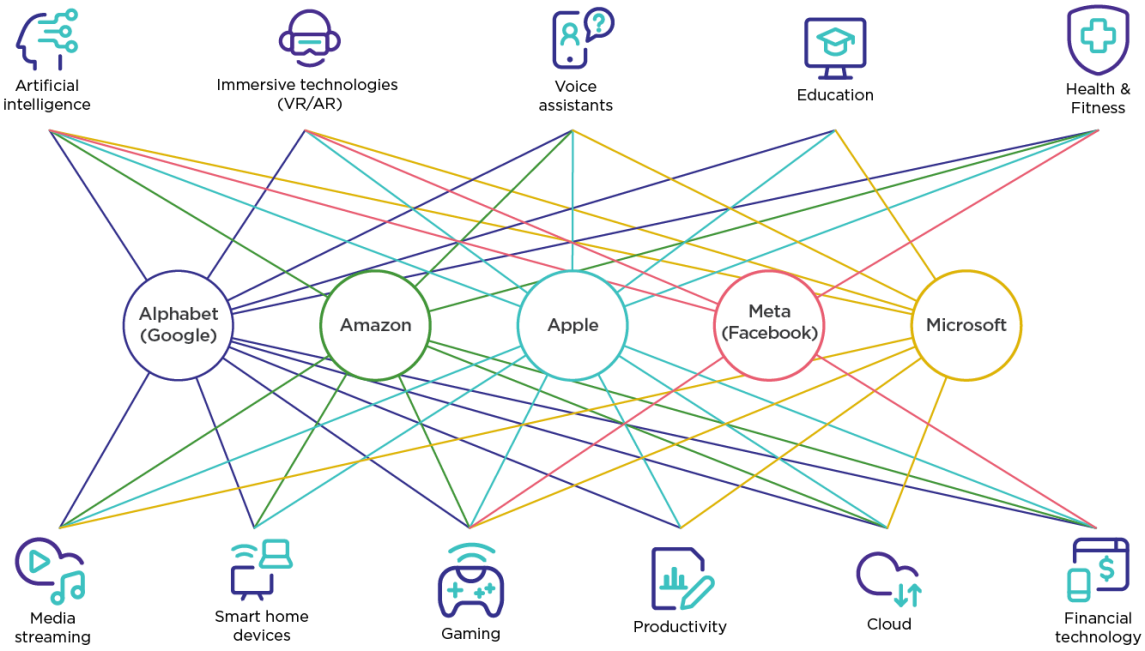


Sources: Data Reportal, IAB Australia, Australian Competition and Media Authority, ACCC, Australian Banking Association, Telsyte.[1]

[1] This infographic draws on statistics from a range of sources, primarily third-party sources. Where relevant, statistics in USD have been converted to AUD (see footnote 28). S Kemp, 'We are Social: Digital 2023 Australia', *Data Reportal*, 9 February 2023, accessed 14 September 2023, slides 26, 80; IAB Australia, Online advertising expenditure report CY22 &December quarter 2022, 26 February 2023, accessed 14 September 2023; ACMA, Communications and media in Australia series – How we use the internet: Executive summary and key findings, December 2022, p 4; ACCC, Digital Platform Services Inquiry Fourth Interim Report, 28 April 2022, p 20; Australian Banking Association, Bank on it: Customer Trends 2023, 7 June 2023, accessed 14 September 2023, p 3; Telsyte Australian Consumer Cloud Insights 2023.

As the ecosystems of digital platform service providers expand, the influence of those platforms on consumers grows. Digital platform service providers have extended their reach beyond their original offerings to generative artificial intelligence, health services, information storage, vast online retail marketplaces, education, mapping, music and financial products, just to name a few. The reach of digital platform service providers now involves products and services in many markets and multiple touch points with consumers. Australians are also increasingly reliant on services provided by digital platform service providers, such as productivity software tools, to work and communicate in business settings.

The Report uses smart home devices and consumer cloud storage services as examples of the expansion of digital platform service providers to delve into the expansion of digital ecosystems further.



Digital platforms have significant incentives to expand their ecosystems

Digital platform service providers have different 'core services' and platform business models that can critically impact how they behave in other markets. These 'core services' may reflect significant sources of revenue or market position. Despite their differences, digital platform service providers each have a significant ability and incentive to expand and interconnect their product and service offerings.

The size and scale of these digital platform service providers does not alone raise concerns. Big is not automatically bad. The expansion of digital platform service providers beyond their core range of services into services adjacent to or complementary to those core markets can provide benefits to consumers. However, there is a risk that this expansion may be driven by a desire to protect a position of market power or extend a position into new markets. This can occur by raising barriers to entry and expansion, or engaging in other behaviour that can have an exclusionary effect on actual or potential rivals.

The specific type of services offered by a platform will likely have an important impact on the platform's rationale for expansion, the choice of markets to expand into, and their ability

and incentive to engage in strategic behaviour. For example, firms that have advertising-based platforms at their core may expand into consumer-facing services to increase (or maintain) the number of viewers and the time they spend on these platforms. Similarly, a firm whose core services involve matching buyers and sellers may expand into services which attract (or maintain) both buyers and sellers, and better facilitate these interactions, for example, through offering payment services or delivery.

The ACCC has identified several drivers for, and factors enabling expansion that are common between digital platform service providers. In particular, platforms may expand for reasons including to:

- benefit from an extension of their existing economies of scale and scope
- gain access to additional data or additional users
- prevent future entry into their core markets by organic expansion into adjacent markets and acquisition of firms in adjacent (and core) markets
- establish a first-mover advantage in new technologies.

Digital platform service providers are also using a range of ways to interconnect their products and services. For example, consumer cloud storage is commonly bundled with other services, closely integrated with devices, and in some cases is no longer offered as a standalone product. Similarly, digital platform service providers offer interconnected suites of smart home device products and services. These suites include the devices, related software (such as voice assistants and companion apps) and additional first-party services (such as media streaming or cloud storage).

Consumers benefit from these interconnections through increased convenience and quality improvements. But these interconnections can also increase consumer switching costs, discourage users from purchasing new products and services outside the ecosystem, and otherwise increase barriers to entry and expansion for rivals who offer standalone services or who do not have access to substitute data or connected products and services.

Competition concerns may arise where firms with market power engage in harmful conduct

The ACCC considers that the creation of large multi-product ecosystems in fast-moving and fluid markets could give rise to harms to competition and consumers.

When a digital platform service provider with market power uses their position to deprive or limit customer choice, or limit or deter innovation by competitors, competitive harm may occur. This can occur through practices such as bundling and tying of products, pre-installation, and default settings. It can also occur through self-preferencing, when a digital platform service provider gives preferential treatment to its own products and services over those of third parties.

These are common commercial practices which may have consumer benefits. However, they may have anti-competitive effects where a firm has substantial market power in one market and, by way of bundling or tying or self-preferencing, raises the costs or reduces the revenues of rivals, rendering them less competitively effective. Similarly, where a firm has market power, the pre-installation and default settings it chooses may affect competition and consumer choice.

For example, consumers may use bundled cloud storage services even when there are more innovative or higher-quality alternatives. Such choices may also be exacerbated by

coordination issues, such as among families who use the same bundled consumer cloud storage service to share files or photo libraries. Over time, lock-in effects associated with the cost and inconvenience of moving considerable amounts of data may further deter consumers from switching to alternatives.

Competitive harm may also occur where a digital platform service provider holds a 'gatekeeper' position and acts as an intermediary between users and businesses. Competitive harm can occur in this context when a digital platform service provider can set the rules of access and exercise considerable control, including through practices such as self-preferencing. Self-preferencing by a firm can hinder rivals from competing effectively. This is because, when a firm restricts rivals from having access to a sufficient group of consumers, this can make it more difficult for rivals to achieve the scale necessary to compete or can otherwise raise rivals' costs.

For example, certain digital platforms have expanded into new gatekeeper roles in respect of voice assistant technology which may be incorporated into smart home devices, particularly Google (Google Assistant), Apple (Siri) and Amazon (Alexa). Voice assistants may provide a further opportunity for digital platform service providers to steer users in favour of first-party products and services to the detriment of rivals.

The ACCC has not made specific findings of anti-competitive conduct in this Report. However, when a digital platform service provider has market power in one or more markets, certain behaviours may have a higher risk of harming competition. In particular, there are risks associated with the expanding ecosystems of digital platform services providers, and how barriers to entry and expansion may be increased in core and related markets, ultimately impacting rivals' ability to effectively compete to the detriment of consumers.

Ecosystems may take advantage of increased data collection

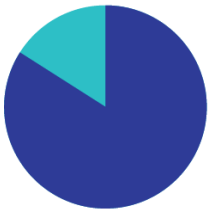
Ecosystems can exacerbate potential risks to competition and consumer welfare due to a platform's expanded access to rich consumer data across the ecosystem. These risks include excessive data collection and the use of data to foreclose rivals. There are also potential harms to consumers, particularly for certain groups of consumers such as young and vulnerable ones.

This risk is heightened as digital platform service providers increase the number of services they offer and, thereby, the opportunities to collect and combine non-public user data. For example, the privacy policies of many digital platform service providers allow for collection and sharing of user data across services. As certain digital platforms expand into data-rich areas, including smart home devices, gaming, education, health and fitness, they gain greater access to non-public data. This increases the risk that this data is leveraged to other areas of a digital platform ecosystem. For example, data accessed in a new sector could be used to enhance a position of market power in an established product or service.

Further, the gatekeeper positions of certain digital platform service providers give those platforms unique access to the data of third-party providers and rivals. This may raise concerns if the digital platform service provider competes directly with downstream rivals.

Ecosystems' data collection and lock-in practices can limit consumer choices

The extent of collection, use and disclosure of data by platforms often does not align with consumer preferences. Recent consumer surveys by the Consumer Policy Research Centre (CPRC) and the Office of the Australian Information Commissioner (OAIC) indicate that consumers have clear expectations that information will be kept safe, not sold, and that they will retain control and choice over how their data is used.[2]



84%
of Australians want more control and choice over collection and use of information *(Source: OAIC)*

84%
of Australians agree companies should keep personal information safe *(Source: CPRC)*

The expanding ecosystems of digital platform service providers give firms access to more data. Some providers may offer consumers some control over how data is collected and used. However, consumers, in exchange for use of products or services, may consent to broad data collection and use. Digital platform service providers then have incentives to use this data. The ACCC considers that consumers should have sufficient information, and sufficient control over data collection. This is particularly the case where data may be used across many different products and services.

There are also potential harms to consumers from lock-in effects and consumer inertia. For example, consumers of interconnected products and services may be subject to unfavourable terms and conditions that do not suit their needs, and which are not subject to negotiation. Consumers are also susceptible to behavioural biases that may inhibit their ability to make optimal decisions about complex products and services. As consumers use multiple products from a single ecosystem, the impacts of these behavioural biases may be compounded.

Further, the types of subscription practices that may be utilised in the context of highly interconnected products and services may give rise to consumer risks. Australia does not have a general prohibition on unfair trading practices to protect consumers from those risks, and some behavioural strategies are not necessarily covered by existing consumer laws.

Next Steps

This Report builds on the ACCC's earlier work in relation to digital platforms, including through this Inquiry.

The ACCC considers that the consumer and competition recommendations made in the ACCC's Regulatory Reform Report (provided to the Treasurer on 30 September 2022) are important to address competition and consumer harms in digital platform service markets.

The ACCC supports economy-wide consumer measures and mandatory and enforceable obligations to apply to all platforms that provide certain digital platform services.

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[2] OAIC, Australian Community Attitudes to Privacy Survey, 8 August 2023, accessed 14 September 2023, p 8; CPRC, Not a fair trade: Consumer views on how businesses use their data, CPRC Working Paper, March 2023, accessed 14 September 2023.

The ACCC also recommends legally binding codes of conduct, applied service by service, which require certain designated digital platforms to address issues including anti-competitive self-preferencing, tying and exclusive pre-installation arrangements. The analysis in this Report shows the risks arising to competitive markets from expanding ecosystems of digital platform services providers. For example, the expansion of digital platform service providers and the interconnection of their products and services may create new opportunities and incentives to self-preference and limit rival service providers' access.

In this context, the ability to set legally binding service-specific codes of conduct that apply to designated digital platforms would provide flexibility to target specific conduct and protect consumers from poor competition outcomes as digital platform service providers expand their reach. Such service-specific regulation could address self-preferencing, tying, and other competition concerns in appropriate circumstances.

The implementation of these recommendations would help ensure that Australia's laws are fit-for-purpose for the digital age. This would make Australia well placed to embrace the opportunities afforded by digital platform services, and to respond to current and future challenges as they arise. These reforms are important given the widespread and growing use of digital platform services, and their role in underpinning a more resilient, productive and dynamic economy.

Treasury has conducted a public consultation on the Regulatory Reform Report's recommendations. The ACCC's Digital Platform Services Inquiry is due to be completed and a report on the Inquiry given to the Treasurer by 31 March 2025.

Glossary

Term	Description
ACCC	Australian Competition and Consumer Commission
ACMA	Australian Communications and Media Authority
Ad tech services	Digital advertising technology services. In this Report, digital advertising technology services refers to services that provide for, or assist with, the automated buying, selling and delivery of display advertising.
App store	A digital distribution platform or storefront for apps that typically allows users to search and review software programs offered electronically, and provides associated services for app providers, app developers and consumers (also known as an app marketplace or app distribution service).
Apple App Store	The app store operated by Apple for iOS, iPadOS, macOS, watchOS, and tvOS devices.
Application Program Interface or API	A computing interface that allows interactions between multiple software programs, such as apps and the OS, for the purpose of simplifying programming.
Artificial intelligence or AI	The ability of computer software to perform tasks that are complex enough to simulate a level of capability or understanding usually associated with human intelligence.
ASIC	Australian Securities and Investments Commission
Augmented Reality or AR	Technology that uses the existing environment and overlays new information on top of it, to experience existing reality in a heightened way. *See also Virtual Reality and Immersive Technologies.*
Browser	An application that enables users to visit web pages on the internet. Well-known browsers include Google Chrome, Mozilla Firefox, Apple Safari, and Microsoft Edge.
Chrome OS	Google's operating system for Chromebook desktop devices.
CMA	Competition and Markets Authority, UK
Consumer cloud storage service	A service which enables consumers to store, manage, organise, and retrieve files stored in the cloud and are primarily intended for personal use. *Consumer cloud storage services are discussed in detail at section 4.1.2.*
Developer	An individual or group that creates, maintains and updates apps or software.
Digital Markets Act or DMA	Regulation (EU) 2022/1925 of the European Parliament and of the Council of 14 September 2022 on contestable and fair markets in the digital sector and amending Directives (EU) 2019/1937 and (EU) 2020/1828.

Digital Platform Services Inquiry or DPSI	Digital Platform Services Inquiry (2020–2025). The ACCC's 5-year inquiry into the supply of digital platform services.
Digital Platforms Inquiry or DPI	Digital Platforms Inquiry (2017–2019). An inquiry conducted by the ACCC into digital search engines, social media platforms and other digital content aggregation platforms, and their effect on markets for media and advertising services.
Digital Services Act or DSA	Regulation (EU) 2022/2065 of the European Parliament and of the Council of 19 October 2022 on a Single Market For Digital Services and amending Directive 2000/31/EC.
Display advertising	The supply of opportunities for the placement of advertising, by way of the internet, other than classified advertising and search advertising.
DP-REG	Digital Platforms Regulators Forum. The formal arrangement between the ACCC, eSafety, ACMA and OAIC for information-sharing and collaboration on digital platform regulatory issues.
Economies of scale	Cost advantages obtained by a supplier, where average costs decrease with increasing scale.
Ecosystem	In this Report the term 'ecosystem' is used to encompass the range of interrelated first-party products and services that are offered by digital platform service providers (whether a single or related group of companies). *The ACCC's approach to defining an ecosystem is discussed further in section 1.3.*
eSafety	Office of the eSafety Commissioner. Australia's independent online safety regulator.
Generative AI	A type of artificial intelligence technology that can produce various types of content, including text, imagery, audio and synthetic data.
Google Play Store	The app store operated by Google for Android devices.
IaaS	Infrastructure as a Service
Immersive technologies	Technologies that create distinct experiences by merging the physical world with a digital or simulated reality. Augmented reality (AR) and virtual reality (VR) are 2 principal types of immersive technologies.
Interoperability	The ability of different products and services from different digital platforms or other providers to work together and communicate with one another.
iOS and iPadOS	iOS is Apple's operating systems for mobile devices, including the iPhone. The iPad runs iPadOS, which is based on iOS.
Issues Paper	The Issues Paper for the seventh interim report of the Digital Platform Services Inquiry, published on 8 March 2023.
Machine learning	The ability of some computer software to autonomously improve knowledge and processes through the repetition of tasks, without the manual entry of new information or instructions.
macOS	Apple's OS for desktop devices, including MacBooks.
Mobile app	Apps designed specifically for and installed on mobile devices such as smartphones and tablets.

Mobile device	Smartphones and tablet devices.
Monthly active user	A user of a product or service who, within any given month, used or accessed the product or service.
Multi-homing	The practice of using more than one supplier of the same type of service. In contrast, a user who uses a single supplier for a type of service could be described to be 'single-homing'.
Multi-sided platform	A platform which is characterised by 2 or more distinct types of users or parties who interact on the platform. The value that a user or party obtains from the platform depends on the number and identity of users or parties of another type. *See section 3.1.2 for further discussion.*
Natural language processing	Technology that allows computer software to collect, analyse, interpret and produce 'natural' language in the form of text and speech.
Network effect	Present where an increase (or decrease) in the number of platform users on one side of the platform affects the value of the service to other users of the platform. *Network effects are discussed in detail in Section 3.1.2.*
OAIC	Office of the Australian Information Commissioner
OECD	Organisation for Economic Cooperation and Development
Online private messaging services	Services that enable users to communicate privately and in real-time with friends, family members, colleagues and other contacts, one-to-one and/or with a group using text, voice or video.
Online retail marketplace	Online platforms that facilitate the supply of goods between suppliers and Australian consumers, excluding platforms which operate only as classified services.
Operating System or OS	Operating systems manage computer hardware (e.g., processing, memory, and storage) and all other programs in a computer.
PaaS	Platform as a Service
Pre-installation	When an app or service is installed on a device or operating system prior to purchase by end-users.
Pre-installation arrangements	Arrangements between 2 parties for an application or service to be pre-installed or otherwise integrated on a device.
Privacy Act	*Privacy Act 1988* (Cth)
R&D	Research and Development
Regulatory Reform Report	The fifth interim report of the DPSI on regulatory reform, published on 11 November 2022.
Report	The seventh interim report of the DPSI, in relation to the expanding ecosystems of digital platform service providers.
Report on App Marketplaces	The second interim report of the DPSI on app marketplaces, published on 28 April 2021.
Report on General Online Retail Marketplaces	The fourth interim report of the DPSI on general online retail marketplaces, published on 28 April 2022.

Report on Search Defaults and Choice Screens	The third interim report of the DPSI on web browsers, general search services and choice screens, published on 28 October 2021.
Report on Social Media	The sixth interim report of the DPSI on the provision of social media services in Australia, published on 28 April 2023.
SaaS	Software as a Service
Search services/search engines	Software systems designed to search for information on the internet, generally returning a curated, ranked set of links to content websites. Refers to general search services only, and not specialised search.
Smart home devices	Network-connected products aimed at consumers for use in and around the home. *Smart home devices are discussed in detail at Section 4.1.3.*
Social media platforms and services	Online services that allow users to participate in social networking, communicate with other users, and share and consume content generated by other users (including professional publishers).
Software Development Kit or SDK	A configurable piece of code that can be embedded in an app's code to perform specific functions.
Virtual Reality or VR	Technology that offers a digital recreation of a real life setting and replicates a real or imagined environment. *See also Augmented Reality*
Voice assistant	Software accessed via an application or device that uses voice recognition, speech synthesis and natural language processing to perform tasks or services for an individual based on commands or questions. Examples include Google Assistant, Siri and Alexa.
Windows	Microsoft's OS for devices including desktop devices manufactured by Microsoft (such as Microsoft's Surface Books) and third-party desktop devices (such as devices manufactured by Lenovo, HP and Dell).

1. Introduction

1.1. The Digital Platform Services Inquiry

The Digital Platform Services Inquiry is an ongoing inquiry into markets for the supply of digital platform services. On 10 February 2020, the Treasurer directed the ACCC to conduct an inquiry into markets for the supply of digital platform services (see Ministerial Direction included at appendix E). The ACCC must provide the Treasurer an interim report every 6 months until the inquiry concludes, with a final report to be provided to the Treasurer by 31 March 2025.

This is the seventh interim report (the Report) and is due to the Treasurer by the end of September 2023. The ACCC published an Issues Paper on 8 March 2023.[3] In response to this Issues Paper, 22 submissions were received. These submissions are published on the ACCC's website.[4]

1.2. Scope of this Report

Digital platform service providers have built extensive ecosystems of interrelated and interconnected services, often in data-intensive sectors, expanding their reach and impact on both the global and Australian economy.

The Report will examine the expanding ecosystems of digital platform service providers, including the ecosystems in which digital platform services (such as internet search engine services, social media services and electronic marketplace services) operate. The Report will also consider the expansion strategies used by digital platform service providers, including their impact on competition and consumers.

The Report will consider smart home devices and consumer cloud storage services as examples of the expansion of digital platform service providers into products and services that relate to their digital platform services, to show the relationship between these and other digital platform services provided by digital platform service providers in Australia.

The Report focuses on the services provided by Alphabet (Google), Amazon, Apple, Meta and Microsoft. While their presence in markets for the supply of digital platform services varies, these are large suppliers of such services in Australia.

1.3. ACCC approach to defining an ecosystem

The term 'ecosystem' is used in a range of different ways in academic literature, in business management, and in regulatory contexts. In this Report the term 'ecosystem' is used by the ACCC to encompass the range of interrelated first-party products and services that are offered by digital platform service providers (whether a single or related group of companies). This interrelationship may be through technical interoperability or by commercial practices such as bundling.

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3 ACCC, Digital Platform Services Inquiry Seventh Interim Report – Issues Paper [PDF 438KB], 8 March 2023.

4 Available at the ACCC website, Digital Platform Services Inquiry 2020-2025: September 2023 Interim Report.

In response the ACCC's Issues Paper, the Law Council of Australia noted that the concept of an ecosystem should be defined by reference to established concepts.[5] The above approach to the term 'ecosystem' closely aligns with the concept of 'multi-product ecosystems'. A multi-product ecosystem is a term used to refer to a collection of products and services offered by a single corporate organisation and typically connected through demand and supply-side links.[6] This definition is also similar to that adopted by the UK Competition and Markets Authority (CMA) in its Online Platform and Digital Advertising Market Study.[7]

A narrower subset of multi-product ecosystems are 'device ecosystems'. Device ecosystems are multi-product ecosystems of hardware products and software services that connect and relate to one another, such as mobile ecosystems and desktop ecosystems. Mobile ecosystems have been the subject of several studies by international regulators in the UK, US and Japan.[8] Device ecosystems have also been considered by the ACCC in previous reports under the DPSI.[9]

The ACCC's approach to considering 'ecosystems' was set out in the Issues Paper.[10] There are other definitions. For example, Google noted in its submission that the ACCC's approach is narrow and that digital platform ecosystems are often made up of the interrelated products and services of not one but multiple companies.[11] This definition aligns with the concept of 'multi-actor ecosystems', another concept used in academic literature. A multi-actor ecosystem is a community of independent firms that collaborate to collectively produce interrelated goods or services.[12] Digital platforms may be considered inherently multi-actor ecosystems as they create value by allowing communities of actors to engage via the platform.[13]

The concept of 'multi-actor ecosystems' may be relevant to understanding the business models of digital platforms and how they create value, as well as a firm's interconnection strategies. These themes are explored in this Report. However, the ACCC's use of the term

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5 Law Council of Australia, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 528KB], May 2023, p 1.

6 In previous reports, the ACCC defined such ecosystems as 'platform ecosystems' and 'product ecosystems'. In particular, the ACCC defined 'platform ecosystems' as a wide range of related or complementary products that are able to interoperate, and 'product ecosystems' as a range of related or complementary products, that are integrated and able to interoperate. See ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 23 (platform ecosystems) and ACCC, Digital Platform Services Inquiry Sixth Interim Report, 28 April 2023, p 21 (product ecosystems). See also, for example, the argument made by A Fletcher, Digital Competition Policy: Are ecosystems different?, Summary of Discussion of the Hearing on Competition Economics of Digital Ecosystems, OECD, 3 December 2020, p 2.

7 The CMA uses the term 'ecosystem' as a broad descriptive term to encompass the various aspects of a platform's activities and services which interrelate and often complement or connect to a core service. See CMA, Online platforms and digital advertising market study, Appendix E: ecosystems of Google and Facebook, 1 July 2020.

8 CMA, Mobile Ecosystems Market Study Final Report, 10 June 2022; US Department of Commerce, Competition in the Mobile Application Ecosystem [PDF 992KB], February 2023; Japan Fair Trade Commission, Market Study Report on Mobile OS and Mobile App Distribution, 9 February 2023; Japan's Secretariat of the Headquarters for Digital Market Competition, Competition Assessment of the Mobile Ecosystem – Interim Report Summary [PDF 2002KB], 26 April 2022.

9 ACCC, Digital Platform Services Inquiry Third Interim Report, 28 October 2021, p 3 (device ecosystem); ACCC, Digital Platform Services Inquiry Second Interim Report, 28 April 2021, p 150 (mobile ecosystem).

10 ACCC, Digital Platform Services Inquiry Seventh Interim Report – Issues Paper, 8 March 2023, p 2.

11 Google, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 325KB], May 2023, p 2. However, both Amazon and Meta note that the ACCC has adopted a very wide definition of ecosystems. See Amazon Australia, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 330KB], May 2023, p 2; Meta, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 253KB], May 2023, p 2. In this regard, the Law Council of Australia notes that the foundational concept of an ecosystem should be carefully considered and precisely defined (Law Council of Australia, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 528KB], May 2023, p 1).

12 See A Fletcher, Digital Competition Policy: Are ecosystems different?, Summary of Discussion of the Hearing on Competition Economics of Digital Ecosystems, OECD, 3 December 2020, pp 2–3; I Lianos, Reorienting competition law, *Journal of Antitrust Enforcement* 10:1 (2022), p 12. Conversely, M Jacobides, C Cennamo and A Gawer, Towards a Theory of Ecosystems, *Strategic Management Journal* 39:8 (2018) uses the term 'platform ecosystems' to refer to how independent actors organise around a platform.

13 A Fletcher, Digital Competition Policy: Are ecosystems different?, Summary of Discussion of the Hearing on Competition Economics of Digital Ecosystems, OECD, 3 December 2020, pp 2–3.

'ecosystem' is focussed on the range of products and services offered by the digital platform service provider itself. The approach taken in the Report is therefore consistent with that outlined in the Issues Paper.

1.4. Structure of Report

This Report is structured as follows:

- Chapter 2 discusses the importance of digital platform services.
- Chapter 3 discusses the core services and business models of digital platform service providers.
- Chapter 4 discusses expansion by digital platform service providers, in general and in smart home devices and consumer cloud storage services.
- Chapter 5 discusses interconnection between products and services, in general and in smart home devices and consumer cloud storage services, and the impacts of those interconnections.
- Chapter 6 builds upon chapters 2-5, to discuss risks to competition from expanding digital platform ecosystems, using examples from smart home devices and consumer cloud storage services.
- Chapter 7 also builds upon chapters 2-5, to discuss consumer harm risks, using examples from smart home devices and consumer cloud storage services.
- Chapter 8 concludes the Report considering emerging issues and regulatory developments.

2. Importance of digital platform services in Australia

This chapter discusses the importance of digital platform services to Australian consumers and the Australian economy. Given the significance of digital platform services, and because competition is important for markets to function well, ensuring effective competition in the supply of these services is crucial for productivity and the future prosperity of Australians.[14]

2.1. Online services are integral to our everyday activities

The ACCC's previous DPSI interim reports have highlighted that digital platform services are now critically important to Australian consumers and businesses. While adoption of digital platform services has been growing rapidly, the COVID-19 pandemic brought a step-change. The COVID-19 pandemic shifted the ways in which people work, study, socialise and shop, and Australians dramatically increased the time, attention and money they spend online.[15] As shown below, online services are integral to the daily lives of Australians.

2.1.1. Online services are integral

Time spent online

Australian consumers now spend almost 6 hours per day online.[16] While older Australians trail younger people in their online engagement, their internet use has surged since the COVID-19 pandemic. By June 2022, 98% of Australians aged 65–74 years old and 94% of those aged 75 and over had accessed the internet in the previous 6 months, compared with 71% and 52% in 2019, respectively.[17] As at June 2022, 93% of Australian adults had a home internet connection.[18] The total volume of data downloaded across retail broadband internet and mobile services increased to 11.6 million terabytes in the 3 months to 30 June 2022, an increase of 93% when compared with 6 million terabytes in the same quarter of 2019.[19]

Use of smartphones

Smartphones have become critical in our daily lives; 92.2% of Australians own smartphones and use these phones on average for nearly 5 hours per day.[20] Nearly all (99%) smartphones use Apple's iOS or Google's Android operating system.[21] A survey of 1,000 Australians found

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14 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 30.

15 OECD, Ex ante regulation in digital markets – Background Note, 2 December 2021, p 6; Reserve Bank of Australia, Tracking consumption during the Covid-19 pandemic, 17 March 2022.

16 S Kemp, 'We are Social: Digital 2023 Australia Full Report', *Data Reportal*, 9 February 2023, accessed 14 September 2023, slide 26.

17 ACMA, Communications and media in Australia series – How we use the internet: Executive summary and key findings, December 2022, p 1.

18 ACMA, Communications and media in Australia series – How we use the internet: Executive summary and key findings, December 2022, p 3.

19 Analysed from data in the ACCC's Internet Activity Report using the latest Internet Activity RKR data as of 30 June 2022. ACCC, Internet Activity record keeping rule, accessed 14 September 2023.

20 S Kemp, 'We are Social: Digital 2023 Australia Full Report', *Data Reportal*, 9 February 2023, accessed 14 September 2023, slide 80.

21 Statcounter, Mobile Operating System Market Share Australia - June 2023, accessed 14 September 2023.

that on average they check their phone almost every 8 minutes.[22] The vast majority will check their phone within 10 minutes of waking up and nearly half will experience anxiety if they leave their phone at home.[23] Two thirds of Australians own a laptop/desktop computer and nearly half (44%) own a tablet.[24] Most smartphones, tablets, and laptop/desktop computers use an operating system that exists within the ecosystem of a digital platform service provider.

Social media

Social media services and online private messaging services, such as Facebook, Instagram and WhatsApp make it easy to connect with friends and family. More than 80% of Australians are active social media users, with the average Australian aged 16-64 spending over 2 hours per day on social media.[25]

Search engines and apps

Search engines, app stores, and online retail marketplaces make it easy to access a vast range of information, apps, services and products online. In 2021, most adult Australians made daily use of a search engine and apps installed on a smartphone.[26] Google estimates that Australians using Google Search save almost 5 days – or 115 hours – per year that can be used for other activities.[27] During 2022, 790 million apps were downloaded from app stores such as Google Play or Apple's App Store, with AUD3.45bn spent on mobile apps and in-app purchases by Australians.[28] The ACCC's Report on General Online Retail Marketplaces noted that sales by 4 key general online retail marketplaces, including Amazon's marketplace in 2020–21 totalled AUD8.4bn.[29]

Studying and work

Consumers are also increasingly reliant on services offered by providers of digital platform services to study and work from home, using services such as Microsoft 365 or Google Workspace. Research from the ACMA estimates that 71% of online 18–24-year-olds study online from home while nearly two-thirds (64%) of online 35–44-year-olds work from home online.[30]

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22 K Reynolds, '2022 Mobile phone usage statistics: How addicted are we?', *Reviews.org*, 2 December 2022, accessed 14 September 2023.

23 K Reynolds, '2022 Mobile phone usage statistics: How addicted are we?', *Reviews.org*, 2 December 2022, accessed 14 September 2023.

24 S Kemp, 'We are Social: Digital 2023 Australia Full Report', *Data Reportal*, 9 February 2023, accessed 14 September 2023, slide 25.

25 S Kemp, 'We are Social: Digital 2023 Australia Full Report', *Data Reportal*, 9 February 2023, accessed 14 September 2023, slide 54.

26 ACCC, Digital Platform Services Inquiry Third Interim Report, 28 October 2021, p 9; ACCC, Digital Platform Services Inquiry Second Interim Report, 28 April 2021, p 3.

27 Google submission, House of Representatives Committee on Economics Inquiry into promoting economic dynamism, competition and business formation, 19 May 2023, p 2.

28 S Kemp, 'We are Social: Digital 2023 Australia', *Data Reportal*, 9 February 2023, accessed 14 September 2023, slide 80. This statistic (USD2.39bn) has been converted to AUD from USD using an annual average exchange rate (1.44245576) sourced from the Reserve Bank of Australia for 2022 (historical data).

29 ACCC, Digital Platform Services Inquiry Fourth Interim Report, 28 April 2022, p 20.

30 ACMA, Communications and media in Australia series – How we use the internet: Executive summary and key findings, December 2022, p 5.

News and entertainment

In the first half of 2022, 93% of Australian adults who use the internet accessed news from online sources.[31] Social media and communications websites or apps were the main source of news for 40% of those aged 18–24 in the week surveyed in June 2022.[32]

Video and music subscription services, such as Netflix, Amazon Prime Video, Spotify and Apple Music are also becoming increasingly prevalent. Telsyte estimates that video streaming subscriptions rose to 24.6 million in 2023, up from 12.3 million in 2019.[33] Music subscriptions reached 16.6 million, from 12 million in 2019.[34]

Gaming

Consumer interest in gaming is increasing with significant growth arising during the COVID-19 pandemic. Gaming subscriptions in Australia reached 8.5 million in 2023, more than doubling since 2019.[35] According to the Interactive Games and Entertainment Association, Australians spent more than AUD4bn on the gaming industry in 2022. Mobile games accounted for AUD1.56bn followed by digital channels AUD1.5bn (in-game purchases, game purchases, subscriptions) and traditional retail channels AUD1.15bn (including consoles).[36] According to the Department of Foreign Affairs and Trade, the digital games development industry was worth AUD240bn globally in 2020 and is set to reach AUD294bn in 2024.[37]

Smart home and wearable devices

Smart devices are increasingly being used by consumers. On average, Australian adults who use the internet used 4 different types of devices to access the internet in the first half of 2022.[38] While fewer than half of Australian adults (47%) had smart devices such as smart TVs, wearables or smart speakers in 2018, this figure rose to 83% in 2022.[39] This Report will further explore digital platform service providers' expansion in this area, with a specific focus on smart home devices (which does not include wearables, as described in section 4.1.3).

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31 ACMA, Communications and media in Australia series – How we use the internet: Executive summary and key findings, December 2022, p 5.

32 ACMA, Communications and media in Australia series – How we use the internet: Executive summary and key findings, December 2022, p 9.

33 Telsyte, Australia's subscription entertainment market growth eases but remains vital, 28 August 2023, accessed 14 September 2023; Telsyte, Australians turn to multiple subscriptions for entertainment, 19 August 2019, accessed 14 September 2023.

34 Telsyte, Australia's subscription entertainment market growth eases but remains vital, 28 August 2023, accessed 14 September 2023; Telsyte, Australians turn to multiple subscriptions for entertainment, 19 August 2019, accessed 14 September 2023.

35 Telsyte, Australia's subscription entertainment market growth eases but remains vital, 28 August 2023, accessed 14 September 2023; Telsyte, Australians turn to multiple subscriptions for entertainment, 19 August 2019, accessed 14 September 2023.

36 Interactive Games and Entertainment Association, Australian Consumer Video Game Sales – 2022 Snapshot, 8 June 2023, accessed 14 September 2023.

37 Department of Foreign Affairs and Trade, Business Envoy February 2022: The booming Australian digital games industry, 16 February 2022, accessed 14 September 2023.

38 ACMA, Communications and media in Australia series – How we use the internet: Executive summary and key findings, December 2022, p 3.

39 ACMA, Communications and media in Australia series – How we use the internet: Executive summary and key findings, December 2022, p 4.

Mobile wallets

Consumers are also increasingly using mobile wallets, such as Google Wallet or Apple Pay to make payments.[40] The Reserve Bank of Australia has found that the share of debit and credit card transactions made via mobile wallets more than doubled between the March quarter of 2020 and the March quarter of 2022, from 10% to 25%.[41] The Australian Banking Association has reported that over 15.3 million cards were registered to mobile wallets in 2022, up from just over 2 million cards in 2018.[42] The value of mobile wallet transactions reached AUD93bn in 2022, up from AUD746m in 2018, a greater than 120-fold increase.[43] The Commonwealth Bank has noted just under half of all card payments made in-store happen through mobile wallets.[44] Similarly, National Australia Bank noted in its submission that digital platforms are increasingly playing a larger role in financial services in Australia, including through mobile wallets.[45]

As will be explored through this Report, the value of these areas of expansion is significant. Google estimates that through the use of its products, consumers enjoy AUD19.5bn worth of annual benefits.[46] Digital platform industry group DIGI estimates that platforms generate an estimated consumer surplus of approximately AUD5,000 per Australian household per year through free, cheaper and more convenient goods and services.[47]

2.1.2. A day in the lives of Australian consumers

The following infographics (figure 2.1) provide some stylised examples of how Australians interact with digital platform ecosystems on a daily basis.[48] These examples underscore the importance of digital platform services offered by these 5 ecosystems in our daily lives, and provides context for some of the issues considered later in this Report, such as the expansion of digital platform service providers into new sectors and the interconnections between products and services within ecosystems.

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40 Australian Payments Plus, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 161KB], May 2023, p 2.

41 Reserve Bank of Australia, Payment System Board Annual Report – 2022, 28 September 2022, accessed 14 September 2023, p 18.

42 Australian Banking Association, Bank on it: Customer Trends 2023, 7 June 2023, accessed 14 September 2023, p 3.

43 Australian Banking Association, Bank on it: Customer Trends 2023, 7 June 2023, accessed 14 September 2023, p 3.

44 C Yeates, Why the RBA needs powers over Apple and Google's payments forays, *The Sydney Morning Herald*, 13 August 2023, accessed 14 September 2023.

45 National Australia Bank, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 1282KB], May 2023, p 2

46 Google submission, House of Representatives Committee on Economics Inquiry into promoting economic dynamism, competition and business formation, 19 May 2023.

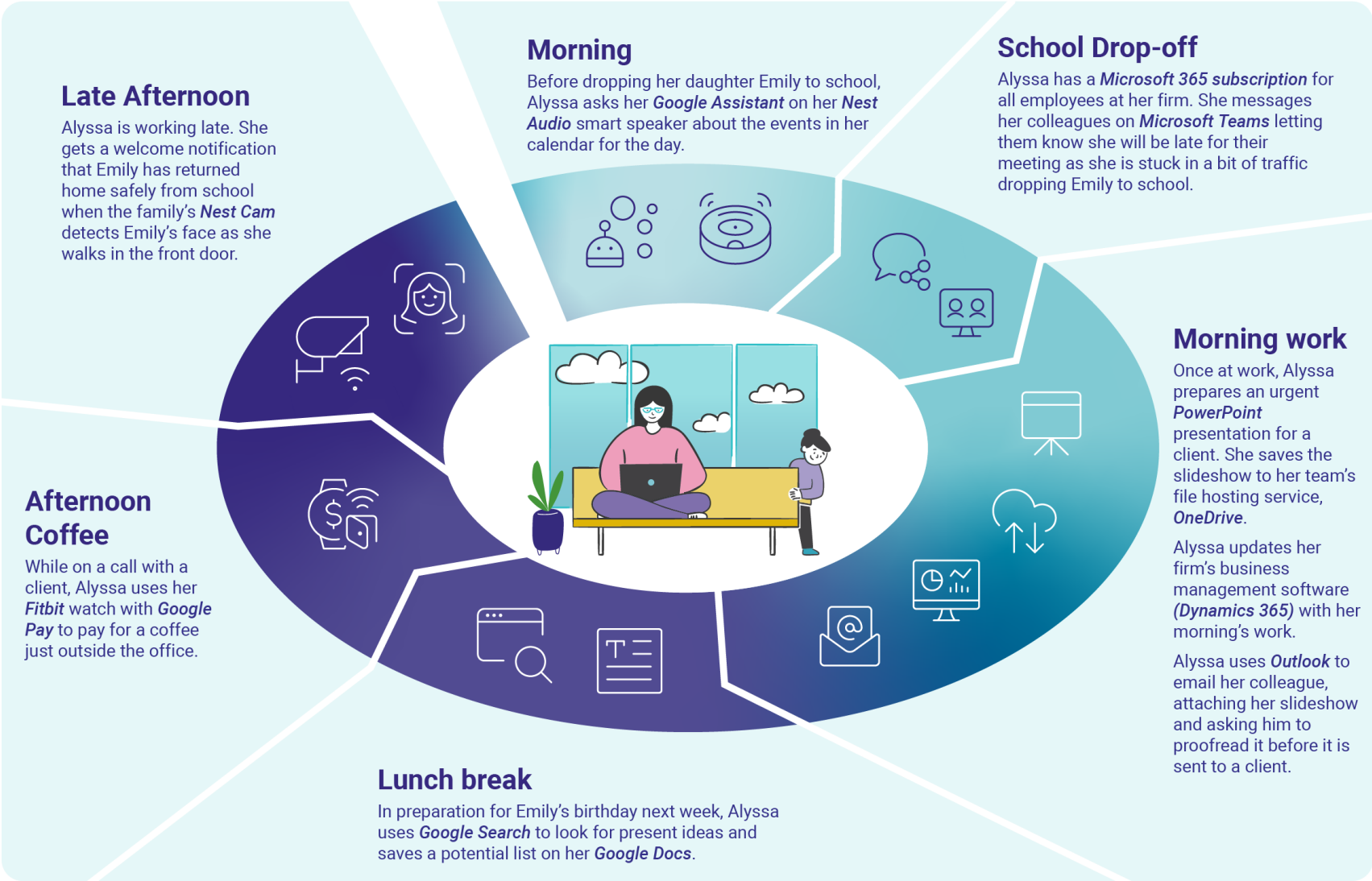
47 DIGI, Submission to the ACCC Digital Platform Services Inquiry Fifth Interim Report [PDF 914KB], May 2022, p 7. These estimates are for 2018.

48 The example characters and their usage of digital platform services are not intended to be representative of the Australian population. However, some recent statistics have helped to inform these stylised examples. For example, polling by the Royal Melbourne Children hospital published in February 2023 found that 57% of 5-12 years olds play inside on a digital device most days. Research from the Office of the Australian Information Commissioner found that nearly two-thirds (65%) of children aged 2 to 17 have access to a laptop, tablet or PC whether it be their own device (47%), their own login to a shared device (19%) or access to someone else's device when needed (20%). Meanwhile, research from the Australian Communications and Media Authority (ACMA) found that the proportion of those aged 75 and over who are online has almost doubled, from 52% to 94% between 2019 and 2022. ACMA research also found that among those aged 75 or older, 67% had an online smart device (more than quadrupling since 2018). Of those aged 75 or older who were online, 85% accessed news online in the 6 months to June 2022. While these examples largely focus on products and services offered by the 5 digital platform ecosystems which are the focus of this report, Australians also widely use products and services offered by other digital platform services providers in their daily lives. Royal Children's Hospital Melbourne, RCH National Child Health Poll - Australian families: How we play, February 2023, accessed 14 September 2023; OAIC, Australian Community Attitudes to Privacy Survey, 8 August 2023, accessed 14 September 2023, pp 85-86; ACMA, Communications and media in Australia series – How we use the internet: Executive summary and key findings, December 2022, pp 1–5.

Figure 2.1: Consumers' daily interactions with digital platform ecosystems

Character 1: Alyssa

Alyssa is a busy 43-year-old mother who works in a small office in the city.



Character 2: Thomas

Thomas is a technologically savvy 11-year-old. He has access to a combination of his own and his family's devices.

Before school

Thomas uses ***Messenger Kids*** on his Dad's old ***iPhone*** (which is now his) to send a funny photo of himself with a filter overlay of rabbit ears to his friend Georgia. He also asks Georgia whether she is still coming over for a dance party after school.

At school

Each student at Thomas' school is given a ***ChromeBook*** and a school ***Gmail*** Account associated with the school's ***Google Workspace for Education*** suite.

Thomas' geography teacher has posted an informational ***YouTube*** video and an associated ***Google Docs*** worksheet.

When Thomas is finished, he saves his document to ***Google Drive*** and clicks submit on the ***Google Classroom*** portal for his teacher to review.

On the way home from school

Thomas' mother lets him use her ***iPad*** to play games while they drive home from school together. He plays Roblox with a number of other friends from school who are also online.

After school

While Thomas is waiting for his friend Georgia to arrive, he logs into ***YouTube*** using his family's smart TV to watch some videos.

Afternoon

Thomas asks ***Alexa*** via his family's ***Echo smart speaker*** to play music for his friend Georgia. It plays songs from ***Apple Music*** using the family's subscription.

Evening

After dinner, Thomas opens up ***Apple Books*** on his mother's ***iPad*** to read 'Diary of a Wimpy Kid.'

Character 3: Ariana

Ariana is a 24-year-old time-poor student.

First thing

On waking up Ariana begins her day by checking the ***Apple Weather*** app on her ***iPhone*** to decide whether she will be going for a run or whether today is a gym day.

Before breakfast

On her morning run, Ariana uses her ***Apple Watch*** to track her heart rate and to race against her personal best time on her route around the local park.

Morning

During her morning lectures, Ariana takes notes in ***Pages*** on her ***MacBook Pro***. She sends her notes to her friend Olivia who was unable to attend using ***iCloud Mail***.

Ariana meets up with her friend Matthew for a coffee between lectures who has a few pictures from their weekend camping trip. Matthew uses ***AirDrop*** to send the photos to Ariana's ***iPhone*** which are automatically saved to her ***Apple Photos*** app.

Lunch

Ariana posts some of the photos that Matthew shared from their weekend camping trip to ***Instagram***. She separately sends the pictures to the ***WhatsApp*** family group chat since her parents are not on Instagram.

Afternoon

Ariana uses ***Facebook Marketplace*** to find a second-hand couch for her share house.

Evening

Following a networking event, Ariana connects on ***LinkedIn*** with Sophie, a recruiter she met who could be a useful contact in future.

Character 4: Ken

Ken is a 75-year-old retiree who uses digital products and services to keep in contact with his family and friends. He also enjoys the health and security benefits provided by his connected devices.

Wake-up

Ken is in the habit of putting on his ***Apple Watch*** as soon as he wakes up. He uses the watch to help track his medications and to monitor his heart health. As Ken is living alone, knowing the watch has fall detection functionality also provides his family peace of mind.

Morning

Ken starts his morning with a coffee in hand and opens up ***Apple News*** on his ***iPad***. He has adjusted the font size to make the text easier to read.

Late morning

Ken spends time in the morning setting up his new ***Ring*** Indoor security camera from ***Amazon***. Ken's daughter Lisa comes over to help set up the device. They watch a ***YouTube*** video to help them with the installation.

Afternoon

Ken opens up his ***iPad*** to send a message to some of his friends over ***Facebook***. Using ***iCloud Photos***, the pictures he took of his grandson playing a local rugby game last weekend on his ***iPhone*** can be accessed via his ***iPad***. He sends a few of his favourite pictures to his friends.

Evening

Before dinner, Ken uses ***FaceTime*** on his ***iPad*** to call Lisa thanking her for her help with setting up the ***Ring*** security camera in the morning and to confirm their weekend plans for a family BBQ at Lisa's house.

Night

After dinner Ken enjoys putting on a TV show. He has an ***Amazon Prime Video*** subscription and is currently enjoying watching The Test - Season 2, a documentary on the Australian Men's cricket team.

2.2. Digital platform services connect businesses to consumers and generate economic benefits

Australian businesses are undergoing digital transformation as they integrate digital technologies across their business. Over time, businesses of all sizes have become increasingly reliant on a wide variety of services provided by digital platform service providers.

For example, digital platform services help businesses to distribute physical or digital products to consumers. The global nature of digital platform services reduces friction of trading across borders, making it easier for Australian businesses to reach international customers. For example, more than 14,000 Australian businesses, many of which are small or medium sized businesses, sold more than 27 million units around the world through Amazon in the 12 months to 30 June 2022.[49] Similarly, the growth of app stores has led to a corresponding increase in the number of app developers in Australia, with IBISWorld estimating growth from approximately 250 in 2010 to approximately 7,500 in 2022.[50] Businesses also benefit from being searchable on services such as Google Maps.

Businesses widely use digital platform services in their operations, such as productivity software or to advertise to consumers. Expenditure on online advertising was AUD14.2bn in 2022 according to the IAB Australia Online Advertising Expenditure Report.[51] Search and display advertising allow businesses to reach larger markets and to finely target advertisements to reach consumers.[52] The ACCC's Report on Social Media estimated that approximately 150,000–200,000 Australian advertisers were on Meta (Facebook and Instagram) during September 2022.[53]

Digital platform services also create new opportunities. For example, influencers can monetise their content on digital platform services including Instagram or YouTube. Research conducted for Google estimated that YouTube's creative ecosystem supported more than 18,000 full time equivalent jobs in Australia in 2021.[54]

Cloud computing can facilitate the digital transformation, as embedding cloud technology can make businesses more efficient and provide access to tools to improve productivity. Businesses can acquire computing power, storage and other services as needed from cloud providers, rather than needing to pay for their own data centres and services. Amazon, Google and Microsoft are key suppliers of cloud services in Australia. Cloud providers can also provide businesses with access to tools to improve productivity. The proportion of businesses using cloud computing reached 55% by 2021.[55]

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49 Amazon, Online stores and export opportunities empower Australian SMBs, 15 November 2022, accessed 14 September 2023.

50 D Martin, Smartphone App Developers in Australia Industry Report, *IBISWorld*, January 2023, accessed 14 September 2023.

51 IAB Australia, Online advertising expenditure report CY22 & December quarter 2022, 26 February 2023, accessed 14 September 2023.

52 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 29.

53 ACCC, Digital Platform Services Inquiry Sixth Interim Report, 28 April 2023, p 36.

54 Google, Google Response to Senate Economics References Committee Inquiry into International Digital Platforms operated by Big Tech Companies, March 2023, p 17.

55 Tech Council, The economic contribution of Australia's tech sector [PDF 20.7MB], August 2021, accessed 14 September 2023, p 10. The Tech Council is a peak body representing Australia's technology sector. Members of the Tech Council include Google, Microsoft, AWS, Atlassian, and Optus, among others.

These aspects are particularly beneficial for small and medium-sized businesses that lack the resources of large firms. They can facilitate access to customers through alternative channels, increase the reach and targeting of advertising and improve productivity.

Digital platform service providers contribute both directly and indirectly to the Australian economy. IBISWorld data estimates that the 5 digital platform ecosystems of Amazon, Apple, Google, Meta and Microsoft directly employ approximately 15,000 employees in Australia.[56] Operations in Australia can also come with substantial investment, such as in local infrastructure.[57] Combined with the opportunities that digital platform service providers make available to other businesses, they can make significant contributions to the economy. Some digital platform service providers have estimated the contributions their businesses make to the Australian economy, though the ACCC is not in a position to independently verify these statistics:

- A study conducted for Google estimates that through its services Australian businesses gain AUD47.1bn worth of economic value annually, supporting 133,300 jobs, with a further 186,500 jobs enabled across businesses' supply chains.[58]
- Amazon estimates that Australian businesses selling on its platform have created more than 20,000 jobs in Australia to support their Amazon-related business activities.[59]
- Microsoft estimates that its partner network contributed AUD55bn to the Australian economy in 2020, of which AUD26bn was Microsoft-attributable revenue.[60]

The Tech Council, which represents the interests of Australia's tech industry, states that the tech sector contributed an estimated AUD167bn to the Australian economy in the 2021 financial year, equivalent to 8.5% of gross domestic product.[61] Digital platform service providers play a significant role in the tech sector.

As Australian businesses conduct more of their activities online, digital platform services are likely to become increasingly crucial to their success and productivity. This success with both consumers and businesses has allowed certain digital platforms to become some of the world's biggest companies, dwarfing the scale of even the largest Australian businesses as shown in figure 2.2 below.[62] The combined market capitalisation of these 5 digital platforms is more than 5 times the combined market capitalisation of all domestic companies listed on the ASX.[63]

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56 Estimates of employees gathered from IBISWorld. For example, see IBISWorld, Australia company profiles – Microsoft Pty Limited, accessed 14 September 2023.

57 For example, Amazon plans to invest AUD6.8bn in the AWS Melbourne Region over the next fifteen years. This is estimated to support an annual average of over 2,500 full-time equivalent jobs at external businesses, and add AUD15.9bn to the Australian gross domestic product by 2037. AWS, AWS response to Senate Economics References Committee Inquiry into International Digital Platforms operated by Big Tech Companies, 28 February 2023; Google, How we're helping build a strong digital future – for all Australians, 15 November 2021, accessed 14 September 2023.

58 Google submission, House of Representatives Committee on Economics Inquiry into promoting economic dynamism, competition and business formation, 19 May 2023.

59 Amazon, Online stores and export opportunities empower Australian SMBs, 15 November 2022, accessed 14 September 2023.

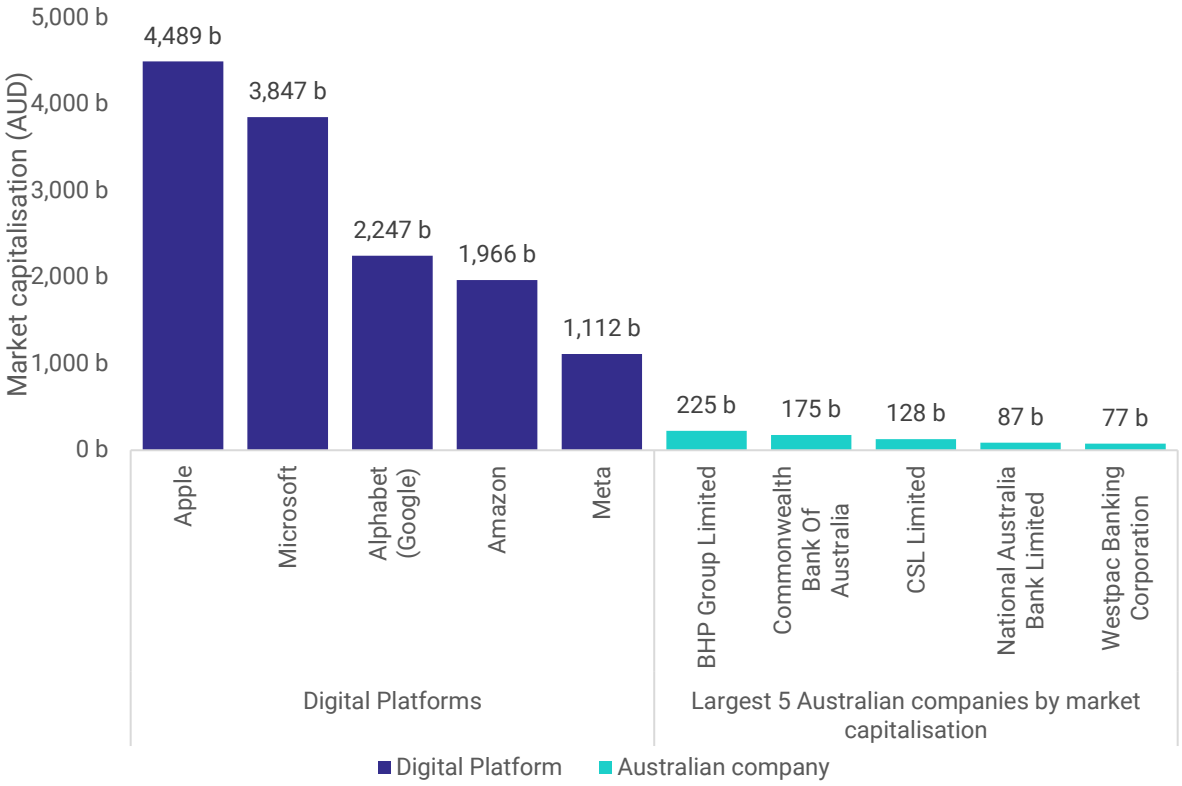
60 Microsoft, Microsoft response to Senate Economics References Committee Inquiry into International Digital Platforms operated by Big Tech Companies, 3 March 2023.

61 Tech Council, The economic contribution of Australia's tech sector [PDF 20.7MB], August 2021, accessed 14 September 2023, p 5; Google, Submission to the ACCC Digital Platform Services Inquiry Fifth Interim Report [PDF 2.0MB], May 2022, p 6. Made up of a direct contribution from tech-related industries of AUD76bn and an indirect contribution of AUD92bn.

62 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 30.

63 Digital platforms' market capitalisation taken from Nasdaq.com on 26 July 2023 and converted to AUD based on an exchange rate of 1.4741875, extracted from XE. Total combined digital market capitalisation of the 5 digital platforms totalled AUD13.661 tn. Total market capitalisation of domestic companies listed on the ASX was gathered from ASX.com and valued at AUD2.575984 trillion at the end of July 2023. See ASX, Historical market statistics, accessed 14 September 2023.

Figure 2.2: Comparison of market capitalisation of digital platforms and the largest Australian businesses[64]



2.3. Digital platform service providers are increasingly active in emerging technologies

Digital platform service providers are increasingly integral in the development and supply of emerging digital technologies. Some of these technologies could have transformative potential for society and the economy, with digital platform service providers playing crucial roles in their development. Appendix A to this Report contains more detail on the role digital platform service providers have played in developing, disseminating, and evolving emerging technologies. Expansion strategies used by digital platform service providers in growing their ecosystems are discussed in section 4.2.1. However, expansion into emerging technologies often includes both investment in research and development (R&D) and acquisitions.

Artificial intelligence (AI) is an example of the expansion of digital platform service providers into emerging technologies. AI technologies are embedded in a huge variety of products and services that consumers rely upon every day, such as translation services, spell check and autocomplete services, updating traffic information in mapping services and understanding voice commands.[65] Digital platform service providers are also driving the development of generative AI, such as via Microsoft's Bing Chat or Google's Bard.

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64 Australian businesses market capitalisation taken from ASX Top 50 by Market Cap on 26 July 2023. Digital Platforms taken from Nasdaq.com on 26 July 2023 and converted to AUD based on an exchange rate of 1.4741875, extracted from XE.

65 J Burr, '9 ways we use AI in our products', *The Keyword (Google Blog)*, 19 January 2023, accessed 14 September 2023.

The 5 digital platform ecosystems considered in this Report make considerable investments in R&D, with AI (or subsets of AI such as machine learning, speech and natural language processing, or computer vision) being a key research area.[66] They are also expanding in these areas through acquisitions. Between 2013 and 2020, Apple purchased 14 AI companies, most of which worked on virtual assistance, facial and voice recognition, natural language processing, and machine or deep learning.[67]

Cloud computing, immersive technologies (such as virtual and augmented reality (VR/AR)), robotics and quantum computing are examples of other technologies where digital platform service providers are making substantial investments.[68] The Department of Industry, Science and Resources and the Productivity Commission have noted these areas have transformative potential for the economy.[69]

As digital technologies become ever more deeply embedded and diversely woven through the fabric of the economy and society, digital platform service providers are making substantial investments, funded by the revenue generated from their core services, to ensure they are in strategically important positions in an evolving digital economy.[70] Given the scale of investments necessary and the long payback period, digital platform service providers may be able to make investments that some rivals may struggle to match, owing to the large revenue generated by their core services. For example, Meta has reportedly spent USD100bn on research and development and product development on immersive technologies (the Metaverse).[71] The role digital platforms service providers are playing in the development of these technologies speaks to their importance to the Australian economy, both now and in the future.

As the ACCC's Regulatory Reform Report highlighted, because of the significance of digital platform services, and because competition is important for markets to function well, ensuring effective competition in the supply of these services is crucial for productivity and the future prosperity of Australians.[72] This will only become more important with the growth and expansion of the digital economy and the ecosystems of digital platform service providers.

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66 Google, Research areas, accessed 14 September 2023; Facebook, Research areas, accessed 14 September 2023; Amazon, Research areas, accessed 14 September 2023; Apple, Machine learning research, accessed 14 September 2023; Microsoft, Microsoft research: Advancing science and technology to benefit humanity, accessed 14 September 2023.

67 M Worsdorfer, Apple's Antitrust Paradox, *European Competition Journal (forthcoming)*, 30 June 2023.

68 Google, Research areas, accessed 14 September 2023; Facebook, Research areas, accessed 14 September 2023; Amazon, Research areas, accessed 14 September 2023; Apple, Machine learning research, accessed 14 September 2023; Microsoft, Microsoft research: Advancing science and technology to benefit humanity, accessed 14 September 2023.

69 Department of Industry, Science and Resources, List of critical technologies in the national interest, 19 May 2023, accessed 14 September 2023; Productivity Commission, 5-year Productivity Inquiry: Advancing Prosperity, Volume 4, 7 February 2023, accessed 14 September 2023, p 3.

70 For example, according to the European Commission's EU Industrial R&D Investment Scoreboard, Google, Meta, Microsoft, and Apple were among the top 5 investors in R&D worldwide in 2022. The European Commission also noted that while Amazon is not included in the list because it does not separate out R&D and content investments, it estimates that Amazon invests more than Google and would likely be top investor in R&D in the world. See also Grassano et al, The 2022 EU Industrial R&D Investment Scoreboard, 13 December 2022, accessed 14 September 2023, p 43. The EU Industrial R&D Investment Scoreboard seeks to provide an R&D investment database that companies, investors and policymakers can use to compare individual company performances against the best global competitors in their sectors. The 2022 edition analyses the world's top 2500 companies that invested the largest sums in R&D in 2021.

71 A Hern, 'Meta shares dip is proof metaverse plan never really had legs', *The Guardian*, 28 October 2022, accessed 14 September 2023.

72 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022.

3. Business models of digital platform service providers

This chapter considers the business models of digital platform service providers, particularly in terms of how they generate and capture value and what impact this might have on their incentives and behaviour.

The ACCC has considered the business models of digital platform service providers in previous DPSI reports. In particular, these reports have examined the business models of Amazon, Apple, Google, Meta (Facebook) and Microsoft as they relate to news referral, search engines and browsers, social media, app stores and online retail marketplaces.[73] This chapter builds upon that previous work.

3.1. Business models impact behaviour and incentives

Digital platforms such as Amazon, Apple, Google, Meta and Microsoft all offer a range of digital platform services and, in some cases, compete in the provision of these services (see section 4.1.1 below under 'Common areas of expansion'). However, even when there is overlap in the products and services offered, the business models underpinning these services can vary by firm. For example, while Apple and Google both offer mobile operating systems, the ways in which they make them available to consumers and monetise them differ.

Each of these 5 firms also generates and captures value in various ways across its product and service lines. That is, none have a singular business model adopted within the business. For example, Meta's Reality Labs business generates revenue from the development and sale of consumer hardware, software and content, while its Facebook business generates revenue by attracting audiences and content creators and selling advertising.

The business models of these firms may also change over time. Due to the dynamic nature of digital markets and technology, digital platform service providers have needed to be able to adapt to market conditions, including how products and services are delivered to users and how they are monetised. For example, while Microsoft initially offered its software through physical media (including floppy disks, and later CDs and DVDs), it has increasingly moved to the online delivery of software. This has enabled its transition from the sale of one-off licences towards a subscription-based model.[74]

Understanding the business models of digital platform service providers is relevant to analysing the incentives that exist for these firms to expand their ecosystems of products and services and the potential competition and consumer implications of expansion.

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73 ACCC, Digital Platforms Inquiry Final Report, 26 July 2019, pp 60–64 (considers the business models of Google and Facebook in connection to their news aggregation, search and social media services); ACCC, Digital Platform Services Inquiry Third Interim Report, 28 October 2021, pp 70–71 (considers the business models of Google, Apple and Microsoft in connection with their device ecosystems); ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, pp 31–32 (summarises the business models of Google, Facebook, Apple and Amazon); ACCC, Digital Platform Services Inquiry Sixth Interim Report, 28 April 2023, pp 7, 25–28 (considers the business models of social media platforms such as Facebook, Instagram, YouTube and LinkedIn).

74 See, for example, G Keizer, Microsoft to cut perpetual Office support by 50%, raise price by 10%, *Computerworld*, 25 February 2021, accessed 14 September 2023.

This chapter is structured as follows:

- Section 3.1.1 discusses what services the ACCC considers are likely to be the 'core' services of these digital platform service providers.
- Section 3.1.2 discusses several different types of business models used by digital platforms, and how the business model of the platforms' core services may impact the incentives and behaviour of digital platform service providers.

3.1.1. Core services of the large digital platforms

The ACCC considers that many digital platform service providers have certain services that form the centre of their respective ecosystems. The ACCC describes these as 'core services' and the markets they compete in as 'core markets'.[75] The business model each firm adopts in relation to those core services will often critically affect how the firm behaves in the various other markets it enters and competes in.

In particular, these firms may be more likely to enter markets that are complementary to their core markets, because it enhances the demand for the firm's existing products. These firms may also engage in strategies to protect their position in core markets. That is, they may be more likely to engage in strategies to maintain or enhance their competitive advantages in these core markets (which may have the effect of raising barriers to entry and expansion).

The ACCC has approached the concept of core services in 2 ways: firstly, by considering the products or services that generate the most revenue for each digital platform; and secondly, by identifying the products or services where each platform has a strong market position. As digital platform services might be monetised on only one side of the platform (e.g., through advertising), a 'core' service in terms of the revenue or profit it generates may also be underpinned by a broader set of (consumer-facing) services.

To inform the revenue-based analysis, the ACCC reviewed the global financial statements of Amazon, Apple, Google, Meta and Microsoft to obtain an overview of their core services by *revenue*.[76] While Australian revenue data was also considered, due to the global nature of these firms and the comparative size of the Australian market, we consider that their core services (and related strategies) are likely determined at a global level.

To inform the market position analysis, the ACCC considered the firms' *relative market positions* across the various sectors in which they operate. The ACCC has previously made conclusions on the market power of several digital platform service providers in Australia.[77] However, as digital platform service providers tend to adopt similar approaches to the supply of services across geographic markets, it is relevant to consider their relative positions in other large jurisdictions.

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75 Note, the ACCC's approach to this term differs from the term 'core platform services' used in the EU Digital Markets Act, which refers to a specific list of digital platform services. See European Union, Regulation (EU) 2022/1925 of the European Parliament and of the Council of 14 September 2022 on contestable and fair markets in the digital sector and amending Directives (EU) 2019/1937 and (EU) 2020/1828, OJ L 265, 12.10.2022, p 1-66 (Digital Markets Act), Article 2(2).

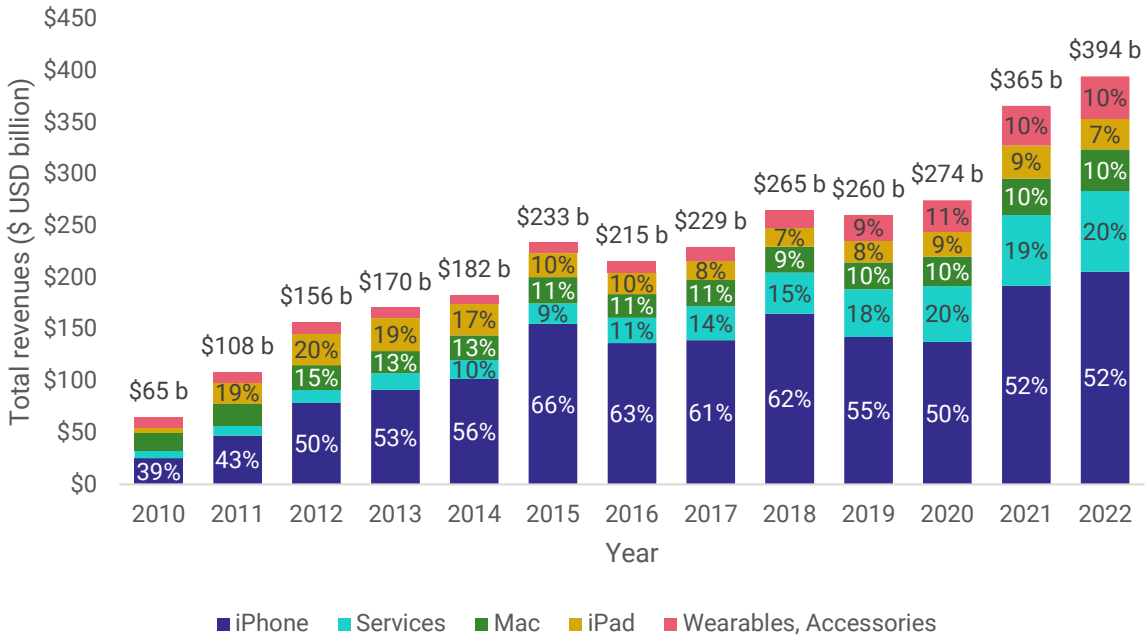
76 In particular, the US Securities and Exchange Commission (SEC) Form 10-K Annual reports and the ASIC Form 338 Annual Reports for Amazon, Apple, Google. Meta and Microsoft.

77 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 37–38.

Apple

The ACCC considers that Apple's iPhone bundle of products and services is currently its core set of revenue-generating products and services. According to Apple's global financial statements, iPhones are its primary source of revenue (52% of total revenues in 2022) and have been for the last 12 years (see figure 3.1).

Figure 3.1: Apple global revenues by segment (total) – 2010 to 2022[78]



Apple's device offerings, including the iPhone, are not limited to the physical device itself but also encompass a broad ecosystem of related Apple services. These services include the Apple operating systems,[79] access to the App Store, and a range of pre-installed apps, including Apple's mobile browser, Safari.[80] These services are included as part of the price of the device, are only available for users of Apple devices and are generally not offered separately. Apple does not currently allow alternative operating systems or competing app stores on its mobile devices (further discussed in section 3.1.2 below). There are, however, alternatives to other pre-installed apps, such as other browsers.

In addition to revenue from the Apple App Store, and its payment services such as Apple Pay, Apple's 'Services' segment also includes other services for which it charges fees directly to consumers, such as its digital content and streaming services, advertising, and paid cloud services.[81]

In Australia, the ACCC has previously found that Apple has market power in the supply of mobile operating systems (iOS) and mobile app distribution (App Store).[82] Similar findings

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78 Based on ACCC analysis of Apple Inc's US SEC Form 10-K Annual reports, available at SEC Filings, Apple Investor Relations, accessed 14 September 2023. Totals on chart have been rounded down to the nearest billion.

79 For example, iOS for iPhones, iPadOS for iPads and macOS for Mac computers.

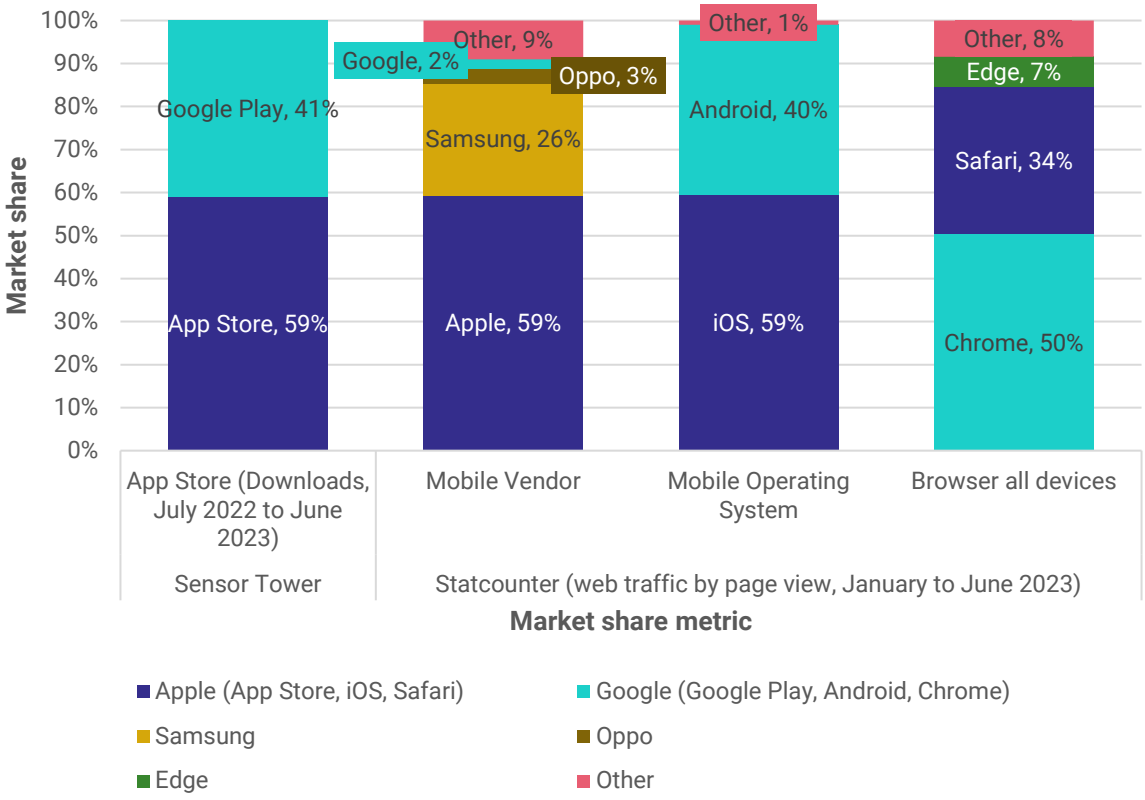
80 Apple states that the price of its iPhones, Macs and iPads consist of 3 performance obligations: firstly, the hardware and bundled software (i.e., operating system and built-in apps) delivered at time of sale; secondly, the ongoing provision of bundled services such as iCloud, Siri and Maps; and finally, the right to receive software upgrades. See Apple Pty Limited, ASIC Form 338 Annual report 2022, p 19 (available at ASIC Connect).

81 Apple Inc, Form 10-K for the fiscal year ended September 24, 2022, accessed 14 September 2023, p 2.

82 ACCC, Digital Platform Services Inquiry Second Interim Report, 28 April 2021, p 4.

have been made in the US, UK, Japan and India.[83] In the UK, the CMA also found that Apple has market power in the supply of mobile devices (iPhones) and mobile browsers (Safari).[84] As demonstrated by figure 3.2 below, Apple continues to hold a strong position in the Australian markets for mobile devices, mobile operating systems, app stores and browsers.

Figure 3.2: Combined market share for Apple in Australia – mobile app distribution, mobile devices, mobile operating systems and browsers[85]



Apple's broader device offerings and their related services remain central to Apple's business model. Apple generates the majority of its global revenues from the sale of devices and accessories (80% in 2022).[86] In 2022, Apple's devices and accessories made up 84% of its revenues in Australia.[87]

Despite year-on-year iPhone sales dropping 2.4% and iPad sales falling 19.8% in the third quarter global financial results for fiscal year 2023, Apple's Services segment was up 8% (year-on-year), and the segment is projected to grow 5.8% annually moving forward.[88] In an interview, Apple's Chief Financial Officer, Luca Maestri, was quoted in relation to these results as saying "The services business is important in many ways for us. It strengthens our

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83 US Department of Commerce, Competition in the Mobile App Ecosystem, 1 February 2023; CMA, Mobile Ecosystems Market Study Final Report, 10 June 2022; Japan Fair Trade Commission, Market Study Report on Mobile OS and Mobile App Distribution, 9 February 2023; Competition Commission of India, Case No. 24 of 2021, 31 December 2021.

84 CMA, Mobile Ecosystems Market Study Final Report, 10 June 2022.

85 Sensor Tower, Store Summary iOS and Android App Downloads Australia – Downloads July 2022 – June 2023; Statcounter, Mobile Vendor Market Share Australia – Web traffic by page view, January – June 2023; Statcounter, Mobile Operating System Market Share Australia Web traffic by page view, January – June 2023; Statcounter, Browser Market Share Australia Web traffic by page view, January – June 2023.

86 Based on ACCC analysis of Apple Inc's US SEC Form 10-K Annual reports.

87 Based on ACCC analysis of Apple Pty Limited's ASIC Form 338 Annual reports between 2018-2022 (available at ASIC Connect).

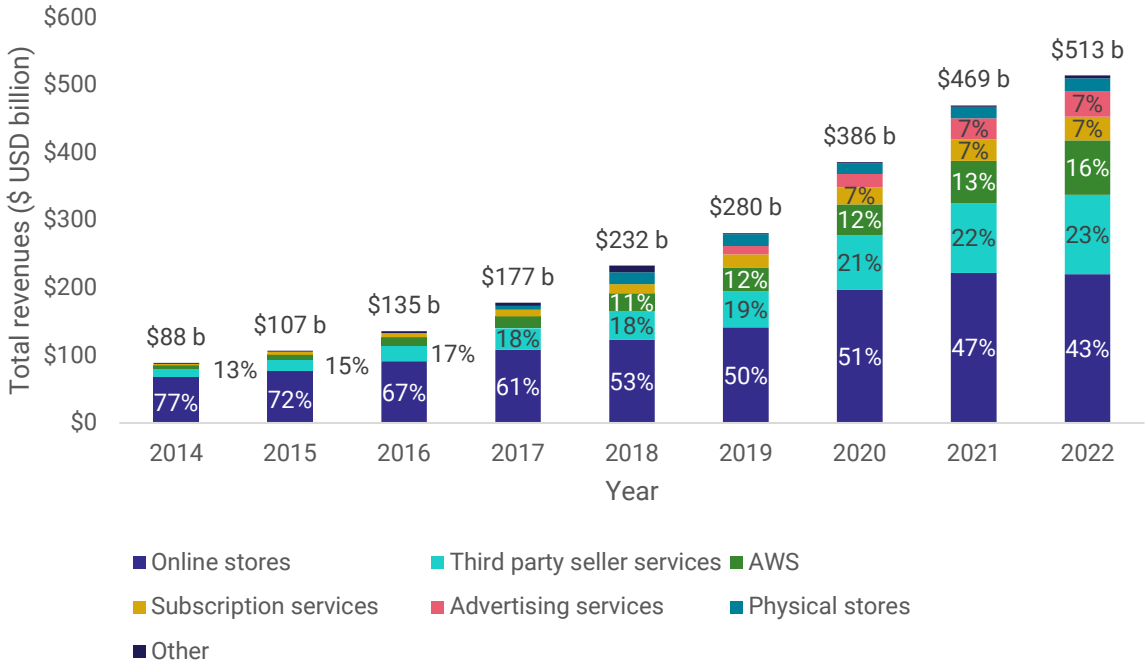
88 Apple, Apple reports third quarter results, 4 August 2023, accessed 14 September 2023; I O'Sullivan, Apple's Historic iPhone Sales Slump Not Biting Into AI Spend, *tech.co*, 4 August 2023, accessed 14 September 2023.

ecosystem [and] it's important because it makes the overall business less dependent on the performance of our products."[89]

Amazon

The ACCC considers that Amazon's online retail and cloud businesses are its core revenue-generating services. First-party sales generated through its online retail marketplace accounted for 43% of its global revenues in 2022 (see figure 3.3).

Figure 3.3: Amazon global revenues by segment (total) – 2014 to 2022[90]



However, as shown in figure 3.3 above, third-party seller services, as part of its online retail marketplace, are an increasingly important aspect of Amazon's business. Revenues from Amazon's third-party seller services increased from 13% to 23% of Amazon's total global revenues between 2014 and 2022.[91]

Amazon has a large presence in the US. Amazon has been found to have significant and durable market power in the US online retail market.[92] However, Amazon has also significantly invested in expanding its international ecommerce business over the last 10 years. Amazon is now the dominant marketplace in several European countries (France, Italy, Spain, Germany and the UK).[93]

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89 I O'Sullivan, Apple's Historic iPhone Sales Slump Not Biting Into AI Spend, *tech.co*, 4 August 2023, accessed 14 September 2023.

90 Based on ACCC analysis of Amazon.com Inc's US SEC Form 10-K Annual reports: available at SEC Filings, Amazon Investor Relations, accessed 14 September 2023. Totals on chart have been rounded down to the nearest billion.

91 This appears to be the result of both an increase in third-party sales volumes and an increase in additional services that Amazon offers to sellers (such as Fulfilment by Amazon).

92 Subcommittee on Antitrust, Commercial and Administrative Law of the Committee of the Judiciary, Investigation of Competition in Digital Markets: Majority Staff Report and Recommendations, 6 October 2020, pp 254–255.

93 ACCC, Digital Platform Services Inquiry Fourth Interim Report, 28 April 2022, accessed 14 September 2023, p 82. See also European Commission, Case AT.40462 Amazon Marketplace and AT.4070 Buy Box – Commitment Decision, 20 December 2022, accessed 14 September 2023.

Amazon's Amazon Australia Store launched in December 2017. While Amazon is yet to make a profit in Australia, its marketplace revenues have increased significantly — from AUD129m in 2018 to AUD1.6bn in 2022.[94] In the ACCC's Report on General Online Retail Marketplaces, the ACCC found that at that time (March 2022), no single marketplace held a dominant position in Australia. However, the ACCC noted the potential for the market to tip (particularly in certain product categories) in favour of Amazon, having regard to overseas experience.[95]

Since that report was published in April 2022, Amazon's popularity has continued to grow in Australia. For example, while in 2021 the most popular online retail marketplace in Australia was eBay (with 60% of Australian consumers shopping on eBay in that year), in 2022, Amazon marginally overtook eBay as the most popular marketplace (60%, compared to 58% of consumers shopping with eBay).[96] This is also reflected in terms of Amazon's share of ecommerce traffic, which has increased from 9% to 12% since 2021, while eBay's has trended down from 17% to 11% over the same period.[97]

Amazon's cloud computing business, Amazon Web Services (AWS), has also become one of its core services, with the share of overall revenues coming from that business growing from 5% in 2014 to 16% in 2022 (see figure 3.3). In terms of market position, Amazon has been found to have a dominant position in cloud computing in the US.[98] Amazon has also been found to have a significant share of the cloud infrastructure and cloud platform markets in the UK, the Netherlands and Japan.[99] Amazon is also the leading supplier of cloud infrastructure services in Australia with 32% market share (followed closely by Microsoft at 30%).[100]

Amazon has been found to have market power in ebook distribution in the EU.[101]

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94 Based on ACCC analysis of Amazon Commercial Services Pty Ltd.'s ASIC Form 338 Annual reports between 2018–2022 (available at ASIC Connect). For marketplace revenues, we have combined Amazon's revenues from (first-party) online retail sales via Amazon.com.au and third-party seller services.

95 ACCC, Digital Platform Services Inquiry Fourth Interim Report, 28 April 2022, pp 82–83.

96 N Scholl, 'The Most Popular Marketplace? Latest Consumer Research Reveals All', *Power Retail*, 16 June 2022 (full article available via Wayback Machine, accessed 14 September 2023). In the study, consumers were asked 'Which of the following marketplaces have you shopped at in the last 12 months?'.

97 Similarweb, Market Performance, Ecommerce and Shopping – Total Visitors, January 2021 to June 2023, Australia, accessed 14 September 2023; Similarweb, Website Analysis: ebay.com.au, Traffic and Engagement - Total Visitors, January 2021 to June 2023, Australia, accessed 14 September 2023; Similarweb, Website Analysis: amazon.com.au, Traffic and Engagement - Total Visitors, January 2021 to June 2023, Australia, accessed 14 September 2023.

98 Subcommittee on Antitrust, Commercial and Administrative Law of the Committee of the Judiciary, Investigation of Competition in Digital Markets: Majority Staff Report and Recommendations, 6 October 2020, p 319.

99 Ofcom, Cloud services market study, Interim report, 5 April 2023, p 68 (40-50% of cloud infrastructure (IaaS) and 20–30% of cloud platform (PaaS) markets); ACM, Market Study Cloud services, 5 September 2022, pp 33–35 (30–35%); Japan Fair Trade Commission, Report on Trade Practices in Cloud Services Sector, June 2022, p 7 (49.6% of IaaS and 27.6% of PaaS markets).

100 See, for example, E Dickinson, 'Azure continues AWS encroachment as Aussie IaaS market hits $1.9B', *ARN*, 3 June 2022, accessed 14 September 2023 (based on data obtained from Gartner). This was supported by Google in its submission to the Bragg Inquiry: Google response to Senate Economics References Committee Inquiry into International Digital Platforms operated by Big Tech Companies [PDF], March 2023, p 17.

101 European Commission, E-book distribution AT.40153 – Commitments decision, 4 May 2017.

Microsoft

The ACCC considers that Microsoft's core revenue-generating services are its cloud computing services, Office/Microsoft 365 productivity suite, and the Windows desktop operating system. Unlike Apple, Amazon, Google and Meta, Microsoft's global revenues are more evenly spread across its business units, with its server and cloud product segment (including Azure) making up the largest share of its global revenues (~34%).[102]

Microsoft's cloud computing business has been growing significantly over the past 10 years. Cloud computing revenues increased from USD18bn in 2012 to USD75bn in 2022.[103] Microsoft has a strong global position in cloud services and has been found to have a significant share of the cloud computing and platform markets (along with AWS) in the UK, the Netherlands and Japan.[104] Microsoft is a leading provider of cloud infrastructure services in Australia, with 30% market share.[105]

Microsoft has long been the leading global supplier of office productivity suites (particularly for enterprise), although Google's Workspace (formerly G Suite) continues to gain market share.[106] Microsoft's commercial Office (productivity suite) offerings, such as its enterprise Microsoft 365 subscriptions, are a significant part of Microsoft's business; accounting for approximately 19% of its total global revenue.[107] Microsoft has also announced plans to release a version of Microsoft 365 with artificial intelligence features, such as summarising meetings or creating PowerPoint presentations from a prompt, for which it would charge an additional USD30 a month per user.[108]

Microsoft Windows continues to have a high share of the desktop operating system market globally, including in Australia (as shown in figure 3.4).[109] Microsoft has, in the past 25 years, been found to have market power in desktop operating systems in the EU and US.[110] In 2022, the CMA found that Microsoft still had a 70-80% share of UK desktop operating systems market.[111] Though Apple's (macOS) market share has grown, this has not resulted in a significant drop in the number of Windows-based devices. While Microsoft's Windows revenues have decreased as a proportion of its overall revenues over the past 10 years (from 26% of total revenue in 2012 to around 13% in 2022), this is largely owing to the growing importance of Microsoft's cloud business.[112]

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102 Based on ACCC analysis of Microsoft Corporation's US SEC Form 10-K Annual reports: available at Microsoft SEC Filings, Microsoft Investor Relations, accessed 14 September 2023.

103 Based on ACCC analysis of Microsoft Corporation's US SEC Form 10-K Annual reports.

104 Ofcom, Cloud services market study, Interim report, 5 April 2023, p 68 (30-40% of cloud infrastructure (IaaS) and 20-30% of cloud platform (PaaS) markets in 2021); ACM, Market Study Cloud services, 5 September 2022, pp 33–35 (40–45%); Japan Fair Trade Commission, Report on Trade Practices in Cloud Services Sector, June 2022, p 7 (45.2% of IaaS and 52.8% of PaaS markets).

105 E Dickinson, 'Azure continues AWS encroachment as Aussie IaaS market hits $1.9B', *ARN*, 3 June 2022 accessed 14 September 2023 (based on data obtained from Gartner).

106 For example, Gartner estimates that Microsoft's market share of the productivity software market in 2020 was 89% (compared to the 10% share of Google's Workspace). See M Finnegan, 'As Google moves to reshape Workspace, barriers to business adoption remain', *ComputerWorld,* 18 October 2021, accessed 14 September 2023 (citing Gartner research published on 27 July 2021, accessed 14 September 2023).

107 Based on ACCC analysis of Microsoft Corporation's US SEC Form 10-K Annual reports.

108 Microsoft, Introducing Microsoft 365 Copilot: your copilot for work, 16 March 2023, accessed 14 September 2023; J Dastin, Microsoft to charge a premium for AI in Office, *CRN*, 19 July 2023, accessed 14 September 2023.

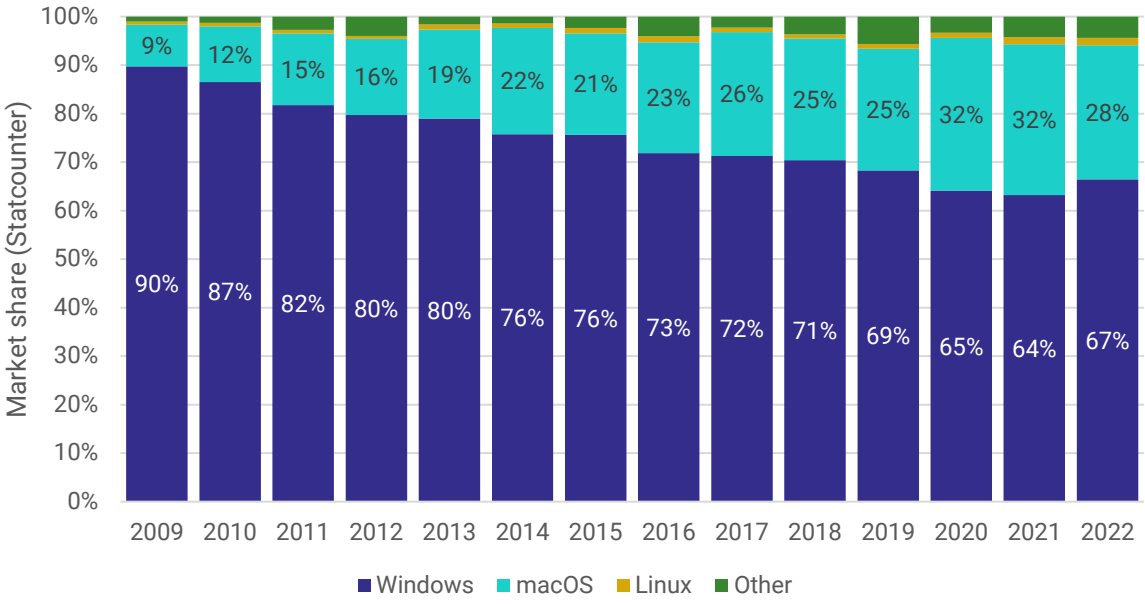
109 See, for example, Statcounter, Desktop Operating System Market Share Worldwide, Jan 2018-Apr 2023, accessed 14 September 2023.

110 European Commission, Microsoft (Tying) AT.39530 – Commitments decision, 16 December 2009; US Columbia District Court decision, U.S.A v. Microsoft Corporation, 18 May 1998.

111 CMA, Microsoft/Activision phase 1 decision [PDF 664KB], 12 October 2022, paragraph 260.

112 Based on ACCC analysis of Microsoft Corporation's US SEC Form 10-K Annual reports.

Figure 3.4: Desktop Operating System Market Share Australia 2009 – 2022 by Web Traffic[113]



Google

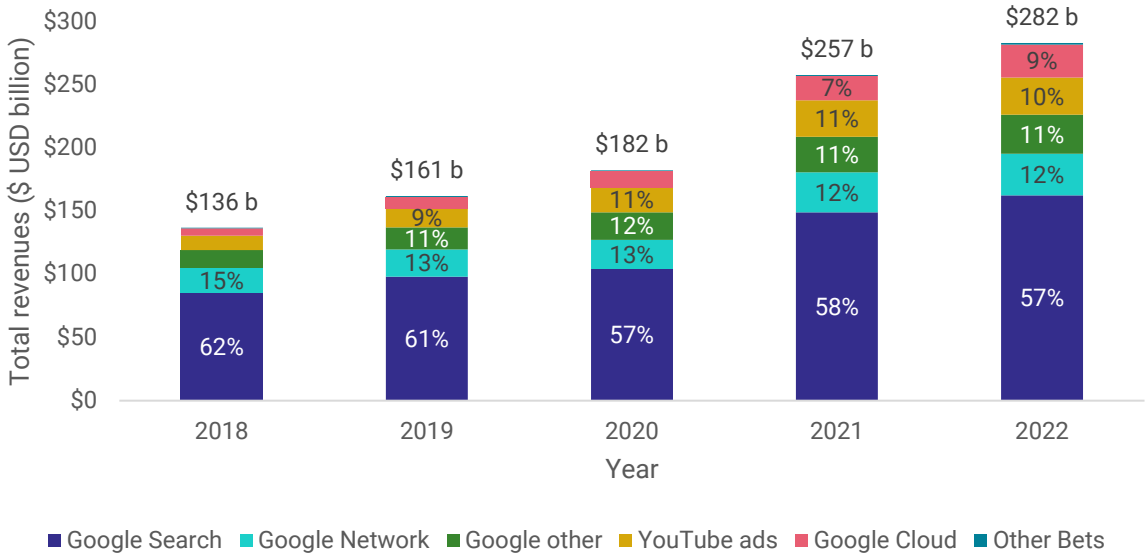
The ACCC notes that Google's core revenue-generating services are its search advertising and ad-tech services. However, Google's advertising services are underpinned by several core consumer-facing services (such as Google Search and Google Maps) that are essential inputs for its advertising business.

Google derives most of its global revenues from digital advertising services (79% in 2022, see figure 3.5 below). In Australia, digital advertising also accounted for the majority of Google's total revenue in 2022.[114]

[113] Statcounter, Desktop Operating System Market Share Australia 2009 - 2022, accessed 14 September 2023.

[114] Based on ACCC analysis of Google Australia Pty Ltd.'s ASIC Form 338 Annual reports between 2018–2022 (available at ASIC Connect).

Figure 3.5: Google global revenues by segment (total) – 2018 to 2022[115]



The ACCC has previously found that Google has market power in search advertising and dominance in the ad tech supply chain.[116] Similar findings have been made in the EU, US, UK and India.[117]

Google's digital advertising services, however, are underpinned by a broader set of consumer services that are often offered for a zero monetary price, and which are monetised through advertising services. In particular, Google's digital advertising revenues are generated from ads on Google's Search and other services like Gmail, Google Maps and Google Play (USD162bn in 2022), YouTube (USD29bn in 2022); as well as Google network revenues generated via its ad tech services (USD33bn in 2022).[118]

The ACCC has previously found that Google has market power in general search services.[119] Google Search has consistently held over 90% share of the supply of general search services in Australia from 2013 to 2023.[120]

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115 Based on ACCC analysis of Alphabet Inc, US SEC Form 10-K Annual reports, accessed 14 September 2023. Totals on chart have been rounded down to the nearest billion. Advertising revenues include Google Search, Google Network and YouTube ads. Google's 'Other' and 'Hedging gains' revenues have been combined into the 'Google other' category. For further information regarding Google's digital advertising service revenues, see Alphabet Inc., Form 10-K for the fiscal year ended December 31, 2023 [PDF], p 28.

116 ACCC, Digital Platforms Inquiry Final Report, 26 July 2019, pp 58, 96-97; ACCC, Digital Platform Services Inquiry First Interim Report, 23 October 2020, pp B9-B10; ACCC, Digital Advertising Services Inquiry Final Report, 28 September 2021, p 13. See also ACCC, Digital Platform Services Inquiry Fifth Interim Report - Discussion Paper, 28 February 2022, p 36-37.

117 European Commission, Commission Decision of 20.3.2019 (AT.40411 Google Search (Adsense)), 20 March 2019; Subcommittee on Antitrust, Commercial and Administrative Law of the Committee on the Judiciary, Investigation of Competition in Digital Markets, Majority Staff Report and Recommendations, United States House of Representatives, 6 October 2022, pp 206-208 (see also: US Senate Committee on the Judiciary, Stacking the Tech: Has Google harmed competition in online advertising?, accessed 14 September 2023); CMA, Online platforms and digital advertising market study, Final Report [PDF 4.9MB], 1 July 2020, p 73; Competition Commission of India, Mr. Umar Javeed and Others v. Google LLC and Another, 10 November 2022.

118 Based on ACCC analysis of Alphabet Inc's US SEC Form 10-K Annual reports.

119 ACCC, Digital Platforms Inquiry Final Report, 26 July 2019, pp 58, 64-76; ACCC, Digital Platform Services Inquiry First Interim Report, 23 October 2020, pp B1-7; ACCC, Digital Platform Services Inquiry Third Interim Report, 28 October 2021, pp 24-25. See also ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, pp 36-37.

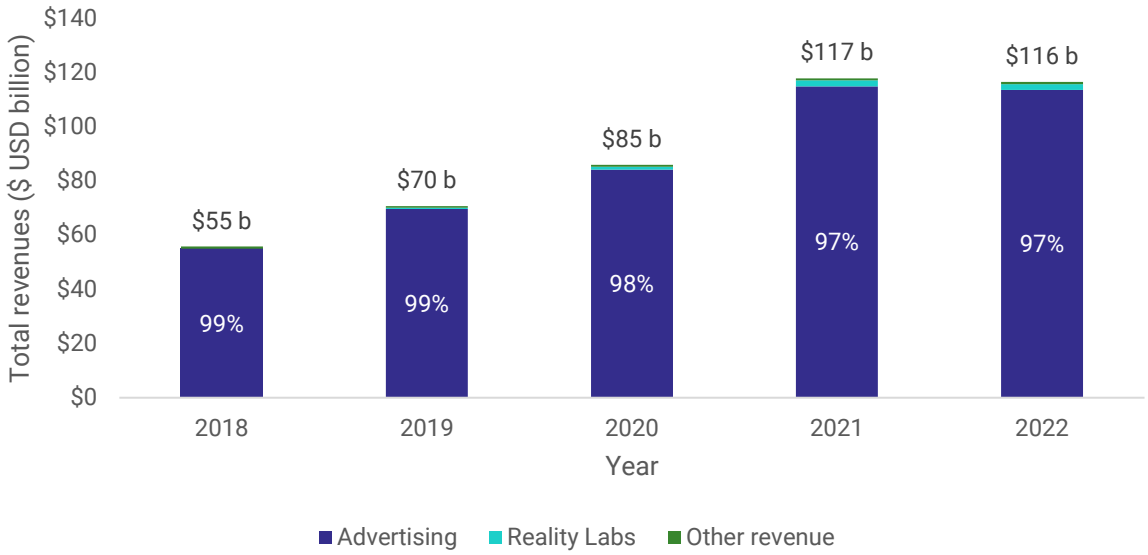
120 Statcounter, Search Market Share Australia, 2013 – 2023, accessed 14 September 2023. See also ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 198.

The ACCC has also found that Google has market power in the supply of mobile operating systems and mobile app distribution.[121] Similar findings have been made in the US, UK and India.[122] The UK's CMA has also found that Google has market power in the supply of mobile browsers and browser engines.[123]

Meta

The ACCC considers that Meta's core revenue-generating services are its display advertising services. In particular, Meta derives the vast majority of its global revenues from its advertising business (~97% in 2022), doubling in amount since 2018 to USD113bn.[124] In Australia, Facebook's revenues are almost entirely derived from advertising.[125] In the Digital Platforms Inquiry Final Report, the ACCC found that Meta has market power in the supply of display advertising services.[126] The CMA made similar findings in the UK.[127]

Figure 3.6: Meta global revenues by segment (total) – 2018 to 2022



Similar to Google, Meta's advertising services are underpinned by several core consumer-facing services. In particular, Meta's advertising revenues are derived from its various advertising platforms. These platforms are Facebook, Instagram, Messenger, and a range of third-party applications and websites. However, Meta notes in its financial reports that

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121 ACCC, Digital Platform Services Inquiry Second Interim Report, 28 April 2021 p 4, 23-43. See also ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, pp 37-38.

122 Subcommittee on Antitrust, Commercial and Administrative Law of the Committee on the Judiciary, Investigation of Competition in Digital Markets, Majority Staff Report and Recommendations, United States House of Representatives, 6 October 2022, pp 93-107, p (mobile operating systems and app stores); CMA, Mobile Ecosystems Market Study Final Report, 10 June 2022, pp 28, 82; Competition Commission of India, CCI Order Case No. 39 of 2018, paragraphs 615-616, 20 October 2022.

123 CMA, Mobile Ecosystems Market Study Final Report, 10 June 2022, p 141.

124 Based on ACCC analysis of Meta Platforms, Inc's US SEC Form 10-K Annual reports, available at Meta, Quarterly Earnings, *Meta Investor Relations,* accessed 14 September 2023.

125 Based on ACCC analysis of Facebook Australia Pty Ltd's ASIC Form 338 Annual reports between 2018-2022 (available at ASIC Connect).

126 ACCC, Digital Platforms Inquiry Final Report, 26 July 2019, p 20. See also ACCC, Digital Platform Services Inquiry Sixth Interim Report, 28 April 2023, pp 129, 132. While the ACCC did not undertake a detailed market power assessment in relation to display advertising for this report, the ACCC noted that Meta continued to have strong position in this market.

127 CMA, Completed acquisition by Facebook, Inc (now Meta Platforms, Inc) of Giphy, Inc, Final Report [PDF 2.3MB], 30 November 2021, p 11; CMA, Online platforms and digital advertising market study, Final Report [PDF 4.9MB], 1 July 2020, pp 211, 250.

substantially all of its revenue is currently generated from third parties advertising on the Facebook and Instagram social media platforms.[128] In this regard, the ACCC has found that Meta has market power in social media services in relation to Facebook and Instagram.[129] Similar findings have been made in the US, Germany and UK.[130]

Meta has also been found to have market power in private messaging in India.[131]

3.1.2. Business models, core services and the incentives for expansion of the large digital platform ecosystems

The type of core service a digital platform service provider offers will influence both its reasons for expanding an ecosystem and the markets it chooses to expand into.[132] Digital platform service providers often use different business models across their various products and services. They monetise their products and services in multiple ways. The ACCC recognises that descriptions of the type of the platform, while helpful, often do not paint a complete picture of how the platform business chooses to monetise its products and services.

The ACCC has considered the following types of platforms, as characterised by their underlying business models:

- advertising-based content platforms
- matching platforms
- software platforms (such as operating systems) which operate as gateways for consumers and businesses.

Digital platform service providers generally operate multi-sided platforms which generate value to users by connecting members of one group on their platform with other groups, and sometimes also by connecting users of the same group.[133] In connecting these distinct groups of users, multi-sided platform markets are often characterised by the presence of network effects.[134]

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128 Meta Platforms, Inc., Form 10-K for the fiscal year ended December 31, 2022, accessed 14 September 2023, p 17.

129 ACCC, Digital Platforms Inquiry Final Report, 26 July 2019, pp 9, 20; ACCC, Digital Platform Services Inquiry Sixth Interim Report, 28 April 2023, p 121.

130 Subcommittee on Antitrust, Commercial and Administrative Law of the Committee on the Judiciary, Investigation of Competition in Digital Markets, Majority Staff Report and Recommendations, United States House of Representatives, 6 October 2022, p 134; CMA, Online platforms and digital advertising market study, Final Report [PDF 4.9MB], 1 July 2020, pp 73, 146; Bundeskartellamt, Bundeskartellamt prohibits Facebook from combining user data from different sources, 7 February 2019. In the EU, the European Commission has made preliminary findings that Meta is dominant in the market for personal social networks across Europe (European Commission, Antitrust: Commission sends Statement of Objections to Meta over abusive practices benefiting Facebook Marketplace, 19 December 2022).

131 Competition Commission of India, Delhi High Court - Facebook vs CCI, 25 August 2022.

132 This does not cover other types of (one-sided) technology companies such as Netflix.

133 D Evans and R Schmalensee, Matchmakers: The New Economics of Multisided Platforms Boston, *Massachusetts: Harvard Business Review Press* (2016), p 47; P Belleflamme and M Peitz, The Economics of Platforms: Concepts and Strategy, *Cambridge: Cambridge University Press* (2021), Chapter 1, p 29.

134 ACCC, Digital Platforms Inquiry Final Report, 26 July 2019, p 61. This aligns with the definition of 'platforms' by Belleflamme and Peitz (2021), which they define as 'entities that bring together economic agents and actively manage network effects between them'. P Belleflamme and M Peitz, The Economics of Platforms: Concepts and Strategy, *Cambridge: Cambridge University Press* (2021), p 40.

The role of network effects (both same-side and cross-side[135]) are highly relevant when considering the incentives and behaviour of digital platform service providers — particularly in terms of their rationales for expanding and creating interconnections between their various products and services.

The ACCC has previously considered the role of network effects in certain digital platform services markets as potential barriers to entry and expansion (which can lead to market tipping).[136] Due to network effects, gains from achieving market power are more likely to be enduring,[137] which provides a strong incentive for platforms to engage in conduct that cements their market power in such markets. However, the type and strength of network effects will depend on the type of service being offered.

Digital platform service providers also act as 'private regulators' of their platform ecosystems, setting the rules for access to the platform, for user interaction and the methods of enforcement.[138] This places these firms, particularly those with market power or a strong market position, in an important gatekeeping position between businesses (such as advertisers or sellers) and their target users.

Importantly, while digital platform service providers each have different business models which impact their incentives and behaviour, many digital platforms also share certain common characteristics that may raise barriers to entry and expansion and contribute to market power. As noted in the ACCC's Regulatory Reform Report, these characteristics include strong network effects, economies of scale and scope, barriers to switching and access to high-quality user data, as well as their position as a gatekeeper or important intermediary.[139]

Advertising-based content platforms

Content platforms generally connect content providers and businesses with an audience. Examples of these include social media, search, and news aggregation services. These services have commonly been monetised through advertising and, in this regard, also match advertisers with an audience. As discussed in section 3.1.1, both Google and Meta operate primarily as content platforms with an advertising-based business model. Namely, the main way they capture value and derive revenue from their core services is through advertising. For Meta, this advertising primarily occurs through its Facebook and Instagram social media businesses, and for Google, this is through Google Search and YouTube.

In order to attract advertisers, these types of platforms need to attract users. Advertisers will often place greater value on a platform if it has a greater number of users. This is a key network effect for this type of platform, and drives these types of platforms to increase their user numbers and the amount of time spent on their platforms through providing engaging content. Figure 3.7 below provides an example of the multi-sided nature of these advertising-based content platforms.

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135 *Same-side network effects* occur when an increase in the number of users on a given side of the platform tends to increase the value of a platform to a given user on the same side of that platform. *Cross-side effects* occur when an increase in the number of users on one side of the platform affects the value of the service to a given user on another side of the platform.

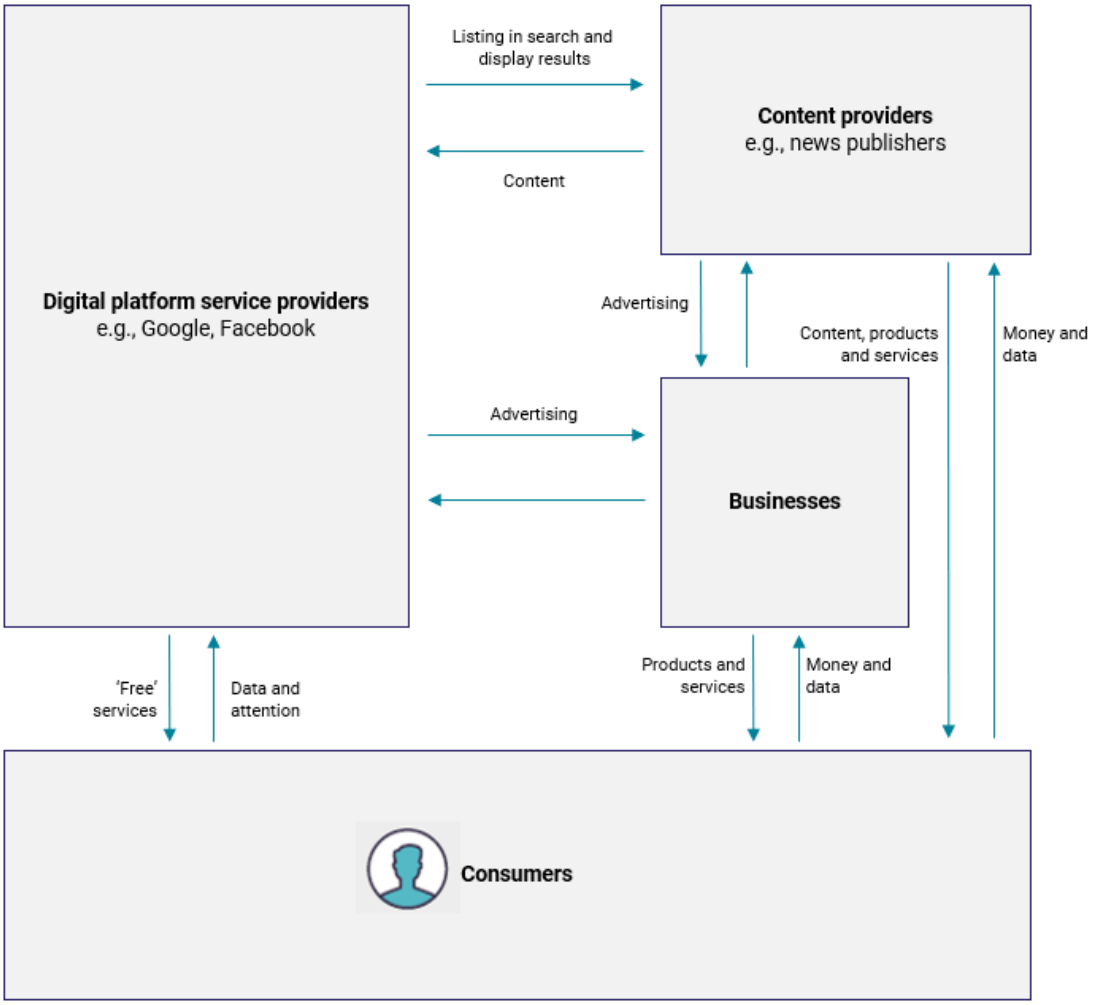
136 See, for example, ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, pp 32–33.

137 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 59.

138 A Gawer, Digital platforms and ecosystems: remarks on the dominant organisational forms of the digital age, *Innovation: Organization & Management*, 24:1 (2021), p 114. See also OECD, Ex Ante Regulation and Competition in Digital Markets, OECD Competition Committee Discussion Paper (2021), p 10.

139 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, pp 6, 40-41.

Figure 3.7: Multi-sided nature of advertising-based content platforms



Digital platform ecosystems that have content platforms at their core and are monetised through advertising will generally have an incentive to increase the size of their audience (or user base), the time users spend within the ecosystem, and the amount of data that they collect. By demonstrating a wider audience reach, these firms can attract more advertisers and sell more ads to earn more revenue. Similarly, by collecting more data, they can improve the targeting of their advertising and, again, earn more revenue from advertisers. Increased data collection also has impacts on the consumer experience (this is discussed further in chapter 7.2).

One of the key strategies for achieving growth in audience numbers is through expansion of the range of consumer-facing services offered by the digital platform service provider. This may include offering consumer-facing services that have features similar to other platform types (such as matching platforms).

For example, Facebook Marketplace matches buyers and sellers on the Facebook platform, and while it may share characteristics with matching platforms (discussed below), its relationship to Facebook's core advertising service is that it keeps users on the platform for longer and allows Facebook to generate more user data. In particular, it provides key consumer data about the types of products that a consumer is looking to purchase, which can be incorporated into the ads that are served to that consumer across Meta's ecosystem.

Advertising-based content platforms, which monetise user attention, might also be on the lookout for competitors that might take users' attention away from their core services, and seek to counter this by mimicking features of rivals (e.g., Instagram Reels was added after TikTok entered the market) or acquiring their rivals or potential rivals.[140]

Moreover, as mentioned above, advertising-based platforms face strong incentives to collect and use data across their ecosystems. The ability to collect and use a large amount of user data is likely to create data feedback loops[141] that can increase barriers to entry and may also raise consumer privacy and data protection concerns.

Matching platforms

Matching platforms connect different groups of users, adding value by reducing the search and transaction costs and any other frictions that prevent the groups from interacting on their own.[142] For example, Amazon Marketplace and Meta's Facebook Marketplace matches buyers and sellers. Matching platforms may connect businesses with consumers (B2C), businesses with other businesses (B2B), and/or consumers with other consumers (C2C). They may also facilitate specific transactions between the 2 parties (e.g., online retail marketplaces), or merely facilitate the introductions and interactions between users (e.g., job listing websites).[143]

Matching platforms also exhibit network effects and will often need to obtain critical mass on both sides of the platform in order to be successful.[144] These network effects on matching platforms tend to be present in both directions between different groups of users. For example, buyers may value an online retail marketplace more if it has more sellers, and sellers may similarly value the platform more if it has more buyers.

Digital platform ecosystems that have matching platforms at their core may encourage growth in user numbers on side A of the platform through subsidies (or offering more services or certain benefits to) these users. This would in turn draw more users on side B of the platform (and encourage even more users on side A and so on). Pricing decisions on either side of the market will be driven by the impacts this will have for attracting users to both sides of the platform, taking into consideration network effects.[145] Platforms might also have an incentive to expand into adjacent markets to improve the quality of services offered by the matching platform. For example, Amazon's expansion to provide fulfillment and delivery services may have been incentivised by its desire to attract more sellers or to ensure timely deliveries and attract more consumers to its marketplace.

Matching platforms may collect data about their users to facilitate the matching process and, for example, identify which users may be interested in particular sellers. However, where a digital platform also collects a significant amount of first-party information regarding the transactions and user activity on its matching platform, there may be a risk of

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140 TikTok launched globally in September 2017, while Instagram Reels was launched in 2020 (followed shortly after by Facebook Reels). See ACCC, Digital Platform Services Inquiry Sixth Interim Report, 28 April 2023, pp 38, 41 and 44.

141 In the Digital Platforms Inquiry Final Report, the ACCC noted that digital platform service providers can use data to improve their services and attract more services (and advertisers), and that this then allows them to collect more data – creating a virtuous feedback loop. ACCC, Digital Platforms Inquiry Final Report, 26 July 2019, p 11.

142 D Evans and R Schmalensee, Matchmakers: The New Economics of Multisided Platforms, Boston, *Massachusetts: Harvard Business Review Press* (2016), pp 22 and 35–36.

143 The distinction has often been drawn between transaction and non-transaction platforms. See, for example, OECD, Rethinking Antitrust Tools for Multi-Sided Platforms, 2018, pp 10–11.

144 D Evans and R Schmalensee, Matchmakers: The New Economics of Multisided Platforms, Boston, *Massachusetts: Harvard Business Review Press* (2016), pp 58-69.

145 B Jullien, A Pavan and M Rysman, Two-sided Markets, Pricing, and Network Effects [PDF 837KB] , *Toulouse School of Economics, Working Paper No. 1238* (2021), p 85.

the platform using this information to expand into markets where it would directly compete against the third-party retailers who use its platform.

Matching services can be monetised through a variety of means, often in combination. Some common approaches for B2C and C2C platforms include:

- subscription fees for access to the service (e.g., online dating platforms may charge a monthly subscription fee for users to make use of the service)
- commissions on sales (e.g., Amazon and eBay both charge sellers a fee per completed transaction)
- other user fees which may apply to businesses or consumers, and may apply whether or not a transaction is completed (e.g., Gumtree charges listing fees for certain categories of products listed on its online classifieds service)
- advertising (e.g., Facebook Marketplace, and Amazon and Booking.com (in addition to commission fees)).

Matching platforms also regulate the terms upon which users access and interact with their platforms. For example, operators of online retail marketplaces can determine the ways in which sellers present their offers, can impose standards of delivery, and impose price controls.[146] Matching platforms also collect a significant amount of first-party information regarding transactions and user activity (either provided directly by third parties or observed by the platform). This capacity to regulate terms and collect data may provide the opportunity for the matching platform to engage in self-preferencing conduct (discussed ahead in section 6.1.2) or exclusionary data practices (discussed ahead in section 6.2) to the extent that they also provide services in downstream or related markets.

Software platforms

Software platforms provide a technical system with a core set of functional elements, which other businesses (primarily developers) can use to provide complementary services.[147] Software platforms include operating systems and other software services that add value to the underlying product using the operating system, such as app distribution services. Apple, Microsoft and Google each offer operating system (and related app distribution) services.[148] Software platforms also include cloud platform services such as those offered by Amazon (through AWS), Google and Microsoft.

As they design the technical framework and set the rules of access, software platform providers exercise considerable control over their platforms — and therefore occupy an important 'gatekeeper' or intermediary role. For example, they can deny or limit access to application programming interfaces (APIs) or deny approval for the distribution of apps via their app stores. The ACCC recognises that such rules are important for ensuring stability of the system, noting the OECD found that interoperability, through access to APIs, will often be subject to restrictions if there are privacy, security or technical limits that are required to protect the platforms' functionality.[149]

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146 A Gawer, Digital platforms and ecosystems: remarks on the dominant organisational forms of the digital age, *Innovation: Organization & Management*, 24:1 (2021), p 114.

147 This is the definition for a 'platform system' as stated by: C Baldwin, Design Rules, Volume 2: How Technology Shapes Organizations, Chapter 5 Ecosystems and Complementarities, *Harvard Business School Working Paper 19-035* (2018), pp 10-11. By comparison, Gawer refers to this as an 'innovation platform' in A Gawer, Digital platforms and ecosystems: remarks on the dominant organisational forms of the digital age, *Innovation: Organization & Management*, 24:1 (2021).

148 Note, Meta and Amazon also have operating systems (Quest and Fire OS, both based on the Android open-source code) and app distribution stores (Meta Quest Store and Amazon Appstore)

149 OECD, Data Portability, Interoperability and Digital Platform Competition, OECD Competition Committee Discussion Paper, 2021, p 20.

Digital platform ecosystems that have an operating system or software platform at their core benefit from cross-side network effects, and rely heavily on the availability of complementary services to attract users to their platforms. Specifically, users may place greater value on an operating system and software platform as more complementary products and services are available for the platform. Developers are also more likely to develop apps or other software for an operating system or software platform with a greater number of users, which in turn will attract more users to that operating system or software platform, which attracts more developers, and so on.

These complementary products and services may be provided by the platform itself, or through third parties. Where the platform expands into these complements based on the data that allows it to monitor the use and popularity of third-party complements, anti-competitive concerns may arise, similar to the concerns noted above in respect of matching platforms.

Box 3.1 How operating system providers coordinate users and manage network effects

In the case of operating systems, there are multiple sides of the market which may need to be coordinated by the platform operator. In particular, the platform operator needs to:[150]

(a) either incentivise software and app developers to develop software/apps for its operating system (and app stores) and/or develop software/apps itself, and

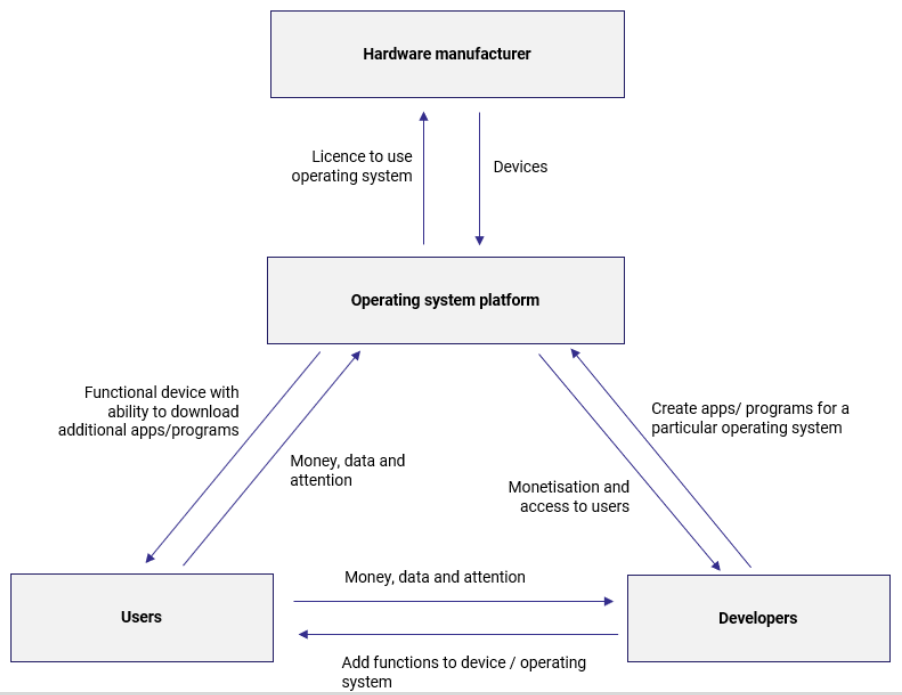
(b) persuade users to purchase a device with that operating system pre-installed.

For some providers, such as Microsoft and Google, an additional step of incentivising device manufacturers to pre-install the operating system on their device may be required.

By encouraging device manufacturers to license their operating systems, Microsoft and Google also encourage software developers to write applications (and vice versa).

[150] D Evans et al, Platform Economics: Essays on Multi-Sided Businesses, *Competition Policy International* (2011), p 88.

Figure 3.8: Multi-sided nature of operating system platforms



We note that the above diagram assumes independence between the operating system platform and developers and the hardware manufacturer, but that this is not always the case. For example, by having its own operating system and app store integrated into its iPhone and other iOS devices, Apple manages only a two-sided platform between end-users and software developers. In comparison, Microsoft and Google generally manage three-sided platforms between end-users, software developers and hardware providers.[151]

Operating system and software platforms will generally monetise their platform through charging software developers for the tools and information necessary to develop software for the platform (e.g., access to APIs and software development kits (SDKs)), or charging commissions for software sold on their platforms. For example, Google charges fees for developers using its Google Maps API, Apple and Google both charge commissions for apps offered via their app stores, and Apple and Microsoft charge annual fees to developers to publish apps on their app stores.[152] Cloud services are generally monetised either using a pay-as-you-go pricing structure (where the user pays per GB of storage or per second of computing power) or through more traditional IT license-based pricing.[153] However, in the case of operating systems, platform operators may be able to additionally monetise their platforms via end-users (through device sales or in limited cases, the sale of the operating system itself) or device manufacturers (through operating system licensing fees or other considerations) (see box 3.2 below).[154]

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151 A Hagiu and J Wright, Multi-sided Platforms, *International Journal of Industrial Organization*, 43 (2015), available on SSRN, p 3.

152 Google Maps Platform, Platform Pricing & API Costs, accessed 14 September 2023; Apple, Choosing a Membership, *Apple Developer,* accessed 14 September 2023; Microsoft, Account types, locations, and fees, *Microsoft Learn*, 16 March 2023, accessed 14 September 2023. Google charges a USD25 one-time fee to developers to publish on Google Play, Google, How to use Play Console, *Play Console Help*, accessed 14 September 2023.

153 ACM, Market Study Cloud services, 5 September 2022, p 17; Ofcom, Cloud services market study, Interim report, 5 April 2023, para 4.18.

154 D Evans et al, Platform Economics: Essays on Multi-Sided Businesses, *Competition Policy International* (2011), p 89.

Box 3.2 How Apple, Google and Microsoft monetise their operating systems

Apple, Google and Microsoft have each developed operating systems that are widely used across Australia and the globe, and have each taken different approaches to monetising their platforms. For example, Microsoft licenses its operating system (for a fee), whereas Apple and Google do not. We note that Apple and Google also charge developers a commission on payments processed through their app store and in-app payment systems.[155]

- Microsoft licenses its proprietary Windows operating system for desktop computers, and charges a licence fee, to companies such as HP, ASUS, Acer and Dell.[156] This allows Microsoft to directly monetise its investments in the operating system. In 2022, Microsoft earned approximately USD25bn worldwide from its Windows OS segment (approximately 12% of its total revenues).[157]
- Google's Android operating system is free, open-source and customisable for developers.[158] It can be built upon by other companies for use in third-party devices (with a key example being Amazon's Fire OS).[159] While Google does not (generally) charge manufacturers a fee to license its Android operating system,[160] it does enter into agreements (and impose certain non-monetary requirements) with device manufacturers that wish to access certain proprietary components, such as the Google Play Store, Search, Chrome or Google Maps.[161] In this regard, Google generally monetises its operating system through this suite of apps (e.g. through advertising on Search or Maps, or through commissions on apps sold through the Google Play Store).
- Apple has chosen not to license its operating systems to third-party devices, and only uses them in its first-party devices.[162] In this way, Apple partly monetises investments in its operating system through the sale of its first-party devices. Similarly, third-party suppliers of Windows and Android devices monetise investments in their devices (and in integrating and optimising their chosen operating system) through device sales.

The ACCC notes that Google and Microsoft also bundle hardware and software, but to a more limited extent. For example, Microsoft offers a small range of Surface-branded

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155 Microsoft charges a commission for app purchases made through the Microsoft Store but also allows developers to avoid this fee by using their own third-party in-app payment platform. G Sardo, Building a new, open Microsoft Store on Windows 11, *Windows Experience Blog,* 24 June 2021, accessed 14 September 2023.

156 See, for example, Microsoft, Windows Laptops, accessed 14 September 2023; Microsoft, Microsoft Windows | Microsoft Licensing Resources, accessed 14 September 2023. Microsoft has, in the past, offered heavily discounted or near-zero cost licenses for specific versions of Windows, such as Windows 8.1 with Bing on 9-inch or smaller tablets: J Newman, 'Here's how much those 'free' Windows licenses actually cost', *PCWorld,* 20 January 2015, accessed 14 September 2023.

157 Based on ACCC analysis of Microsoft Corporation's US SEC Form 10-K Annual reports.

158 Google, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 325KB], May 2023, p 5.

159 These are often referred to as Android 'forks'. See, for example, Amazon, Fire OS Overview | Amazon Fire TV, *Amazon Developer,* accessed 14 September 2023.

160 Following the European Commission's decision in the Android abuse of dominance case, Google made changes to its licensing arrangements in the European Economic Area to charge OS licence fees for manufacturers that wish to have access to Google Play, but do not wish to also install Google Search or Chrome. See H Lockheimer, Complying with the EC's Android decision, *Google Blog,* 16 October 2018, accessed 14 September 2023.

161 Collectively, these components are called Google Mobile Services, which includes Google Play Store, Chrome, Maps, Gmail, Photos, Meet and YouTube. See Google, Android – Google Mobile Services, *Android.com*, accessed 14 September 2023. While Google often does not charge a monetary fee, manufacturers who wish to have access to these services will usually need to pay for certification. In terms of non-monetary requirements, this includes requiring certain default settings.

162 Apple has several operating systems, including for its smartphones (iOS), tablets (iPadOS) and desktop computers (macOS). Apple briefly licensed the macOS to third-party manufactures in the 1990's but this was discontinued (see R Myslewski, Reliving the clone wars, *Macworld, 23 May 2008,* accessed 14 September 2023).

laptops that come pre-installed with Windows, while Google offers its Pixel range of smartphones which come pre-installed with Android.[163]

The ACCC considers that the above features may give rise to certain future competition and consumer risks. For example, while software platforms may initially be incentivised to increase the availability of complementary products, over time incentives may shift so that platforms restrict the openness of their platform to favour their own services, increase fees, or introduce other restrictions that favour their own products or services.[164] This will generally arise if the platform starts to develop those complementary products itself, or if it feels threatened by a complementary product producer moving into its product space, or even by the potential of this occurring. A challenge with digital platforms, however, is that the potential for a complementary relationship to become a rivalrous one might not be immediately apparent to a regulator assessing particular conduct or a merger at the time of assessment. These potential harms to competition are discussed further in chapter 6.

[163] See, for example, Google, Google Pixel Mobile Phones, *Google Store,* accessed 14 September 2023.

[164] See, for example, C Sharma, Concentrated Digital Markets, Restrictive APIs and the Fight for Internet Interoperability [PDF 667KB], *University of Memphis Law Review*, 50 (2019).

4. Expansion by digital platform service providers

This chapter provides an overview of how digital platform service providers are expanding their range of products and services.

- Section 4.1 considers how providers of digital platform services have expanded their range of products and services across their ecosystems (section 4.1.1) and with regard to consumer cloud storage services (section 4.1.2) and smart home devices (section 4.1.3).
- Section 4.2 considers the factors driving and enabling that expansion at a thematic level and the methods of expansion (section 4.2.1); as well as the strategies adopted in relation to consumer cloud storage services (section 4.2.3) and smart home devices (section 4.2.3).

4.1. Digital platforms are expanding their range of products and services

4.1.1. Expansion across a range of products, services, and industries

Below is a non-exhaustive overview of how digital platform service providers have expanded from their initial offerings to their current range of products and services. It also outlines particular areas or industries where the digital platforms have focussed their expansion efforts. The dates shown are best estimates based on publicly available sources. For more information, see appendix B.

Apple

Apple started out as a manufacturer and supplier of desktop computers with the launch of the Apple computer in 1976. As explored in figure 4.1 below, it has expanded significantly over the last 25 years to provide a wide range of products and services.[165]

Figure 4.1 shows that Apple's expansion accelerated following the release of the iPhone. As noted in section 3.1.1, Apple's iPhone bundle of services forms the core of its current offering. In particular, Apple has expanded its range of consumer devices and associated operating systems, software, digital content and other media offerings. The majority of these products and services are complementary to Apple's core offering, by adding value to users of its devices and subsequently increasing their loyalty and spending with Apple.

[165] Figure 4.1 provides an indicative picture of Apple's expansion over time rather than seeking to present an exhaustive list of all products and services offered or companies acquired. The figure focusses predominantly on consumer-facing products and services rather than those offered to business users. In providing this indicative picture of Apple's expansion over time and into new areas, this figure also includes Apple products and services which are not offered in Australia, though it is noted where this is the case. This figure has been compiled using best estimates based on publicly available sources. It is recognised that this is just one approach that could be taken to categorise the products and services offered by Apple.

Figure 4.1: Apple's expansion

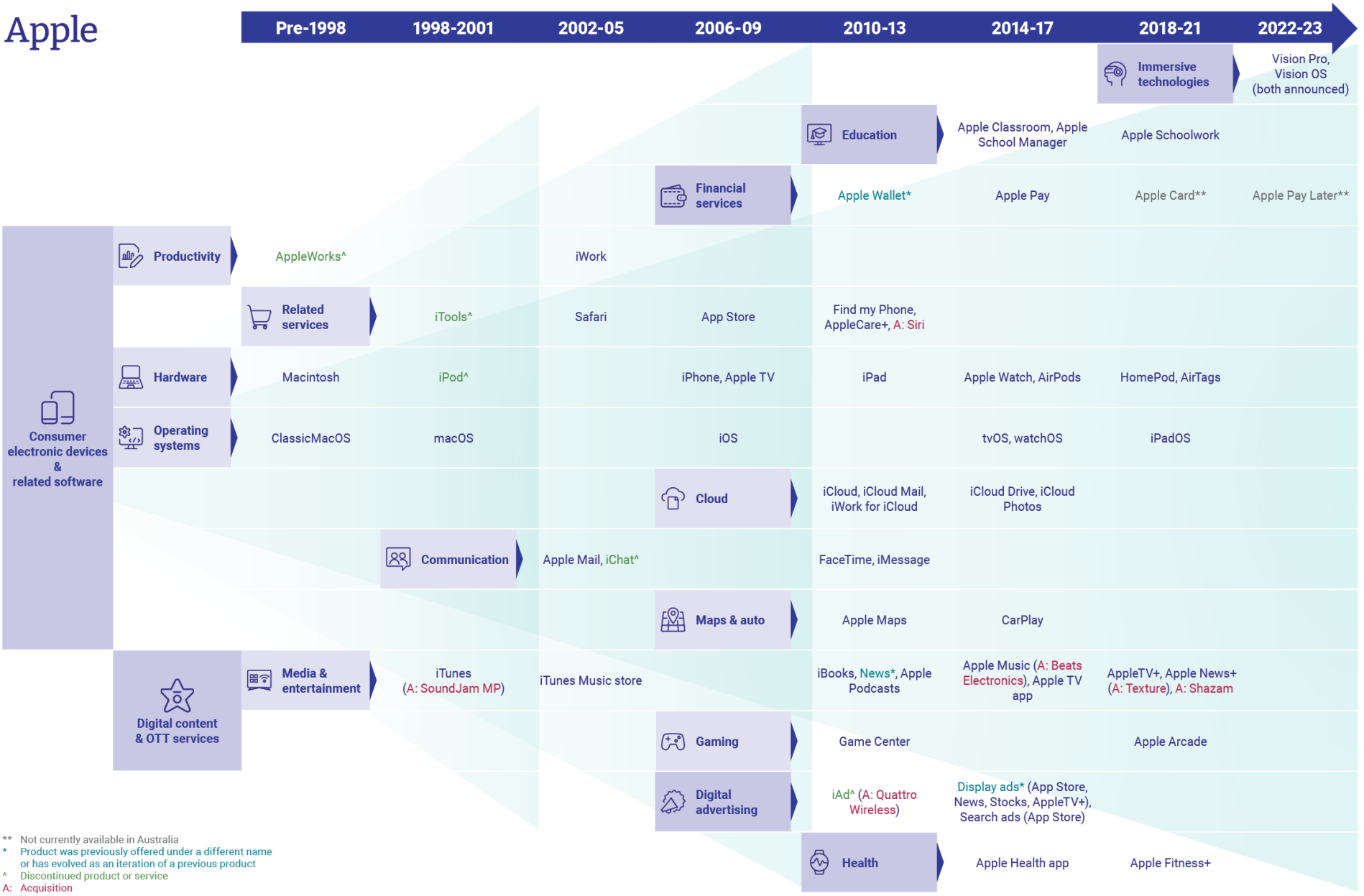

Figure 4.1 also highlights some additional areas of focus for Apple such as financial services, education, health, advertising and immersive technologies. Apple's expansion in these areas is largely underpinned by existing products and services.

Apple's key areas of focus in terms of expansion appear to be:

- consumer electronic devices and related software
- digital content and other media services
- financial services
- education
- health
- advertising.

While some of these areas were discussed in section 3.1.1 in terms of Apple's core services, some represent newer areas of investment and focus. Except for advertising, these other areas of expansion relate to products or services which are complementary to the core service of Apple's operating system platform, which would attract more users to the ecosystem.

For example, since the launch of its Apple Pay service (mobile wallet payments) in 2014, Apple has increased the number of financial products and services it provides. In March 2023 Apple announced that it was introducing Apple Pay Later, a buy-now-pay-later service in the US.[166] It is also reported to be working towards using its mobile wallet for Digital IDs (e.g., drivers licences, student cards).[167] In the US, Apple also offers credit, debit and savings accounts.[168] It is not yet clear whether it will offer similar accounts in Australia.

In terms of education, Apple offers the Apple Classroom and Schoolwork apps for iPad and Mac. Apple's presence in education is otherwise largely based around sale of and support for devices (such as Macs and iPads) for schools.[169] Apple offers an Apple School Manager service which allows schools to manage devices, buy apps and online books in bulk and sync student user accounts with school student information systems.

Apple published its health report in 2022, which outlines its strategy for health-related initiatives. The strategy indicates that Apple will be looking to further integrate health and fitness features into iPhone and Apple Watch, including expansion of the Health app, and to encourage the use of Apple products in medical research and support.[170]

Until recently Apple has not focussed on advertising (and monetising the data of its customers). However, with the growth of its advertising business over the last few years, it has been noted that this strategy may be changing.[171] It has been reported that Apple's

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166 Apple, Apple introduces Apple Pay Later to allow consumers to pay for purchases over time, 28 March 2023, accessed 14 September 2023.

167 Apple, Add your driver's license or state ID to Apple Wallet, *Apple Support*, accessed 14 September 2023 (US only); Apple, Add your student ID to Apple Wallet on your iPhone or Apple Watch, *Apple Support*, accessed 14 September 2023.

168 Apple, Apple Card launches today for all US customers, *Apple Newsroom,* 20 August 2019, accessed 14 September 2023.

169 Apple, Apple and Education, accessed 14 September 2023; Apple, Intro to Classroom and Schoolwork, *Apple Support*, 29 September 2020, accessed 14 September 2023; Apple, Apple School Manager User Guide, *Apple Support*, accessed 14 September 2023.

170 Apple, How Apple is empowering people with their health information, 20 July 2022, accessed 14 September 2023; Apple, Empowering people to live a healthier day: Innovation using Apple technology to support personal health, research and care, Report, July 2022, accessed 14 September 2023.

171 P McGee, 'Apple plans to double its digital advertising business workforce', *Financial Times,* 5 September 2022, accessed 14 September 2023; M Gurman, 'Apple Finds Its Next Big Business: Showing Ads on Your iPhone', *Bloomberg*, 14 August 2022, accessed 14 September 2023.

advertising revenue has grown from a few hundred million dollars in the late 2010s to about USD5bn in 2022.[172] Apple has published display ads since 2016, but has recently also begun offering search ads within its App Store.[173]

Apple has also indicated its planned entry into immersive technologies with the announcement of its Vision Pro headset and Vision OS in June 2023 which is expected to be available in early 2024.[174] Apple is also rumoured to be developing generative AI tools as noted in appendix A.[175]

Amazon

Amazon has expanded from its origins as a US-based online retail marketplace for books in 1994 and now operates an expansive global online retail marketplace. Amazon has also become a major supplier of technology and cloud services through AWS. Figure 4.2 below provides an overview of Amazon's expansion over the last 25 years.[176]

Amazon's expansion has largely occurred in relation to services that complement or otherwise relate to its core ecommerce and online retail marketplace services. This includes its third-party fulfillment and delivery services, retail advertising and payment services, as well as its expanding range of entertainment offerings (which are offered as part of the Amazon Prime membership program). Further, Amazon's increasing interest in consumer hardware (such as tablets, smart speakers and smart TVs) similarly appears to complement its expanding entertainment offering and to build on its investments in the Alexa voice assistant.

In particular:

- The Amazon Retail business has expanded significantly. It now offers a huge range of its own products as well as third-party manufactured products and has developed an expansive logistics network. Though, Amazon is reportedly planning to drop dozens of first-party brands currently offered on its marketplace.[177] While Amazon's ecommerce business has a more limited geographic footprint due to the need to deploy physical logistics assets, it has been heavily investing in expanding its global footprint (including into Australia).

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172 P McGee, 'Apple plans to double its digital advertising business workforce', *Financial Times*, 5 September 2022, accessed 14 September 2023.

173 Apple's display ads appear within the News and Stocks apps, Apple App Store and on Apple TV+. See, for example, E Roth, 'Your iPhone may soon have more ads', *The Verge*, 15 August 2023.

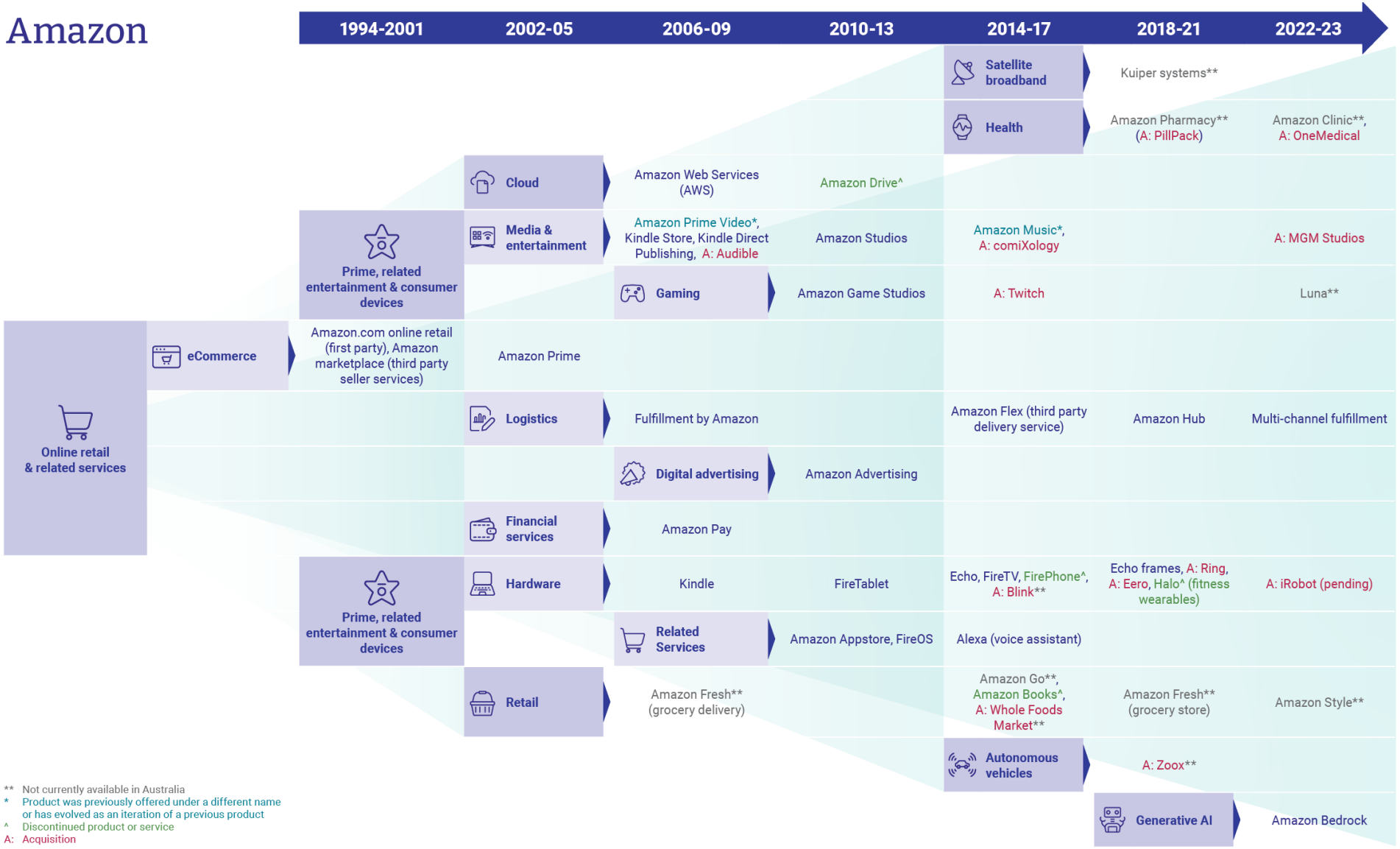
174 Apple, Introducing Apple Vision Pro: Apple's first spatial computer, *Apple Newsroom,* 5 June 2023, accessed 14 September 2023.

175 T Marcin, 'Apple GPT: Tech giant reportedly working on a ChatGPT, generative AI competitor', *Mashable*, 19 July 2023, accessed 14 September 2023.

176 Figure 4.2 provides an indicative picture of Amazon's expansion over time rather than seeking to present an exhaustive list of all products and services offered or companies acquired. The figure focusses predominantly on consumer-facing products and services rather than those offered to business users. In providing this indicative picture of Amazon's expansion over time and into new areas, this figure also includes Amazon products and services which are not offered in Australia, though it is noted where this is the case. This figure has been compiled using best estimates based on publicly available sources. It is recognised that this is just one approach that could be taken to categorise the products and services offered by Amazon.

177 E Roth, 'Amazon is dropping dozens of in-house brands you didn't even know it owned', *The Verge*, 11 August 2023, accessed 14 September 2023.

Figure 4.2: Amazon's expansion



- Amazon's range of third-party seller services has also been increasing since the third-party seller marketplace was launched in 2000,[178] and now includes fulfillment and delivery both on and off Amazon's platform. Amazon now has over 6 million third-party sellers globally.[179]
- Amazon has expanded its Amazon Prime membership program. Amazon Prime has now been rolled out across Amazon's marketplace footprint and, in addition to free expedited delivery and exclusive deals, also includes a wide range of additional entertainment (music, video, book and gaming) services.[180] These entertainment services, such as the Prime Video streaming services, are also increasingly being offered to non-Prime members (i.e., as stand-alone services). In Australia, Amazon earned AUD246m in revenue in 2022 for its Services segment (including subscriptions and digital content) and has been investing significantly in content.[181] And in 2022, Amazon Prime Video was the third most popular video streaming service (after Netflix and Disney+) in Australia.[182]

In particular, as noted in section 3.1.1, AWS is now part of Amazon's core offering. While Amazon's expansion into cloud computing was facilitated by excess server capacity used for its online retail marketplace, it has now grown into a significant business in its own right. AWS was launched in 2006, and now offers a large range of cloud computing and storage services and other digital services such as analytics, business applications, machine learning and AI, robotics and content delivery (focussing on a range of industries such as education, health, financial services, entertainment and gaming).[183] Amazon has also recently begun offering services using generative AI via Amazon Bedrock. It is, however, difficult to ascertain the rate of expansion of Amazon's enterprise offering as these services are often highly technical and customised, and are usually not announced or followed by commentators to the same degree as consumer-facing services.

Amazon's investments into health have largely occurred in the US. For example, Amazon acquired online pharmacy service, PillPack, and primary care provider, OneMedical. In the US, Amazon has also launched Amazon Pharmacy (an online pharmacy) and Amazon Clinic (a virtual health service).[184] However, Amazon has also been investing in facilitating Alexa-based medical solutions, which may indicate its future direction.[185] In Australia, Deloitte has developed the DeloitteAssist 'Alexa Skill' for use in the Prince of Wales Hospital in Sydney.[186] Alexa Skills allow users to make certain Alexa voice requests and are described by Amazon as 'like apps for Alexa'.[187] DeloitteAssist enables patients to use the Alexa voice assistant to

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178 Amazon Press Center, Amazon Marketplace a winner for customers, sellers and industry; New service grows over 200 percent in first 4 months, 19 March 2001, accessed 14 September 2023.

179 Marketplace Pulse, Amazon tops six million third-party sellers, 24 March 2021, accessed 14 September 2023.

180 This includes Prime Video (video streaming service), Amazon Music Prime (music streaming services), Prime Reading (limited selection of free ebooks) and Prime Gaming (limited selection of free online games).

181 Amazon Commercial Services Pty Ltd, ASIC Form 338 Annual report 2022, p 17 (available at ASIC Connect).

182 Department of Infrastructure, Transport, Regional Development, Communication and the Arts, 2022 Media Content Consumption Survey, 6 March 2023, accessed 14 September 2023, p 22.

183 AWS, Start building on AWS today, accessed 14 September 2023.

184 N Ayogu, Amazon Clinic expands nationwide to provide messaging and video visits for common health conditions, *About Amazon*, 1 August 2023, accessed 14 September 2023; C Chen, Amazon's full-service online pharmacy makes it easy and affordable to shop for medication. Here's how it works, Amazon, *About Amazon*, 10 February 2023, accessed 14 September 2023.

185 E Kim and C Farr, 'Amazon is building a 'health & wellness' team within Alexa as it aims to upend health care', *CNBC*, 10 May 2018, accessed 14 September 2023.

186 E Schwartz, 'A New Alexa Skill Connects Hospital Patients to Nurses in Australia', *Voicebot.ai*, 5 June 2019, accessed 14 September 2023; Deloitte, Transforming patient communication through artificial intelligence, accessed 14 September 2023.

187 Amazon, Alexa Skills, accessed 14 September 2023.

ask for specific help (e.g. through requests for pain medication, or assistance to use the bathroom).

Similar to its expansion in health, Amazon's activity in physical bricks and mortar retail has been largely focussed on the US. Amazon began offering grocery delivery services to Prime members in parts of the US via Amazon Fresh in 2007.[188] It has since expanded to offering physical grocery stores and acquired US supermarket chain Whole Foods Market for USD13.7bn in 2017.[189]

Amazon has also recently begun offering services using generative AI via Amazon Bedrock. Amazon has invested in developing low earth orbit satellites to provide satellite broadband services via Project Kuiper and is expected to begin offering services commercially in 2024.[190] It has also acquired autonomous vehicle company, Zoox.[191]

Microsoft

Microsoft has grown significantly from its early days as a supplier of microprocessors and software for early computers in 1975. It is now an integral player in software and digital infrastructure across the world, and offers hundreds of digital products and services to consumers and business globally. Figure 4.3 below provides an overview of Microsoft's expansion over the last 25 years.[192]

While Microsoft has expanded its range of consumer facing services, for example its Xbox gaming portfolio, its most significant expansion activities have occurred in relation to its business offerings. Moreover, while it is difficult to ascertain the full breadth of its expansion in enterprise services for the reasons outlined above, this expansion appears to largely occur in relation to products or services that complement its core offerings (i.e., desktop operating systems, productivity suite software, and cloud computing services).

In particular, Microsoft's key areas of focus in terms of expansion appear to be:

- cloud and enterprise solutions
- productivity, communication, and networking
- generative AI.

188 JY Park, 'Amazon gets fresh challenges with new grocery business', *CNBC*, 27 August 2007, accessed 14 September 2023.

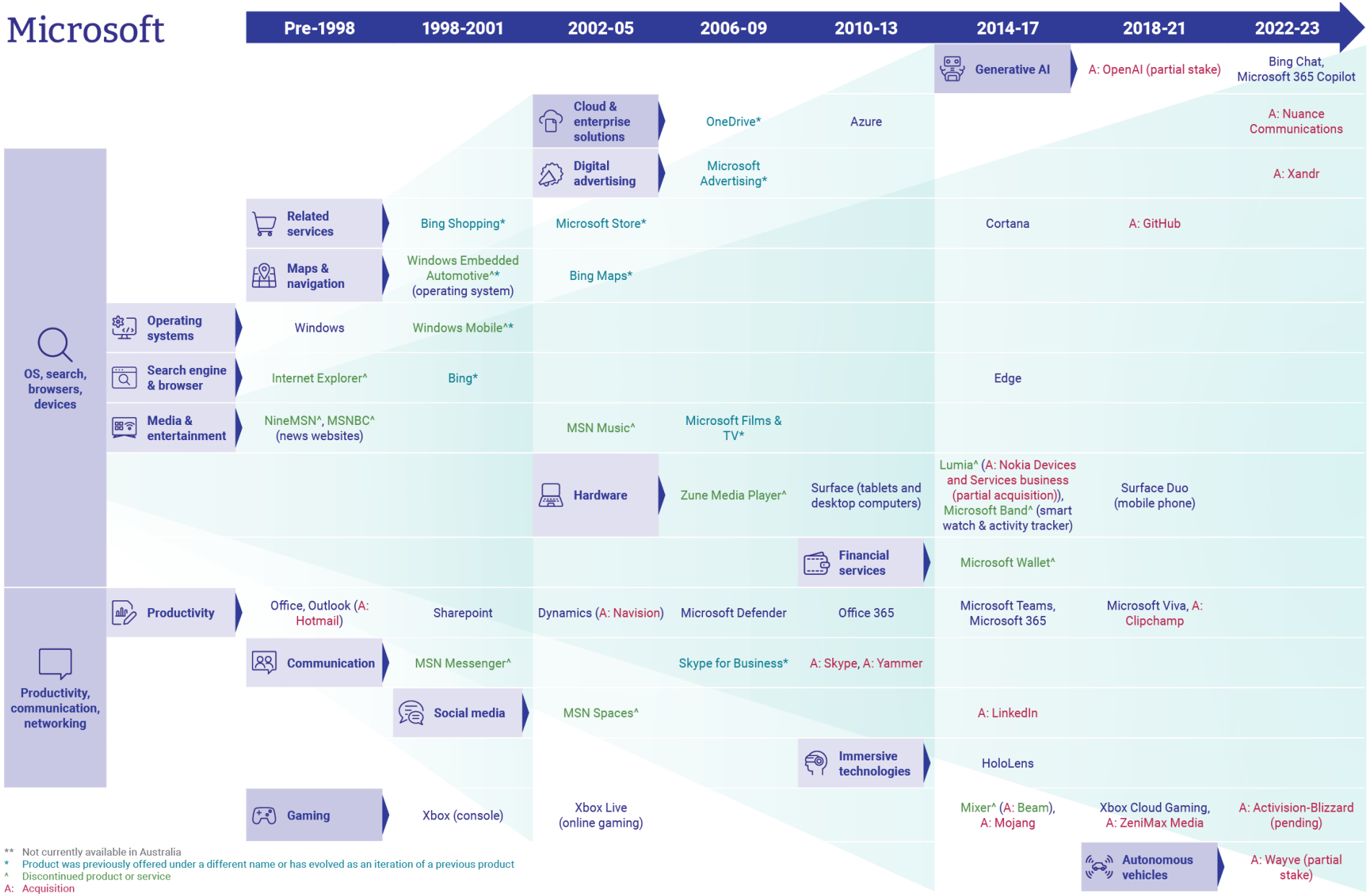
189 Amazon, Amazon and Whole Foods Market Announce Acquisition to Close This Monday, Will Work Together to Make High-Quality, Natural and Organic Food Affordable for Everyone, *Press Centre* 25 August 2017, accessed 14 September 2023.

190 Amazon, Here's your first look at Project Kuiper's low-cost customer terminals, 14 March 2023, accessed 14 September 2023.

191 Amazon, We're acquiring Zoox to help bring their vision of autonomous ride-hailing to reality, *Amazon News* 26 June 2020, accessed 14 September 2023.

192 Figure 4.3 provides an indicative picture of Microsoft's expansion over time rather than seeking to present an exhaustive list of all products and services offered or companies acquired. The figure focusses predominantly on consumer-facing products and services rather than those offered to business users. In providing this indicative picture of Microsoft's expansion over time and into new areas, this figure also includes Microsoft products and services which are not offered in Australia, though it is noted where this is the case. This figure has been compiled using best estimates based on publicly available sources. It is recognised that this is just one approach that could be taken to categorise the products and services offered by Microsoft.

Figure 4.3: Microsoft's expansion



Microsoft launched its Azure enterprise cloud infrastructure business in 2010. As noted in section 3.1.1, Microsoft's cloud and server business is now its primary revenue-earning business. Microsoft offers hundreds of cloud and enterprise solutions. This includes AI and machine learning, analytics, cloud computing, databases, software and app development, developer tools, migration services, storage, cyber security, content distribution networks, web management and governance, and virtual desktops.[193]

Moreover, while the key applications within Microsoft's Office productivity suite have remained relatively consistent since its launch in 1990 (namely Word, Excel and PowerPoint),[194] Microsoft has increasingly added new services and features to the broader suite (such as the OneDrive cloud storage service). This also includes the integration of voice and video communication and networking services (such as Microsoft Teams and Skype).

Microsoft has also expanded into immersive technologies, with the release of its HoloLens augmented/mixed reality headset in 2015.[195] While these headsets are available for consumers, they are generally marketed towards business users, particularly in the manufacturing, engineering and construction, healthcare and education sectors.[196]

Microsoft's strategic partnership with and partial stake in OpenAI has received considerable attention since the launch of OpenAI's Large Language Model (LLM) ChatGPT in late 2022. Microsoft has incorporated OpenAI's GPT-4 into a range of its products, such as its search engine (Bing Chat), its office productivity software (Copilot) and has also begun to leverage its cloud operations to sell the underlying technology behind LLMs through Azure AI.[197]

Google

Since its beginning in 1998 as a provider of search services, Google has expanded to supply a wide range of consumer and business-facing digital services. Figure 4.4 below provides an overview of Google's expansion over the last 25 years.[198]

Google's areas of focus for expansion appear to be:

- search and advertising
- mobile operating systems and related services
- productivity, cloud and enterprise solutions
- education, health and automotive services
- generative AI.

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193 Microsoft Azure, Products available by region, accessed 14 September 2023.

194 These were launched individually earlier, starting with Word in 1983, Excel in 1985 and PowerPoint (via acquisition) in 1987.

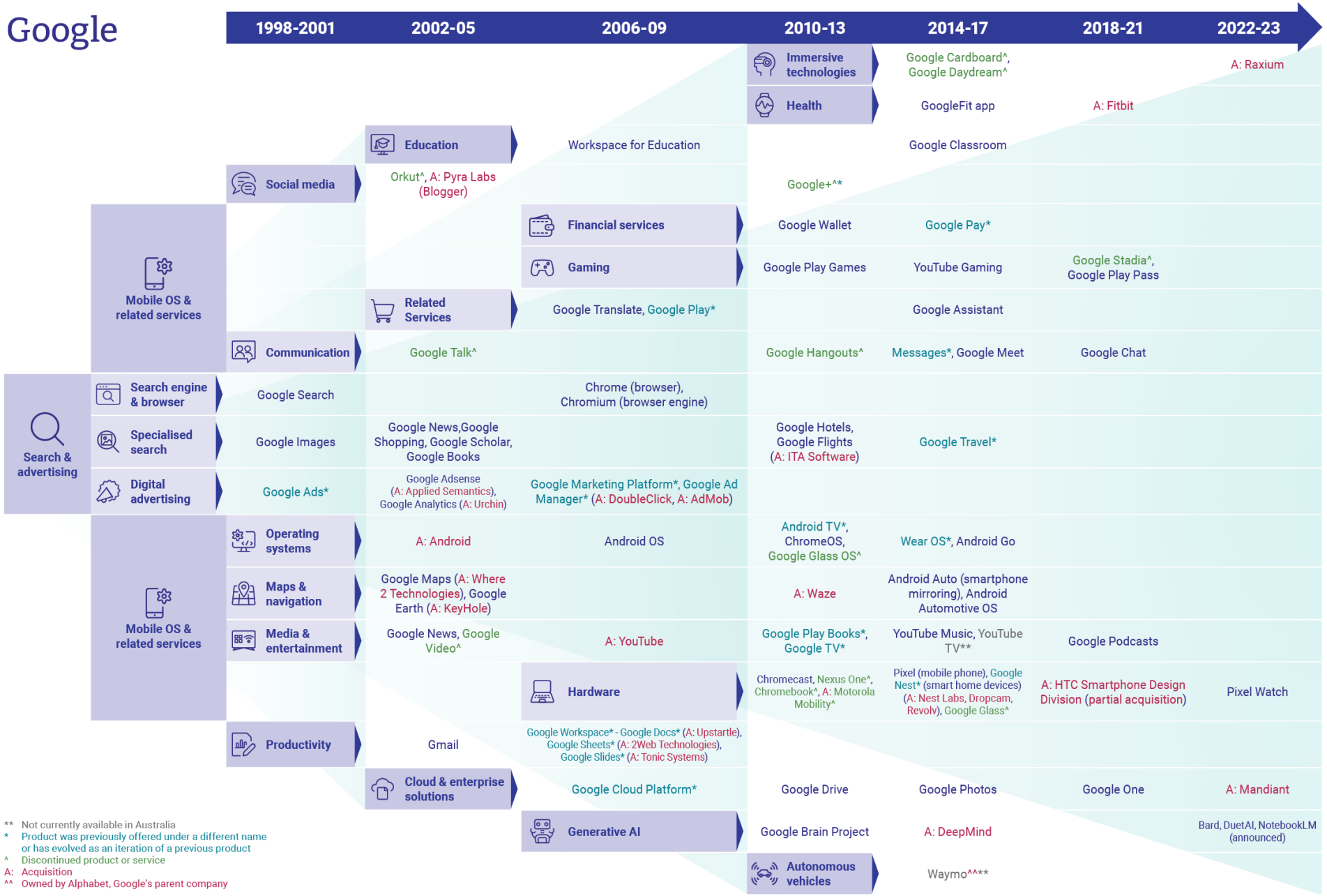
195 Microsoft, Microsoft announces global expansion for HoloLens, 12 October 2016, accessed 14 September 2023.

196 Microsoft, Microsoft HoloLens 2: For precise, efficient hands-free work, accessed 14 September 2023; D Bohn, 'Microsoft's HoloLens 2: a $3,500 mixed reality headset for the factory, not the living room', *The Verge*, 25 February 2019, accessed 14 September 2023.

197 Microsoft, Azure AI, *Azure,* accessed 14 September 2023.

198 Figure 4.4 provides an indicative picture of Google's expansion over time rather than seeking to present an exhaustive list of all products and services offered or companies acquired. The figure focusses predominantly on consumer-facing products and services rather than those offered to business users. In providing this indicative picture of Google's expansion over time and into new areas, this figure also includes Google products and services which are not offered in Australia, though it is noted where this is the case. This figure has been compiled using best estimates based on publicly available sources. It is recognised that this is just one approach that could be taken to categorise the products and services offered by Google.

Figure 4.4: Google's expansion



While Google's search, advertising and mobile operating system services were discussed above in section 3.1.1 in terms of Google's core services, Google's expansion in productivity, cloud, education and health is a relatively new development. In the context of Google's core advertising-based content platform, these areas of expansion attract and retain user attention on Google services, which is then able to be monetised through advertising.

Google's productivity suite, Google Docs Editors and Google Workspace, has been increasing in popularity in recent years, with both consumers and enterprise. Google has made significant investments in building this suite of services, which includes Gmail, Google Docs (word processing), Sheets (spreadsheets), Slides (presentation), Calendar and Google Drive (consumer cloud storage). Google's consumer cloud storage services are discussed further in section 4.1.2 below. Google also offers several communication and network services, including Google Meet and Google Chat.

Beyond its consumer-facing services, Google is also increasingly investing in its cloud and enterprise solutions portfolio. The greatest increases in Google's global revenue have come from its cloud business, which has increased by more than 30% each year over the last 5 years (from USD5bn in 2018 to USD26bn in 2022).[199] Google's cloud business consists of its Google Cloud Platform (GCP), launched in 2017, as well as Google Workspace and other enterprise services.

Google has also been expanding into the education and health sectors, similarly building on its existing suite of services. Google's education products and services appears to have achieved a significant level of take-up in Australian schools (see section 7.1.1). Similar to Apple, Google also offers device management (Chromebooks or other Chrome OS devices) for school administrators, allowing them to manage user accounts and install apps and extensions. Google also has a strong consumer and enterprise health strategy, with a focus on data and AI.[200]

More recently, Google's activities in mapping and navigation have been growing, and increasingly being leveraged into the automotive industry. Google now offers Android Automotive OS, an operating system for smart cars which is being used by car makers such as Volvo and Renault.[201] Google's parent company, Alphabet, is also active in autonomous vehicles; it evolved its self-driving car unit into Waymo in 2016, an independent company within the Alphabet umbrella.[202]

Similar to other digital platform service providers, Google has also launched a number of generative AI services in 2023, such as Bard (search engine chat bot), Duet AI for Google Workspace (productivity software), and NotebookLM (digital notebook).[203] Google has also previously offered products using immersive technologies (Google Cardboard and Google Daydream) which have been discontinued. However, Google's acquisition of Raxium in 2022 – a startup with MicroLED technology that could be key in building a new generation of augmented, virtual and mixed reality headsets – suggests it may have a continued interest in

199 Based on ACCC analysis of Alphabet Inc's US SEC Form 10-K Annual reports.

200 Google, About Us, *Google Health,* accessed 14 September 2023.

201 J Tsau, What's new with Android for Cars: I/O 2023, *Android Developers Blog*, 10 May 2023, accessed 14 September 2023.

202 D Etherington and L Kolodny, 'Google's self-driving car unit becomes Waymo', *TechCrunch*, 14 December 2016, accessed 14 September 2023.

203 S Pichai, An important next step on our AI journey, *Google Blog*, 6 February 2023, accessed 14 September 2023; A Pappu, Introducing Duet AI for Google Workspace, *Google Workspace blog*, 11 May 2023, accessed 14 September 2023; R Martin and S Johnson, Introducing NotebookLM, *Google Blog*, 12 July 2023, accessed 14 September 2023.

immersive technologies,[204] with commentators speculating about the development of an operating system for AR devices.[205]

Meta

Meta's Facebook was founded in 2004 as a social networking site for Harvard University students, later expanding to include other universities, high schools, and corporate users. Over last 20 years, Meta has significantly expanded its social media offerings.

Figure 4.5 below provides an overview of Meta's expansion over the last 20 years.[206] The ACCC's Report on Social Media also discusses the business model and evolution of social media platforms such as those provided by Meta.

As demonstrated by figure 4.5, Meta's expansion has largely focussed on adding complementary services to their social media platform, which would attract and retain user attention to strengthen the core advertising-based content platform. In particular, they have focussed on social media and communication products and services, related advertising services, gaming and immersive technologies. Moreover, the majority of its successful products have arisen from the acquisition of established companies. Meta has made several efforts to enter into the consumer electronic devices market, with limited success.

Meta continues to invest in its core social media, private messaging, and advertising businesses. For example, Meta introduced Marketplace in 2016, connecting users (and some businesses) within a geographic location to buy, sell and trade items.[207] On 5 July 2023, Meta announced the launch of Threads (text-based social media app, similar to Twitter).[208]

Over the last 10 years, Meta has increasingly shifted its focus to virtual reality and the 'Metaverse' (see appendix A). Beginning with its acquisition of Oculus (a small start-up firm manufacturing VR headsets) in 2014, Meta has been investing significantly in immersive technologies and use cases.[209] Specifically, in addition to VR headsets, Meta is also investing in the development of immersive reality video games and apps (such as fitness class apps), which it offers through the Meta Quest Store.[210] Similar to Microsoft, Meta is also marketing its immersive technologies to businesses, particularly in creativity and design, education and for business meetings and collaboration.[211] Meta has also launched an artificial intelligence research laboratory, Meta AI, for the purpose of improving augmented and virtual reality technologies (such as computer vision).[212]

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204 R Lawler, 'Google bought a MicroLED display company that could help make AR headsets better and cheaper', *The Verge*, 5 May 2022, accessed 14 September 2023.

205 T Bezmalinovic, 'Google kills its smart glasses project, shifts to developing an "Android for AR"', *Mixed*, 28 June 2023, accessed 14 September 2023.

206 Figure 4.5 provides an indicative picture of Meta's expansion over time rather than seeking to present an exhaustive list of all products and services offered or companies acquired. The figure focusses predominantly on consumer-facing products and services rather than those offered to business users. In providing this indicative picture of Meta's expansion over time and into new areas, this figure also includes Meta products and services which are not offered in Australia, though it is noted where this is the case. This figure has been compiled using best estimates based on publicly available sources. It is recognised that this is just one approach that could be taken to categorise the products and services offered by Meta.

207 M Ku, Introducing Marketplace: Buy and Sell With Your Local Community, *Meta Newsroom*, 3 October 2016, accessed 14 September 2023.

208 Meta, Introducing Threads: A New Way to Share With Text, *Meta Newsroom,* 5 July 2023, accessed 14 September 2023.

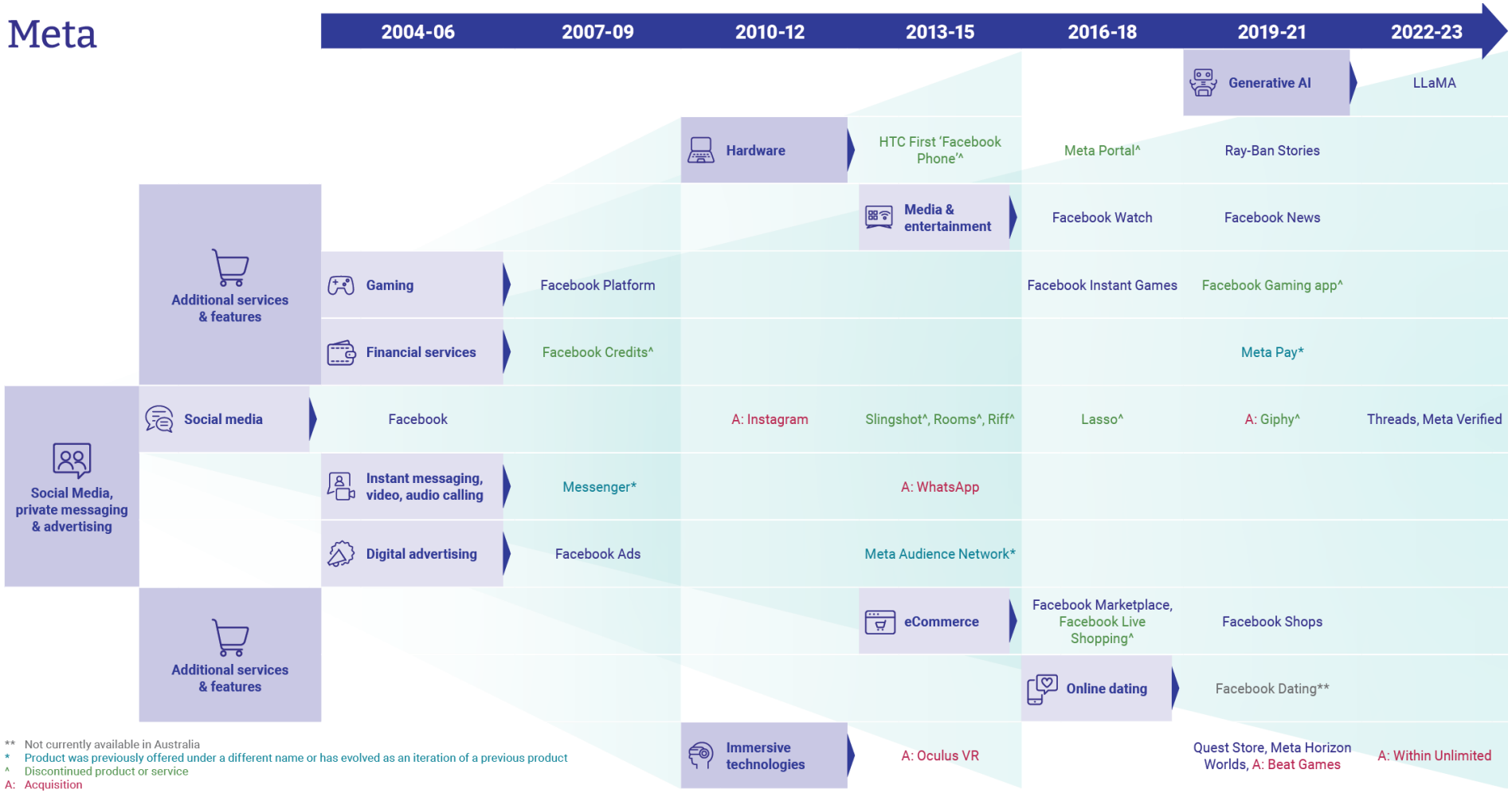
209 Meta, Facebook to Acquire Oculus, *Meta Newsroom,* 25 March 2014, accessed 14 September 2023.

210 For example, Meta acquired VR game developers Beat Saber, Camouflaj, Twisted Pixel, and Armature Studio. See M Verdu, Welcoming Beat Games to Facebook, *Meta Newsroom*, 26 November 2019, accessed 14 September 2023; W Richards, 'Meta buys studios behind 'Iron Man VR' and 'Resident Evil 4 VR'', *NME*, 12 October 2022, accessed 14 September 2023.

211 Meta, VR for Business and business VR headsets | Meta for Work, accessed 14 September 2023.

212 Meta, Meta AI, accessed 14 September 2023.

Figure 4.5: Meta's expansion

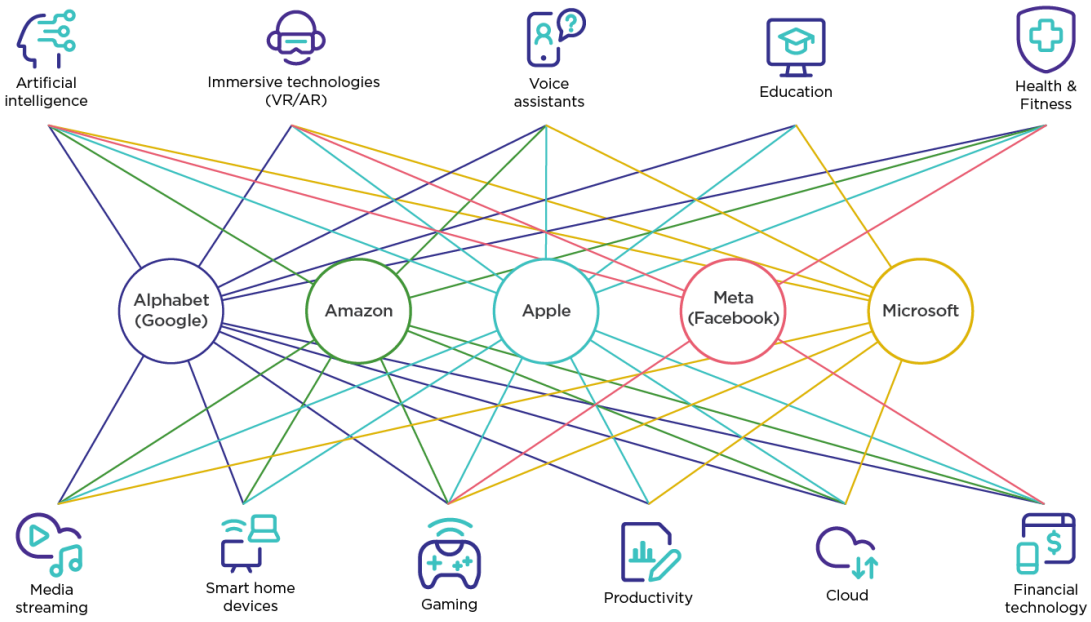


Common areas of expansion

While each of the digital platforms have different core offerings (see section 3.1.1), the above sections demonstrate that there are a range of common products and services, technologies and sectors that several digital platform service providers are expanding into.

Figure 4.6 below provides an overview of some of the common areas of expansion. However, it is also worth noting that digital platform service providers may also compete with specialist firms in these areas. For example, Apple, Amazon, Google and Sonos compete in selling smart-home devices, while Amazon, Apple and Netflix compete in TV streaming.

Figure 4.6: Common areas of expansion by digital platform service providers



Box 4.1 below further explores the concept of competition between ecosystems.

Box 4.1 Competition between ecosystems

One explanation for these common areas of expansion is that digital platform service providers are increasingly competing with each other and driving innovation at an ecosystem level. In this regard, competition in the digital economy can increasingly be considered competition between large ecosystems.[213]

Business models adopted by digital platform service providers with multi-product ecosystems (see section 1.3) are different from those of traditional firms, and competition between these ecosystems may differ from competition between traditional firms.[214] Given the characteristics of digital platform and related services, such as modular technologies[215] and the collection and use of high quality data (including from partners),

213 OECD, Executive Summary of the Hearing on Competition Economics of Digital Ecosystems, 3 December 2020, p 2.

214 OECD, Executive Summary of the Hearing on Competition Economics of Digital Ecosystems, 3 December 2020, p 3.

215 'A modular design means that a product consists of independent building blocks, or modules, whose interactions are ruled by standardized interfaces. Contrary to an integrated design, a modular design allows using and re-using components

digital platform ecosystems can often easily expand into complementary markets.[216] Digital platform service providers have the ability to more easily identify complementary services that may pose a competitive threat and take evasive action, as well as understanding and acting on demand trends.[217] For example, Meta's views regarding the potential for exchanging photos to be an important part of the future of social media is likely to have been a driver behind its acquisition of Instagram.[218]

In these emerging areas of expansion, such as generative AI, digital platform ecosystems compete to become the winner of 'new discoveries'. As these technologies may have transformative potential, digital platform ecosystems invest to ensure they have the capability to respond to a rapidly changing environment and capture value.[219] Amazon notes in its submission that businesses in this space drive competition between each other by investing in new products offering customers innovative services.[220] Similarly, Google notes that there are broad dimensions of competition between technology companies which drive innovation and Meta states that there is intense competition that occurs between digital businesses in seeking to enhance and expand their product suites, and that competition between platforms drives them to continually enhance product functionality and convenience.[221]

The ACCC therefore recognises that competition between ecosystems can stimulate innovation. However, as will be explored in section 5.2 and chapter 6, digital platform ecosystems may also have the ability and incentives to inhibit innovation to protect their core markets from being disrupted.[222]

4.1.2. Apple, Google and Microsoft's consumer cloud storage services

This section considers consumer cloud storage as an example of the expansion of digital platform service providers into products and services that relate to their other digital platform services. Apple, Google and Microsoft have each expanded their cloud storage service offering targeting different consumer purposes. More detail about consumer cloud storage services is contained in box 4.2.

across various products and services within the same firm'. See M Bourreau, Some Economics of Digital Ecosystems, Hearing on Competition Economics of Digital Ecosystems, OECD, 3 December 2020, p 3.

216 F Jenny, Competition law and digital ecosystems: Learning to walk before we run, available at SSRN, 24 March 2021, accessed 14 September 2023, p 8.

217 F Jenny, Competition law and digital ecosystems: Learning to walk before we run, available at SSRN, 24 March 2021, accessed 14 September 2023, p 9.

218 F Jenny, Competition law and digital ecosystems: Learning to walk before we run, available at SSRN, 24 March 2021, accessed 14 September 2023, p 9.

219 See, for example, N Petit, Technology Giants, the Moligopoly Hypothesis and Holistic Competition: A Primer, available at SSRN, 20 October 2016, accessed 14 September 2023, p 38 (Petit argues that digital platforms seek to introduce innovation that has drastic potential in the hope of creating new market footholds outside of its core services); OECD, Executive Summary of the Hearing on Competition Economics of Digital Ecosystems, 3 December 2020, p 3 (the OECD notes the importance of 'dynamic capabilities' to the success of an ecosystem. Dynamic capability is the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments. The OECD suggests that dynamic capabilities cover 3 sets of activities: the sensing of unknown futures; the seizing of business opportunities, value and needs; and the management of change by reconfiguration).

220 Amazon Australia, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report, May 2023, p 2.

221 Google, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report, May 2023, p 4; Meta, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report, May 2023, pp 2-3.

222 A Ezrachi and M Stucke, 'The Darker Sides of Digital Platform Innovation', *Network Law Review*, 18 August 2022, accessed 14 September 2023.

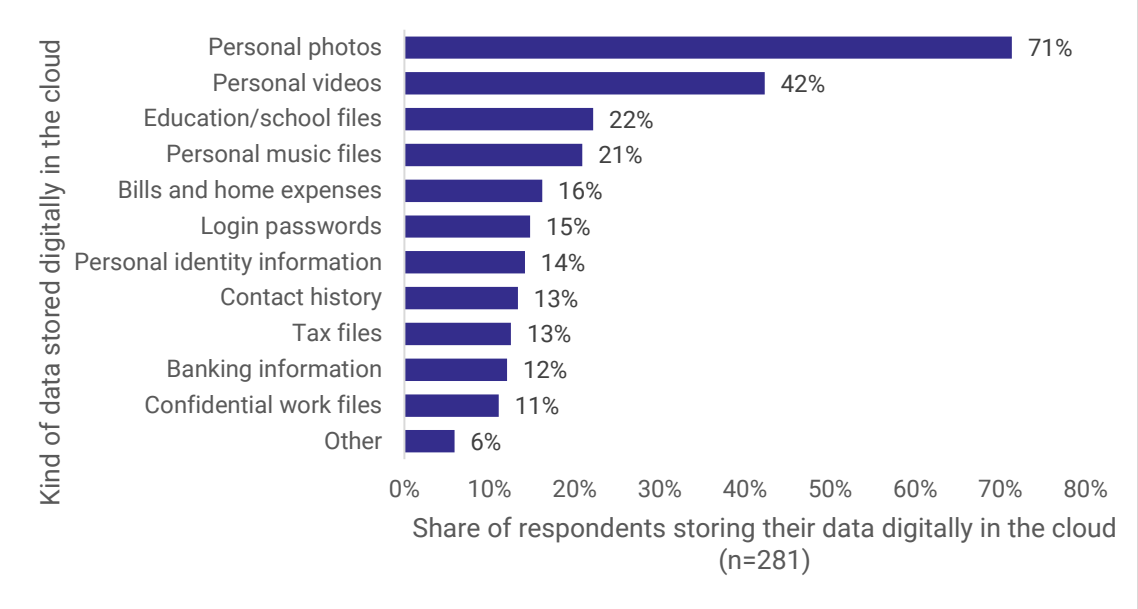
Box 4.2 What are consumer cloud storage services?

Consumer cloud storage services enable consumers to store, manage, organise, and retrieve files that they have stored in remote data centres (referred to as 'the cloud') and are primarily intended for personal use.[223] When consumers use devices such as personal computers or smartphones they may create files that can be uploaded to their personal cloud storage. When users wish to access their data, the cloud storage service provider makes it available to the user on the internet-connected device of their choice.

What are consumer cloud storage services used for?

Many Australians use consumer cloud storage services for multiple purposes (see figure 4.7). Telsyte survey data suggests that 72% of Australians over 16 years old use online cloud storage and backup services, with 56% of consumers using these services proactively,[224] and 57% of consumers using automatic system synchronisation and data backup features.[225] Telsyte data shown in figure 4.7 indicates that consumers primarily use their cloud storage services for storing their personal photos and videos, and files for education and school.

Figure 4.7: What Australian consumers store in consumer cloud storage services[226]



Consumer cloud storage services are often used in conjunction with another product or service provided by digital platform service providers – for example, with a smartphone operating system or with productivity software. Digital platforms' consumer cloud storage services integrate into each platforms' hardware and software. Each service offers similar base-level functionalities as other consumer cloud storage services, while also offering

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223 Consumer cloud storage services refer to the category of services that are consumer focussed, cloud-hosted ready-to-use applications (often categorised as 'Software as a Service', or SaaS) and not enterprise oriented cloud services, or broader cloud computing services that are commonly categorised as either 'Infrastructure as a Service' (IaaS) or 'Platform as a Service' (or PaaS). We also note that consumer cloud storage services are often provided by platforms in conjunction with a number of related data and information synchronisation services (for example, for calendars, reminders, password and browser settings) which may use a portion of the free or paid storage space, or be marketed as part of the consumer cloud storage service. For this report, we consider these to be separate from, but related to, consumer cloud storage services.

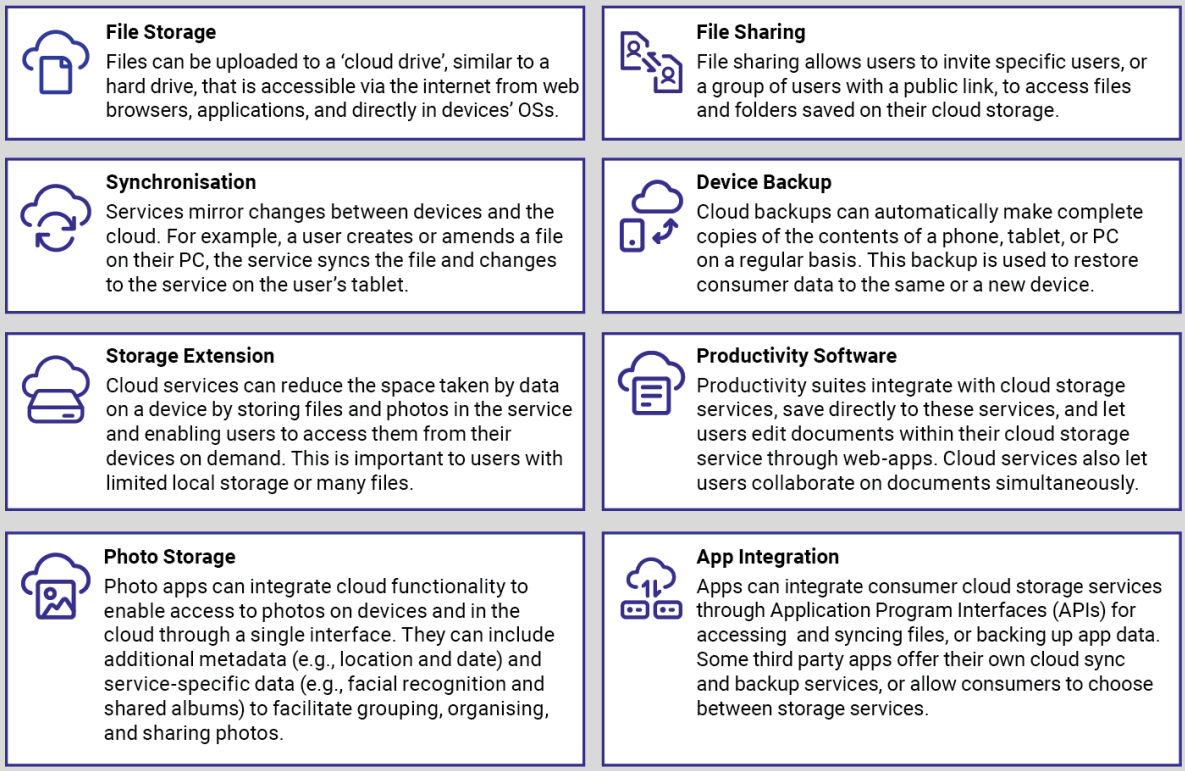
224 Telsyte defines proactive users as 'users that are actively aware and using cloud storage/back up services to store their digital assets'. Telsyte Australian Consumer Cloud Insights 2023.

225 Telsyte Australian Consumer Cloud Insights 2023.

226 Telsyte Australian Consumer Cloud Insights 2023.

additional features that complement the digital platform's business model. Figure 4.8 below shows the key purposes of cloud storage services.

Figure 4.8: Purposes of consumer cloud storage services



Since 2007, Apple, Google, and Microsoft have all expanded into offering consumer cloud storage services.

- **Apple offers iCloud –** iCloud integrates into Apple's ecosystem of iPhone, iPad, Mac, and other devices, and promotes the interoperability of these devices through backing up and syncing user files across this ecosystem.[227] While iCloud is installable on Windows, it has limited functionality on Android.[228] In addition to file storage, iCloud offers photo sync and backup through iCloud Photo Library, full device backup through iCloud Backup, and the backing up and sync of first and third-party apps. In addition to files and folders, iCloud syncs user preferences across a broader range of Apple hardware including Apple TVs, HomePods, and Apple Watches.[229] Apple IDs automatically include 5GB free iCloud storage. Additional storage can be purchased as part of iCloud+ and Apple One.[230]
- **Google offers Google Drive, Google One, and Google Photos –** Google Drive is available to all Google account holders and is heavily integrated into its Google Docs Editors suite and Gmail. Drive enables users to store and access their files, and easily share them with other users.[231] Google Drive and Google Docs are designed to be primarily accessed through web browsers (such as Google Chrome), however native applications are

227 Apple, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 552KB], May 2023, p 7.

228 Apple does not offer Android apps for iCloud and its other related services. Android users may only access iCloud through the icloud.com web interface. P Prado, 'How to use Apple iCloud on your Android device', *Android Authority*, 26 June 2023, accessed 14 September 2023.

229 Apple, Sign in to iCloud on all your devices, *Apple Support*, accessed 14 September 2023; Apple, Set up your HomePod, HomePod mini, Apple TV or iPad as a home hub, *Apple Support,* accessed 14 September 2023.

230 Apple, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 552KB], May 2023; Apple, iCloud+, accessed 14 September 2023; Apple, Apple One, accessed 14 September 2023.

231 Google, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 325KB], May 2023.

available on Apple, Microsoft and Google devices.[232] Google offers further consumer cloud storage functionality through Google Photos and Google One.[233] Google Accounts automatically include 15GB of free Google Drive and Google Photos storage, and also offer Android device backups.[234] Additional storage can be purchased as part of Google One.

- **Microsoft offers OneDrive –** OneDrive enables users to store files from their Windows PCs and Microsoft Office apps on their cloud drive.[235] Users can also store and access these files from Apple, Microsoft and Google personal computers, mobile devices, and web browsers.[236] OneDrive is integrated across Microsoft's software offerings including Teams and Outlook. Microsoft accounts automatically include 5GB free OneDrive storage, and additional storage is available to purchase as part of Microsoft 365.

Amazon and Meta have previously offered consumer cloud storage and adjacent services. However, both firms have withdrawn their substantive services in the past decade and only retain niche, targeted offerings. Amazon Drive will be discontinued on 31 December 2023. Amazon will continue to offer Amazon Photos, which complements Amazon's Echo Show and Fire TV.[237] Meta offers a cloud backup service for its Quest virtual reality headsets,[238] and offered a photo backup service until 2016 that integrated into the Facebook app.[239]

Apple, Google, and Microsoft have expanded their presence in consumer cloud storage over the past decade. Together they provide the substantial majority of consumer cloud storage services. While submissions note a number of smaller providers, [240] Dropbox is the only other provider with relatively significant use. Specifically, figure 4.9 below shows that consumers that use online cloud storage services tend to report using Google Drive (53%), Apple iCloud (52%), Microsoft OneDrive (39%), and Dropbox (20%).[241]

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232 Native applications refer to applications developed for use on a particular platform or device. This is in contrast to 'web applications', which are designed to run on a server and are accessed through an internet browser. Google, Download – Google Drive, accessed 14 September 2023.

233 Google, Google Photos, accessed 14 September 2023; Google, Google One – Expanded Cloud Storage & Automatic Phone Backup, accessed 14 September 2023.

234 Google, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 325KB], May 2023, p 20.

235 Microsoft, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 101KB], June 2023, p 5.

236 Microsoft, Download the OneDrive App for PC, Mac, Android or iOS, accessed 14 September 2023.

237 C Welch, 'Amazon Drive is shutting down at the end of 2023', *The Verge*, 30 July 2022, accessed 14 September 2023.

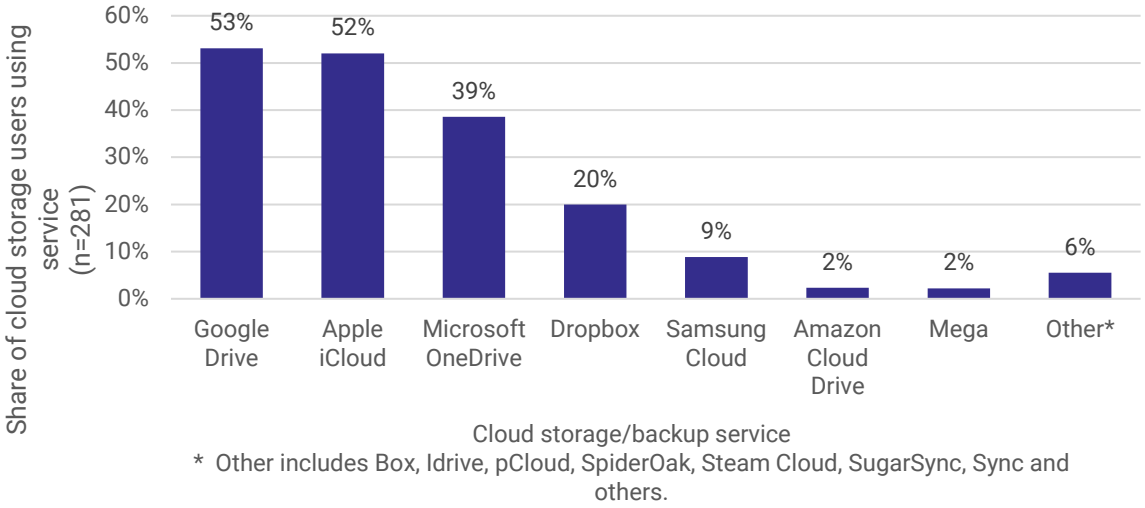
238 Meta, Cloud backup | Meta Store, accessed 14 September 2023.

239 S Perez, 'Facebook Is Killing Photo Syncing, Asks Users To Download Its "Moments" App Instead', *TechCrunch*, 15 December 2015, accessed 14 September 2023.

240 There are also a number of smaller providers that offer similar services noted in submissions by Apple, Google, and Microsoft including pCloud, Sync.com, Mega, IDrive, Samsung Cloud, Tresorit, Nextcloud, Syncthing, ownCloud, IPFS, Resilio Sync, Box, Zoolz, 4shared, MediaFire, SugarSync, Flickr, and Amazon Photos. See Apple, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 552KB], p 12; May 2023; Google, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 325KB], p 21; May 2023; Microsoft, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 101KB], June 2023, p 5.

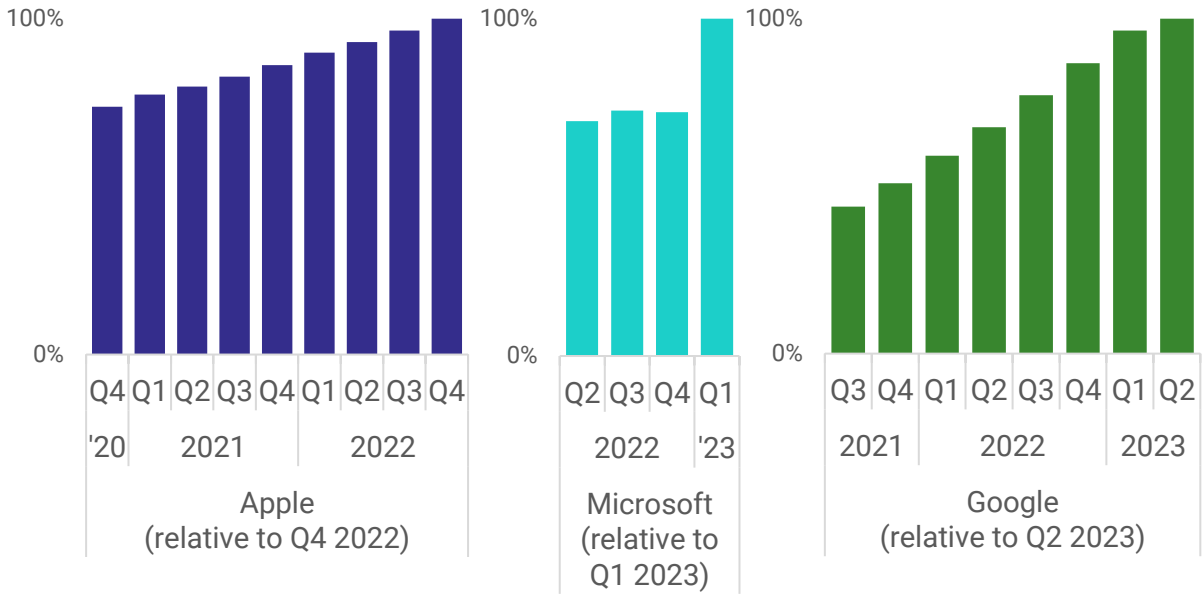
241 Telsyte Australian Consumer Cloud Insights 2023.

Figure 4.9: Which online cloud storage services Australian consumers use[242]



In recent years, the number of both paid and total consumer cloud storage accounts increased for Apple, Google and Microsoft (see figures 4.10 and 4.11 below).

Figure 4.10: Growth in paid number of Apple, Microsoft, and Google consumer cloud storage accounts[243]

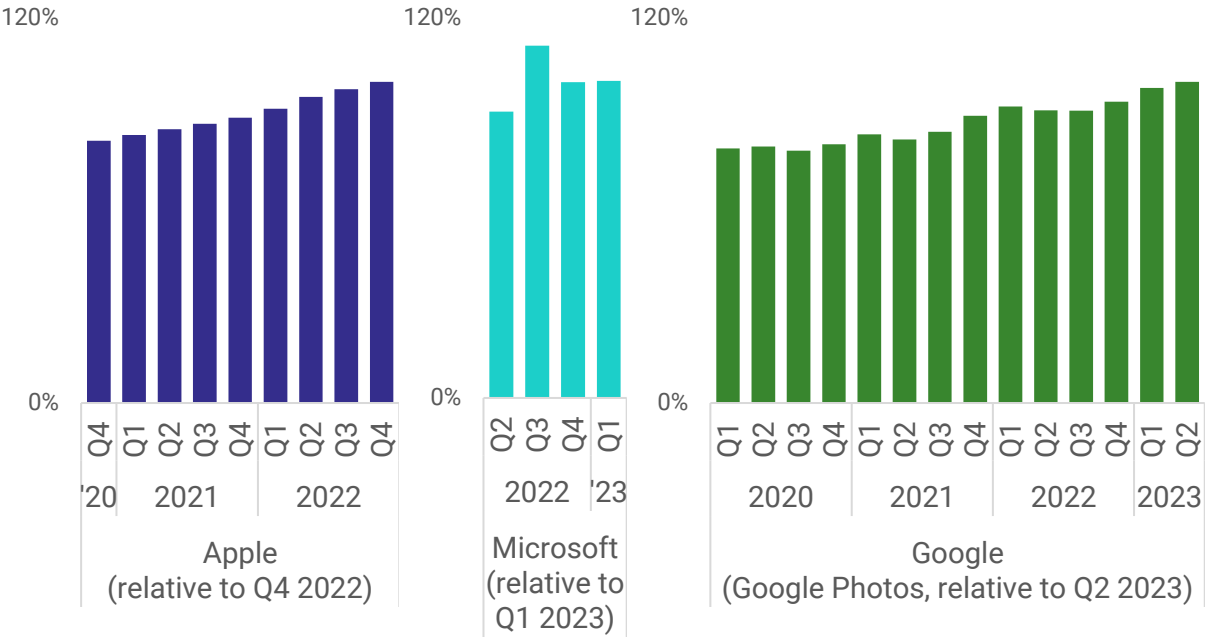


The figure only shows percentages for each digital platform relative to their own account numbers in the most recent quarter provided by each platform. The percentages shown are not directly comparable as between digital platforms, as the figure does not take into account differing customer numbers and has not been compiled on a "like for like" basis for each digital platform

242 Telsyte Australian Consumer Cloud Insights 2023.

243 The 95ZK data provided by Apple on the number of paid accounts for iCloud represents the number of paid accounts. This may not be indicative of the number of users, as paid iCloud subscriptions are able to be shared between individual users. The 95ZK data provided by Microsoft on number of paid accounts for OneDrive represents the number of paid accounts. This may be greater than the number of users. The ACCC has used the s 95ZK data provided by Google on number of paid accounts for Google One as a proxy for the number of paid consumer cloud storage accounts. This may be greater than the number of users and some users may not subscribe to Google One for storage, meaning the figures may be overstated.

Figure 4.11: Growth in total number of Apple, Microsoft, and Google accounts using consumer cloud storage[244]

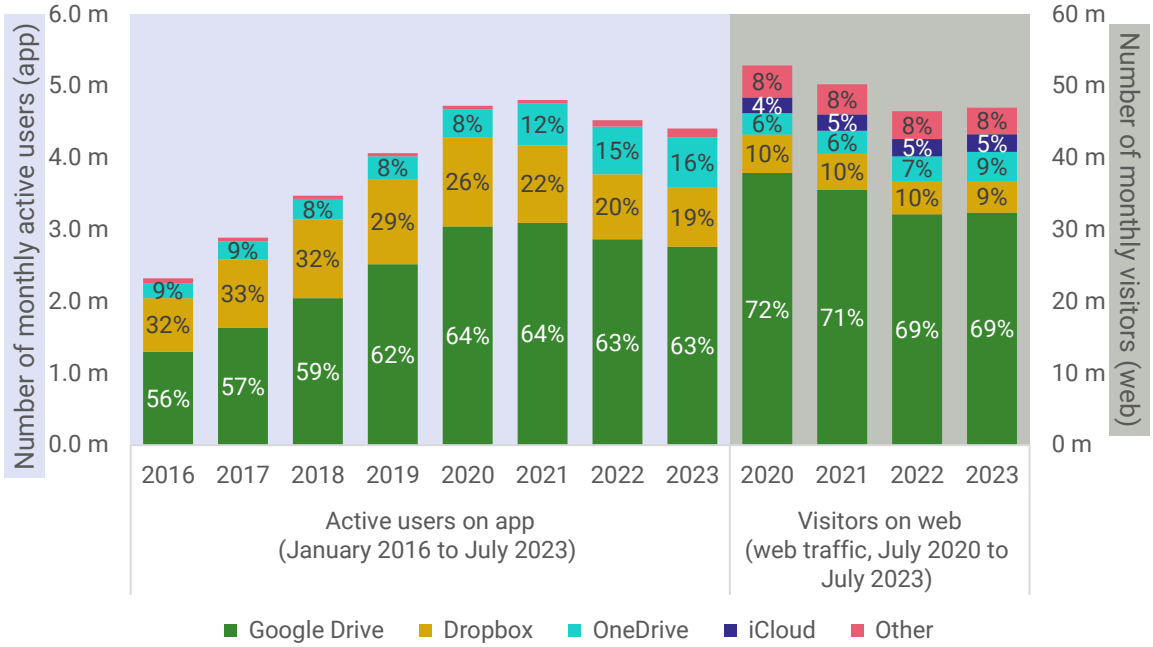


The figure only shows percentages for each digital platform relative to their own account numbers in the most recent quarter provided by each platform. The percentages shown are not directly comparable as between digital platforms, as the figure does not take into account differing customer numbers and has not been compiled on a "like for like" basis for each digital platform

In figure 4.12 below, monthly smartphone app usage data from Sensor Tower similarly shows that the number of monthly active users for cloud storage apps has increased since 2016. However, this has dipped slightly from a high in 2021.

[244] As the s 95ZK data provided by Google for total Google Drive accounts may include both consumer and non-consumer accounts the ACCC has referred to Google Photos for this analysis. As the ACCC has used Google Photos data to prepare this graph, it is not comparable with Figure 4.10 which is based on Google One data.

Figure 4.12: Mobile App and Web usage of consumer cloud storage[245]



During the 2016 to 2023 period the percentage of active app users using either Google Drive or Microsoft OneDrive increased from 65% of monthly active users to 79%, while Dropbox's percentage of active app users fell from 32% to 19%. Similarweb website monthly visitor data shows that overall website usage and share of active users has remained relatively stable since 2020, with the total average monthly number of visitors ranging from 41 million to 45 million.[246] This also demonstrates the various ways consumers access and use cloud storage services.

Paid consumer cloud storage services

Apple, Google, and Microsoft offer paid consumer cloud storage services at a range of storage sizes from 50GB to 2TB and greater. Table 4.1 outlines currently advertised storage pricing and plans for iCloud+, Google One and Microsoft 365. Apple, Google, and Microsoft each offer similar storage tiers, however the iCloud+ base-level storage tier offers a smaller 50GB for AUD1.49 per month, compared to Google and Microsoft's 100GB for AUD2.49 and AUD3.00 per month respectively. Many consumer cloud storage plans can be shared with other users and are often marketed as family plans. iCloud+ and Google One paid storage can each be shared across 6 user accounts, while Microsoft 365 offers a Family tier that allocates 1TB of storage per user for up to 6 users.

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245 App data is from Sensor Tower, Active Users by App on iOS, iPadOS and Android, for Australia between January 2016 to July 2023, accessed on 21 September 2023. The following apps are represented in this graphic: Amazon Drive, Box, Degoo, Dropbox, TeraBox, MEGA, 4shared, G Cloud Backup (Android Only), Google Drive, Media Fire, Microsoft OneDrive, Nextcloud, pCloud, IDrive, Sync, WeTransfer, SugarSync (iOS Only), Pandora Drive Li (iOS Only). Sensor Tower app usage data does not include iCloud app usage data due to restrictions on system activity tracking on iOS and lack of availability of iCloud apps on Android. Web traffic data is from Similarweb for Australia between July 2020 to July 2023. The websites for the following services are represented in this graphic: Google Drive, Microsoft OneDrive, Apple iCloud, Dropbox, Backblaze, Box, MEGA, WeTransfer, SpiderOak, IDrive, Sync.com, pCloud, Egnyte, SugarSync, Nextcloud, Carbonite, Internxt, IceDrive, Terabox, Degoo, Tresorit, Flipdrive, G Cloud Backup, LiveDrive, Open Drive, A Drive, NordLocker, MediaFire, Samsung Cloud, 4shared, OwnCloud, IPFS, Resilio, Zoolz. Web traffic data may represent users accessing a cloud storage website for a number of reasons including accessing a web cloud drive client, downloading a mobile app or desktop helper tool, or accessing other related functionality such as FindMy on iCloud.com.

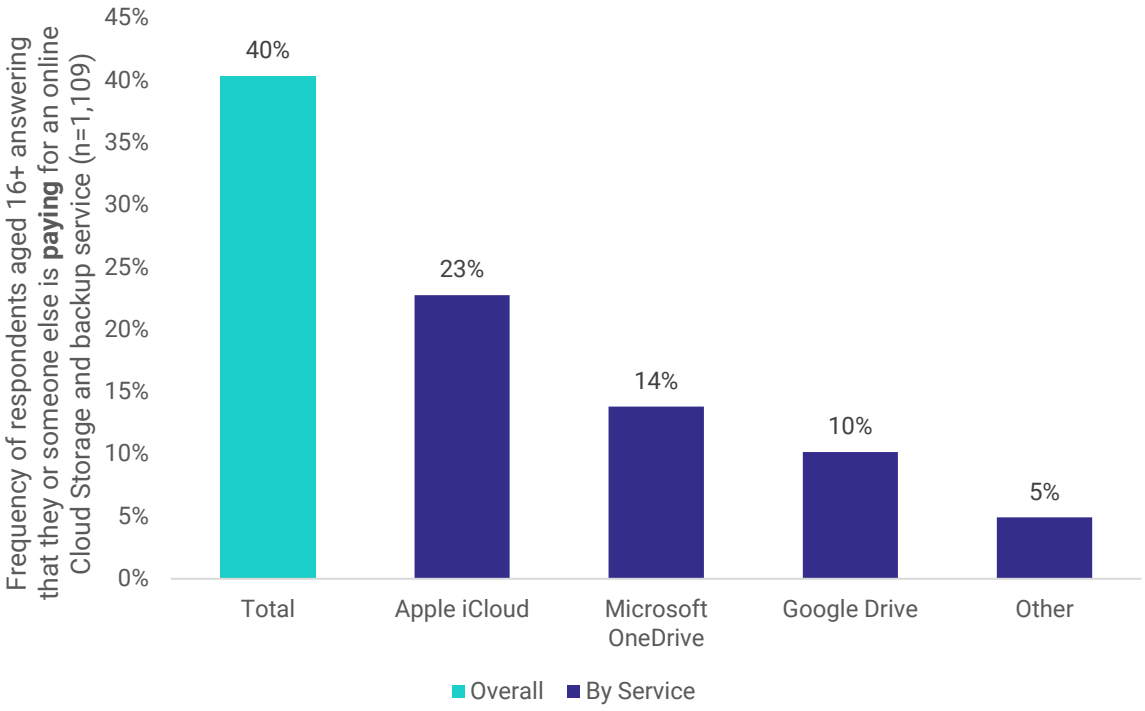
246 Similarweb data shows that web visitors to cloud storage websites are predominantly from desktop browsers. In July 2023, approximately 89% (42.43 million) of visitors used desktop browsers, while approximately 11% (5.045 million) of visitors used mobile browsers (of a total 47.47 million visitors).

Table 4.1: Comparison of Apple, Google and Microsoft monthly pricing for paid accounts (AUD)[247]

	50GB	100GB	200GB	1TB[248]	2TB
Apple iCloud+[249]	$1.49	-	$4.49	-	$14.99
Google One[250]	-	$2.49	$4.39	-	$12.49
Microsoft 365[251]	-	$3.00	-	$11.00	Undisclosed[252]

Many Australian consumers are using paid consumer cloud storage services offered by the digital platform service providers. Figure 4.13 below shows that 40% of Australian consumers surveyed use paid consumer cloud storage services, with iCloud as the leading paid provider with 23%, followed by Microsoft OneDrive (14%) and Google Drive (10%).

Figure 4.13: Percentage of consumers using paid consumer cloud storage services[253]



247 Google One (100GB, 200GB and 2TB), Microsoft 365 and Dropbox paid plans are also available at annual rates, with an approximate 16-18% discount, which is approximately equivalent to the cost 2 months of each respective plan. iCloud was previously available annually until September 2014. Wayback Machine, Changes to iCloud storage for current customers – Apple Support – 18 December 2014, accessed 14 September 2023. This table is non-exhaustive and excludes plans which are marketed specifically for multiple users (such as Microsoft 365 Basic and Dropbox Advanced) and plans for which pricing is only visible in Australia to currently paying users (such as Microsoft's 1.2TB – 2TB plans, and Google's 5TB – 30TB plans) or plans with higher storage tiers (such as Apple's 6TB and 12TB plans).

248 As part of Microsoft 365 Personal, which includes the desktop Microsoft Office suite.

249 On 19 September 2023, Apple introduced a 6TB plan for AUD44.99 per month, and a 12TB plan for AUD89.99 per month. See Apple, iCloud+ plans and pricing, *Apple Support*, 18 September 2023, accessed 19 September 2023; D Gewirtz, Apple adds 6TB and 12 TB iCloud+ storage tiers priced at $30 and $60 a month, *ZDNET*, 12 September 2023, accessed 19 September 2023.

250 Google, Plans and pricing, *Google One,* accessed 14 September 2023.

251 Microsoft, Cloud Storage Pricing and Plans, accessed 14 September 2023.

252 Microsoft 365 Personal and Family subscribers can purchase up to an additional 1TB storage per user in 200GB increments to a total of 2TB, however Microsoft does not advertise the cost of this publicly in Australia.

253 Telsyte Australian Consumer Cloud Insights 2023.

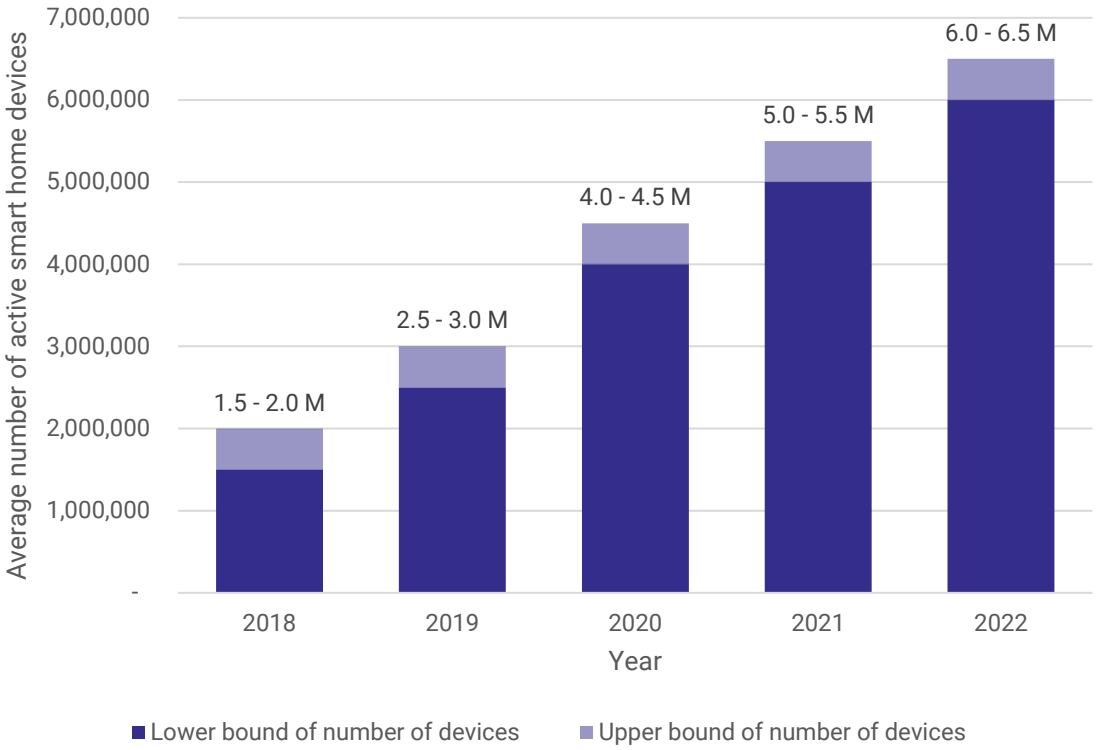
4.1.3. Amazon, Apple and Google's smart home devices

The second example of the expansion of digital platform service providers into products and services that relate to their other digital platform services that will be explored in this Report is smart home devices. Amazon, Apple and Google have each expanded into offering several smart home devices, as well as related technologies such as voice assistants and smart home device companion apps. Smart home devices are network-connected products aimed at consumers for use in and around the home. Smart home devices may connect to other devices or networks to enable interactive or autonomous functions, for example allowing users to remotely control the device using a companion app. A more detailed introduction to smart home devices and their functionality is outlined below at box 4.3.

Microsoft and Meta do not currently provide smart home devices. In 2018, Meta launched a range of smart displays (Portal) but discontinued them in 2022.[254]

There have been year-on-year increases in the combined number of active first-party smart home devices supplied by digital platform service providers in Australia from 2018 to 2022 (see figure 4.14 below).[255]

Figure 4.14: Number of active first-party smart home devices from digital platform service providers in Australia[256]



254 Reuters, Facebook parent Meta winding down some non-core hardware projects, 12 November 2022, accessed 14 September 2023.

255 Information provided to the ACCC. In respect of Google, devices are considered active if connected to Google's cloud services during the relevant month.

256 Information provided to the ACCC. Data relevant to Google relates to Google Nest displays, Google Nest speakers and Chromecast devices only. These Google smart home devices are considered active if connected to Google's cloud services during the relevant month. For Google this graph shows the average number of active smart home devices in each month, for the relevant year.

Similarly, information received by the ACCC indicates that the digital platform service providers' penetration has increased in terms of the number of devices owned by Australian users. As 2 proxies for the approximate number of devices per user, figure 4.15 shows the that the approximate average number of Google smart home devices per household with at least one Google first party device experienced a 32% increase between January 2018 and January 2023, and figure 4.16 shows that the approximate average number of Amazon smart home devices registered on an Active Australian Account Holder's account experienced an 11.8% increase between April 2020 and January 2023.

Figure 4.15: Approximate average number of Google smart home devices per user household[257]

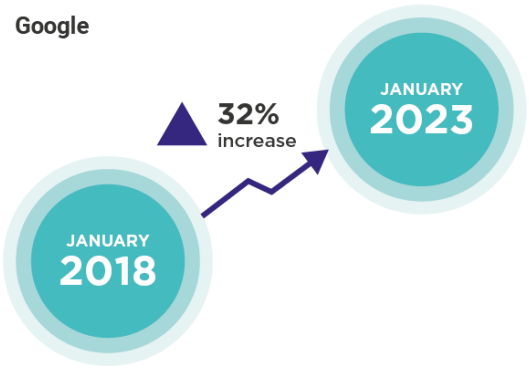
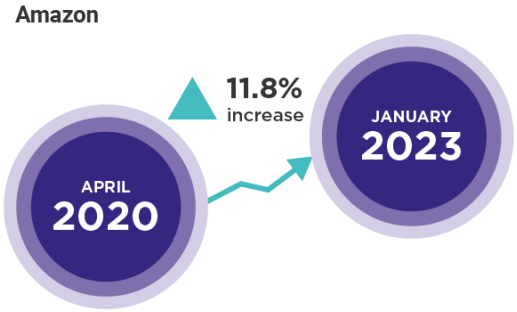


Figure 4.16: Approximate average number of Amazon smart home devices per user account[258]



Box 4.3 What are smart home devices and 'gateway devices'?

For the purposes of this Report the ACCC is considering the following types of smart home devices: smart speakers, display hubs, smart TV and TV dongles, smart doorbells, smart security cameras and other small smart appliances found in the home. In this context the ACCC is not considering wearables, such as smart watches, or other consumer Internet of Things or industrial Internet of Things devices.

Some products can be used both to control other smart home devices and to access content or services – see figures 4.17 and 4.18 below. The ACCC refers to these devices as 'gateway devices'.

Gateway devices include some products within our definition of smart home devices (such as smart speakers, display hubs, and smart TVs/dongles) and some products outside our definition of smart home devices (such as smartphones, tablets, computers and smart watches which can run a smart home companion app).

Gateway devices play an important role both in governing how consumers use other smart home devices, and how consumers access content and services through the internet.

257 Information provided to the ACCC. For the purposes of this figure a 'user household' is a household with at least one Google first party device. This figure does not take into account whether the device is active or inactive.

258 Information provided to the ACCC. This figure reflects the average number of Amazon smart home devices registered on each Active Australian Account Holder's account for the relevant period.

Figure 4.17: How consumers can utilise gateway devices to operate other smart home devices

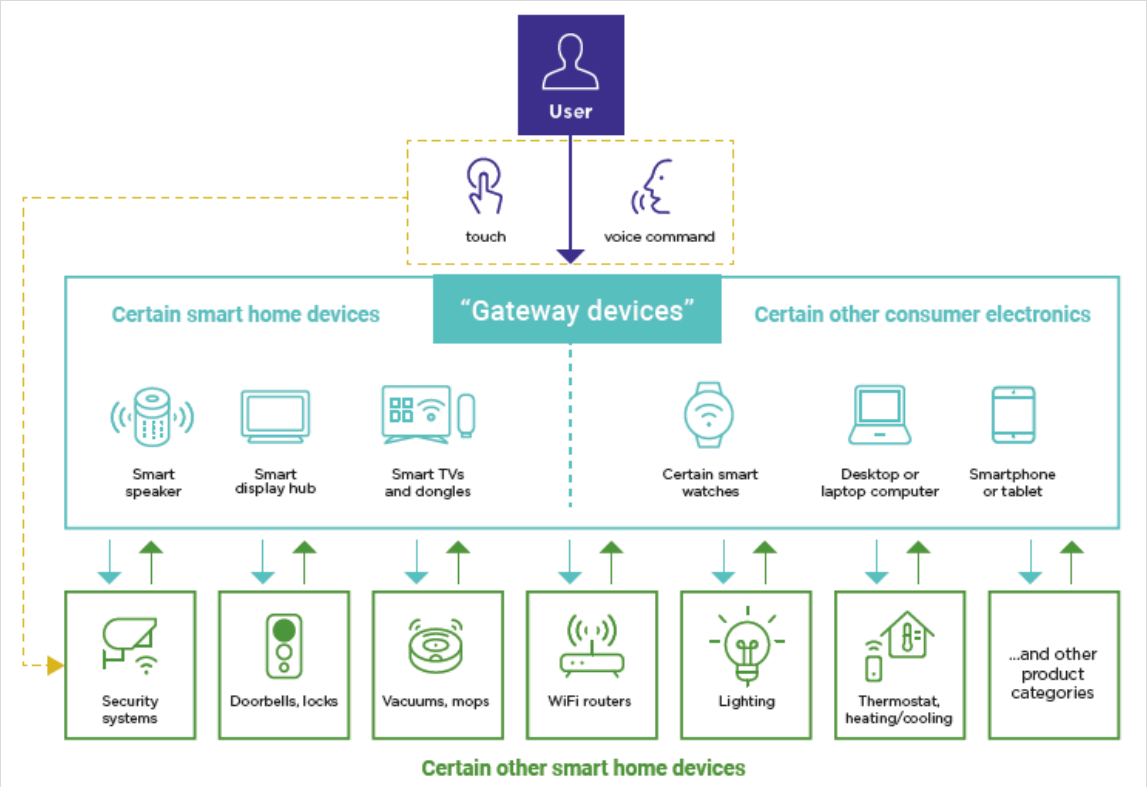
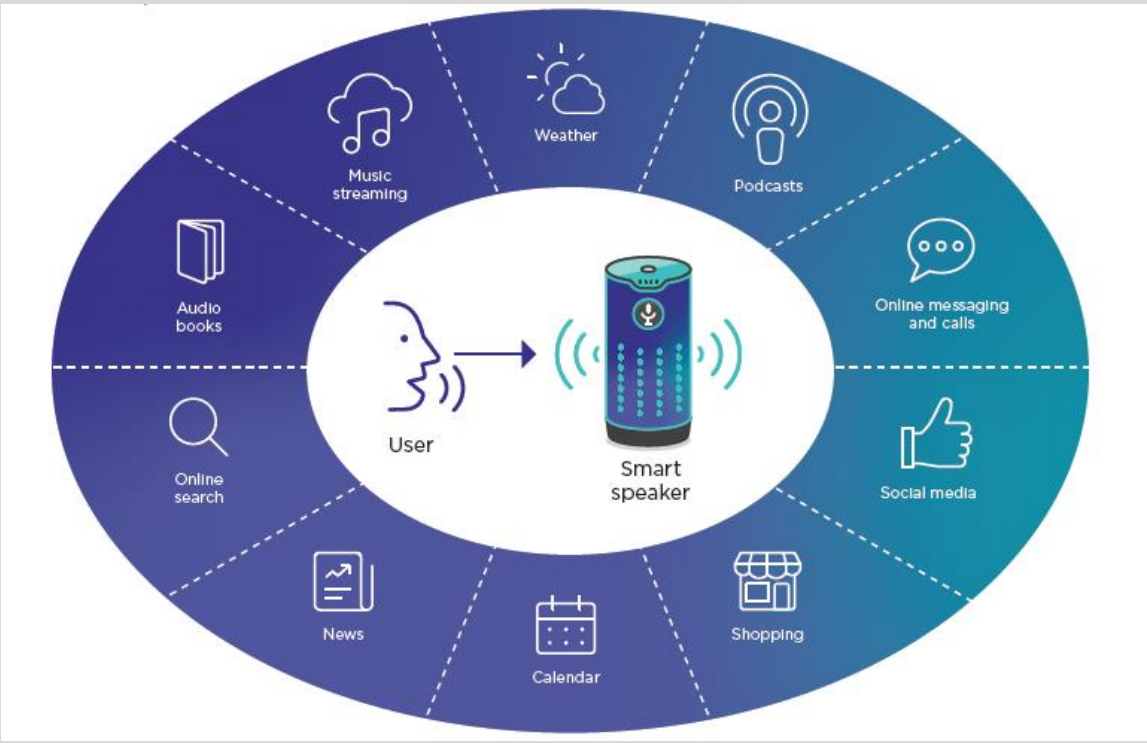


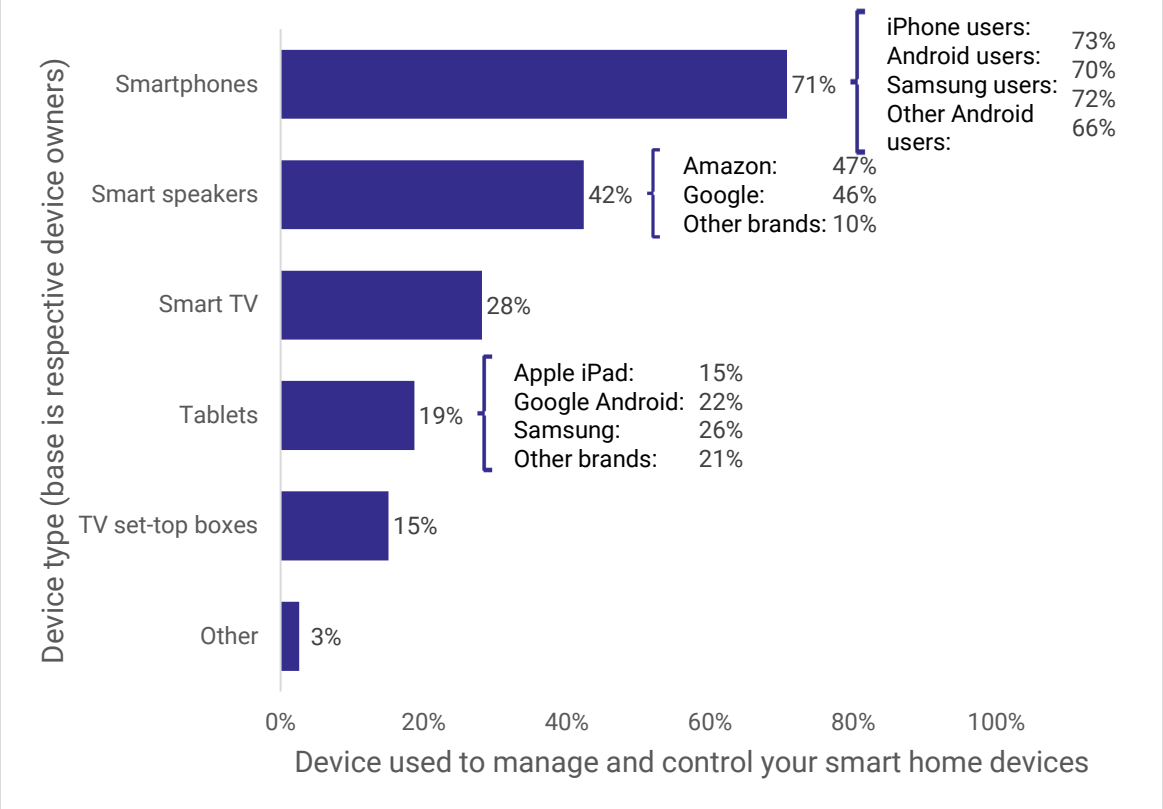
Figure 4.18: Example of the different services consumers can access on a smart speaker



How do Australian consumers manage and control their smart home devices?

According to a nationally representative 2022 survey, consumers use a variety of gateway devices to control their other smart home devices.[259] Figure 4.19 below shows that smartphones are the most popular control point, with 71% of surveyed smart home device users utilising their smartphone to control smart home devices. However, smart speakers are also significant, being used to control smart home devices by 42% of respondents. Importantly, different smart home devices are controlled in different ways. For example, smart speakers are more likely to be controlled by a voice assistant than say a smart TV.

Figure 4.19: How do Australian consumers tend to manage and control their smart home devices?[260]



[259] Telsyte Australian IoT@Home Market Study 2022.

[260] Telsyte Australian IoT@Home Market Study 2022.

Smart home gateway devices supplied by Amazon, Apple and Google

Three kinds of smart home devices which act as gateway devices[261] are smart speakers, smart displays, and smart TV devices (covering smart TV dongles and all-in-one units). Amazon, Apple and Google have expanded into each of these product categories.

As noted in box 4.3, certain other personal devices, such as smartphones, tablets and personal computers, can control smart home devices via companion apps. This is discussed below under 'Smart home companion apps supplied by Amazon, Apple and Google'.

Smart speakers

Each of Amazon, Apple and Google supply smart speakers, which are speakers incorporating a voice assistant. This enables users to issue voice commands to control other smart home devices or access a range of services (see figures 4.17 and 4.18 above). Google provides the Nest range, Amazon provides the Echo range, and Apple provides the HomePod range.

Telsyte survey data suggested that in December 2022, 32% of Australian households (or 3.2 million households) owned at least one smart speaker.[262] Google is the market leader in this product category with more than half of households (an estimated 1.8 million) owning Google Nest smart speakers. An estimated 1 million households owned Amazon Echo units, with the remainder comprised of 0.2 million households with Apple HomePod and 0.6 million with units from other providers such as Sonos and Lenovo.[263]

Smart displays

Amazon and Google also provide smart displays which function like smart speakers with a visual and touchscreen display. Google provides the Nest Hub range and Amazon provides the Echo Show range.

At present, smart displays are less widespread in Australian homes than smart speakers (with approximately 9% of Australian households, or 900,000 households, owning a smart display).[264] Like smart speakers, Google is the market leader in Australia, followed by Amazon; an estimated 600,000 Australian households own Google Nest Hub units, 200,000 households own Echo Show units, and 100,000 households own units from other providers.[265]

Smart TV related devices and operating systems

Amazon, Apple and Google also provide smart TV related devices, which connect to television hardware and enable various internet functions such as video and music streaming, and can also be used to control other smart home devices. In terms of smart TV related devices, Google provides the Chromecast, Amazon provides the Fire Stick, and Apple provides the Apple TV.

On the operating system level, Google licenses its Android TV operating system to various manufacturers selling smart TVs in Australia, such as Sony, TCL, Sharp, and Toshiba. Amazon licenses its Fire OS to various TV manufacturers including Westinghouse, Toshiba

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261 Gateway devices are devices which allow consumers to control other smart home devices and access services, defined above in box 4.3.

262 Telsyte Australian IoT@Home Market Study 2022.

263 Telsyte Australian IoT@Home Market Study 2022.

264 Telsyte Australian IoT@Home Market Study 2022.

265 Telsyte Australian IoT@Home Market Study 2022.

and Insignia,[266] but these models are not available in Australia at present. Apple's tvOS operating system is only available on its Apple TV product range.

Other smart home devices supplied by Amazon and Google

Amazon and Google also provide a range of various other smart home devices. Their first-party smart home device offerings retailed in Australia are outlined in the table 4.2 below.

Table 4.2: Other first-party smart home device offerings from Amazon and Google

	Smart security systems	Smart video doorbells	Smart Wi-Fi routers	Smart smoke and CO detector
Amazon	Ring security camera range[267]	Ring video doorbell range[268]	Eero range[269]	
Google	Nest Cam range[270]	Nest Doorbell[271]	Nest Wifi range (Router and Point)[272]	Nest Protect[273]

In contrast, Apple does not provide first-party smart home device hardware beyond its HomePod speaker range and Apple TV range. However, it retails various smart home devices from third-party sellers on its website[274] which are certified to Apple's HomeKit interoperability standard, meaning they interoperate with Apple's Home app and Siri voice assistant.

A list of all first-party smart home devices provided by Amazon, Apple and Google in Australia in 2023 is included at appendix C.

Voice assistants supplied by Amazon, Apple and Google

Amazon, Apple and Google also provide the leading 3 voice assistants used in Australia (Amazon's Alexa, Apple's Siri and Google Assistant).[275] A voice assistant is software designed to perform a variety of tasks based on the user's voice prompts, such as commands or questions. Microsoft launched a voice assistant called Cortana in 2014[276] but has not applied Cortana to smart home applications in Australia to date. Microsoft appears to be scaling back Cortana substantially, announcing plans in 2023 to remove support for

266 Associate Professor Ramon Lobato, Submission to September 2022 DPSI report [PDF 255KB], p 3.

267 Ring, Security cameras, accessed 14 September 2023.

268 Ring, Doorbell Cameras, accessed 14 September 2023.

269 Eero, Shop, accessed 14 September 2023.

270 Google, Compare Indoor & Outdoor Nest Security Camera Specs, *Google Store*, accessed 14 September 2023.

271 Google, Nest Doorbell (battery), *Google Store*, accessed 14 September 2023.

272 Google, Nest Wifi - Mesh Router, *Google Store*, accessed 14 September 2023.

273 Google, Nest Protect - Smart Smoke & CO Alarm, *Google Store*, accessed 14 September 2023.

274 Apple, Smart Home Accessories, accessed 14 September 2023.

275 Telsyte Australian IoT@Home Market Study 2022.

276 K Levy, 'Microsoft has its own version of Siri, a voice assistant called 'Cortana'', *Business Insider*, 3 April 2014, accessed 14 September 2023.

Cortana in the Windows desktop operating system[277] after shutting down Cortana on iOS and Android mobile operating systems in 2021.[278]

Voice assistants can be used to control smart home devices via various gateway devices including smartphones and tablets, computers, smart speakers, smart displays, and certain smart TVs. The ACCC notes that while a consumer on a smartphone may choose to use either a companion app or a voice assistant to control their smart home devices, the 42% of Australian smart home device owners that use a smart speaker to control their devices are using the voice assistant incorporated in their smart speaker to do so.[279] Among this group of consumers, when surveyed 49% cited the speed of use and 45% cited increased convenience for multi-tasking as reasons they use their smart speaker to control other smart home devices.[280]

Smart home companion apps supplied by Amazon, Apple and Google

Amazon, Apple and Google also provide smart home companion apps which allow consumers to link, coordinate and control smart home devices from devices such as smartphones, desktop computers, certain smart TVs or wearables. Google provides the Google Home app, Amazon provides the Amazon Alexa app, and Apple provides the Apple Home app.

As illustrated in figure 4.19 above, smartphones remain the most popular method for consumers to control their smart home devices, with 71% of surveyed Australian smart home device users using their mobile to manage their smart home devices.[281] However, the European Commission in its sector inquiry into consumer Internet of Things acknowledged the growing popularity of voice assistants to access smart home devices.[282]

Data obtained by the ACCC from Sensor Tower indicates that between Google and Amazon, the 2 leading providers of smart home devices in Australia, Google Home has a strong lead with 604,964 monthly active users over January – June 2023 compared to the Amazon Alexa app's 164,254 monthly active users over the same period, as indicated in Figure 4.20 below.[283]

277 E Roth, 'Microsoft will end support for Cortana on Windows later this year', *The* Verge, 3 June 2023, accessed 14 September 2023.

278 T Warren, 'Microsoft shuts down Cortana on iOS and Android', *The Verge,* 1 April 2021, accessed 14 September 2023.

279 Telsyte Australian IoT@Home Market Study 2022.

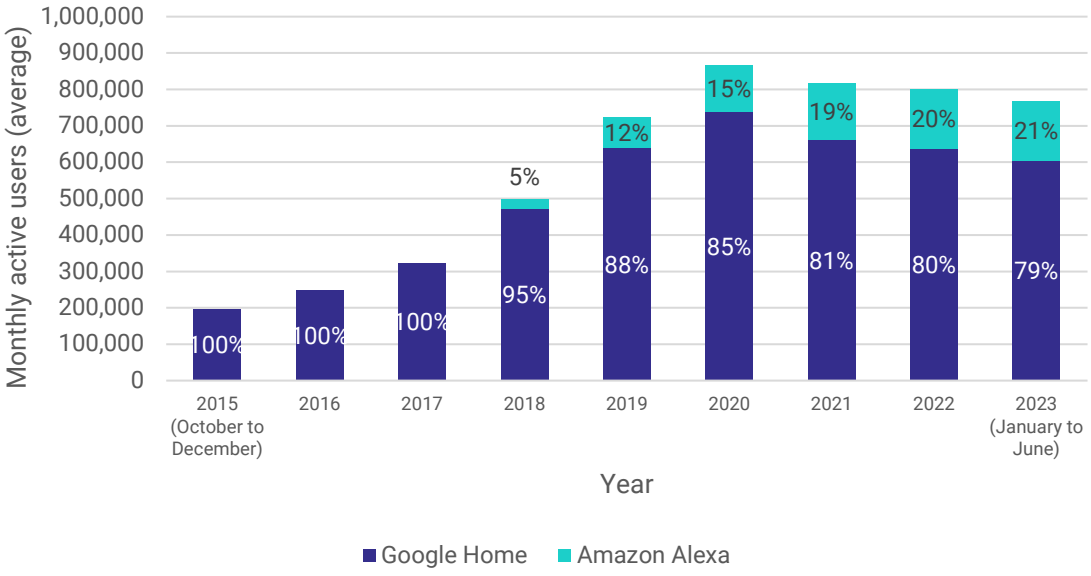
280 Telsyte Australian IoT@Home Market Study 2022.

281 Telsyte Australian IoT@Home Market Study 2022.

282 European Commission, Sector Inquiry into Consumer Internet of Things, Commission staff working document [PDF: 2,041KB], p 22.

283 Sensor Tower, Active Users by App (Google Home, Amazon Alexa) on iOS, iPadOS, and Android, for Australia between October 2015 to June 2023, accessed 21 September 2023.

Figure 4.20: Monthly active Australian users of Google and Amazon's smart home companion mobile apps between 2015 and 2023.[284]



4.2. Digital platform service provider expansion strategies and what might be driving them

This section of the Report considers the expansion strategies utilised by providers of digital platform services, as well as the factors driving and enabling their expansion. Digital platform service providers may be driven to expand into new products and services (and markets) for a range of reasons (including several in combination), some of which were discussed above in section 3.1.2 in relation to particular platforms.

In particular, digital platform service providers may be incentivised to expand into a new market because they wish to protect their existing market shares or they believe their revenues will increase by more than the associated costs. This could be for the following reasons:

- To benefit from **extending existing economies of scale and scope to develop or produce a new product or service**.[285] In particular, they may have access to shareable inputs such as modular hardware, software and other digital inputs (such as algorithms), technical knowledge and skills, and relevant data or data sources — or excess capacity in these assets — that allow them to enter more efficiently.
  - For example, Apple has developed processor chips for its desktop computers, smartphones and tablets that can be used in new devices.[286] Amazon's entry into cloud computing was, as noted earlier, enabled by excess capacity in data centres

[284] Sensor Tower, Active Users by App (Google Home, Amazon Alexa) on iOS, iPadOS, and Android, for Australia between October 2015 to June 2023, accessed 21 September 2023.

[285] M Bourreau and A de Streel, Digital Conglomerates and EU Competition Policy [PDF 628KB], March 2019, accessed 14 September 2023, p 9. Economies of scope exist when it is less costly to produce 2 or more products or services within a single firm than by separate firms, due to the presence of shareable inputs. See also ACCC Merger Guidelines which define 'economies of scope' as 'the economic principle whereby a firm's long-run average total cost of production is decreased as the quantity of different goods produced by that firm is increased.' (ACCC, Merger Guidelines, 2017, p 27).

[286] See, for example, J Clover, Apple Watch series 9 to feature updated processor based on A15 chip, *MacRumors* 8 May 2023, accessed 14 September 2023; J Clover, What we know about the Apple Vision Pro hardware so far, *MacRumors,* 7 June 2023, accessed 14 September 2023.

that it built to serve its own ecommerce business.[287] Similarly, Google's investments in its Android OS likely provided it with the building blocks to launch the Android Automotive OS.

- To gain access to **additional data or data sources**. Additional data may allow a firm to achieve economies of scale in data, where the additional data makes the firm more efficient in its core market or other markets. It may also allow a firm to achieve economies of scope in data (i.e., where the complementarities between the firm's existing data and the data available in the new market makes the firm more efficient). As discussed in section 5.2, such expansion may not only have an efficiency effect, but it may also raise barriers to entry and expansion, particularly if such additional data is not available to others. For example, health and education data, particularly where the data is not available to others, might be very valuable data sets.
- To gain access to **additional users or a new segment of users**. This may, for example, entail new products or new product features and so be pro-competitive. It could also increase the strength of existing network effects which could, in turn, raise barriers to entry and expansion.
- To **prevent future entry or growth of a rival into the digital platform service providers' core market**, where entry into an adjacent market could be used by rivals as a launching pad to enter the providers' core market. Potential competition risks associated with digital platform expansion are discussed in chapter 6.
- To be the **'winner of new discoveries' to establish first-mover advantage** in markets that may be likely to displace other markets in which they are present. In this regard, the CMA has noted that digital platforms may be incentivised to enter into new areas in order to diversify their business portfolios and be resilient to changes in social preferences, trends over time, or technological developments.[288]
  - For example, Meta anticipates that the Metaverse will be the future platform of social media and networking, which appears to be driving its significant investments in these technologies.[289] Apple's expansion into immersive technology headsets may similarly be designed to pre-empt future displacement of iPhones.[290] Expectations regarding the future growth in demand for certain products or services may also be driving investment and expansion into particular sectors.
- To **improve, or increase the value of, digital platform services or other related services** already provided by the digital platform service provider (see section 3.1.2).[291] Particularly in the case of complementary products and services, expansion of a digital platform service provider may enable them to provide more stable interoperability between the complement and the primary service, to bring complementary services to market faster (particularly if changes are required to the platform interface) or to replace products or services provided by third-party providers that perform poorly or are of poor quality.

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287 M Bourreau and A de Streel, Digital Conglomerates and EU Competition Policy [PDF 628KB], March 2019, accessed 14 September 2023, pp 8-9. See also W Roush, Servers for Hire, *MIT Technology Review,* 28 September 2006, accessed 14 September 2023.

288 CMA, Online platforms and digital advertising market study, Appendix E: ecosystems of Google and Facebook [PDF 465KB], 1 July 2020, p E2.

289 N Clegg, 'Making the metaverse: What it is, how it will be built, and why it matters', *Medium*, 18 May 2022, accessed 14 September 2023.

290 See, T Mehta, How AR glasses are going from niche gadget to smartphone replacement, *Digital Trends*, 30 June 2022, accessed 14 September 2023.

291 P Belleflamme and M Peitz, The Economics of Platforms: Concepts and Strategy, Cambridge University Press (2021), p 135.

  - For example, Zhu notes that Google's introduction of its own flashlight app may have been influenced by users' privacy concerns about some third-party flashlight apps.[292]
- To **capture more of the value generated** by complementary products and services provided via their digital platform services. Or alternatively, to capture the additional value that consumers get from buying different products together.
  - For example, on the former, Apple and Google may be incentivised to develop their own versions of apps being provided by third parties on their mobile app stores (or incorporate their functionalities directly into the mobile device) in order to capture more of the value from the complement. Similarly, Amazon may be incentivised to develop similar versions of popular products being offered by third parties on its marketplace. Direct entry of platforms in competition with third parties on their platforms may, however, decrease incentives to innovate (discussed further in section 6.2).[293]
- To increase **brand awareness and reputation**. The CMA has noted that digital platforms may be incentivised to enter into new areas in order to strengthen their reputation and brand across a broader range of consumers.[294] For example, firms may have an incentive to enter into new markets such as education to improve brand awareness, particularly among children, and/or to make them more 'sticky' or loyal over time.

While this is not an exhaustive list, it shows the difficulties in identifying the impacts of digital platform entry into new products or services and highlights the potential cumulative impacts of expansion. In this regard, the ACCC notes that there has been commentary about strategies of digital platform service providers aimed at building 'moats' around their core services.[295] In relation to moat-building, US Assistant Attorney-General Jonathan Kanter recently referred to moat-building as the act of erecting barriers to entry that protect a core monopoly, not only through exclusionary tactics, but also through increasing economies of scale and scope, which increase their competitive advantages and raise barriers to entry.[296] These impacts and challenges are discussed further in chapters 5 and 6.

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292 F Zhu, Friends or foes? Examining platform owners' entry into complementors' spaces, *Journal of Economic and Management Strategy,* 28:1 (2019), pp 3-4.

293 F Zhu, Friends or foes? Examining platform owners' entry into complementors' spaces, *Journal of Economic and Management Strategy,* 28:1 (2019), p 3.

294 CMA, Online platforms and digital advertising market study, Appendix E: ecosystems of Google and Facebook [PDF 465KB], 1 July 2020, p E2.

295 A Fletcher, Digital Competition Policy: Are ecosystems different?, Hearing on Competition Economics of Digital Ecosystems, OECD, 3 December 2020, p 9; S Ovide, 'Big Tech has dug a moat that rivals and regulators can't cross', *Bloomberg*, 5 July 2019, accessed 14 September 2023; UK Financial Conduct Authority, The potential competition impacts of Big Tech entry and expansion in retail financial services [PDF 1096KB], DP22/5, Annex 2, 2022, p 55.

296 J Kanter, Assistant Attorney General Jonathan Kanter Delivers Keynote at CRA Conference, Speech, 31 March 2022, accessed 14 September 2023.

4.2.1. Expansion strategies

The ACCC has observed that digital platform service providers adopt a range of strategies to expand their products and service offerings and to grow their businesses (often in combination). Common strategies include, but are not limited to:

- internal product research and development
- corporate acquisitions
- strategic partnerships
- financing
- low priced or free services
- data collection and use
- tying/bundling
- other strategies such as cross-platform advertising, pre-installation and default settings, and membership programs.

Internal research and development

A key strategy used by digital platform service providers to expand their product offerings is through internal product research and development (R&D). Digital platform service providers spend significantly on R&D. In 2022 alone, Apple spent USD26bn, Google spent USD39bn, Microsoft spent USD24bn and Meta spent USD35bn.[297] In its 2022 US SEC Form 10-K filing, Amazon reported spending USD73.2bn on 'technology and content', which reportedly includes its spending on R&D.[298] To put this in perspective, Tencent's total revenue in 2022 was USD82bn, Twitter's total revenue was USD5bn in 2021, Atlassian's revenue for the fiscal year 2022 was AUD2.8bn, and Booking.com's revenue was USD17bn.[299]

According to the European Commission's EU Industrial R&D Investment Scoreboard, Google, Meta, Microsoft, Huawei and Apple were the top 5 investors in R&D worldwide in 2022. The European Commission also noted that while Amazon is not included in the list because it does not separate out R&D and content investments, it estimates that Amazon invests more than Google, and would likely take the top position.[300]

These investments have accelerated in the last 10 years (see figure 4.21), which aligns with the increased range of products and services offered by each of the large digital platform service providers during that same period (see figures 4.1 – 4.5 in section 4.1.1 above and appendix B). However, this also corresponds with an increase in revenue of these companies such that for both Google and Microsoft their spending on R&D has remained stable at approximately 15% and 13% of total revenue since 2012 respectively. On the other

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297 Based on ACCC analysis of Amazon, Apple, Google, Meta and Microsoft's US SEC Form 10-K Annual reports. Note, Amazon is not included as it does not separate out R&D and content investments.

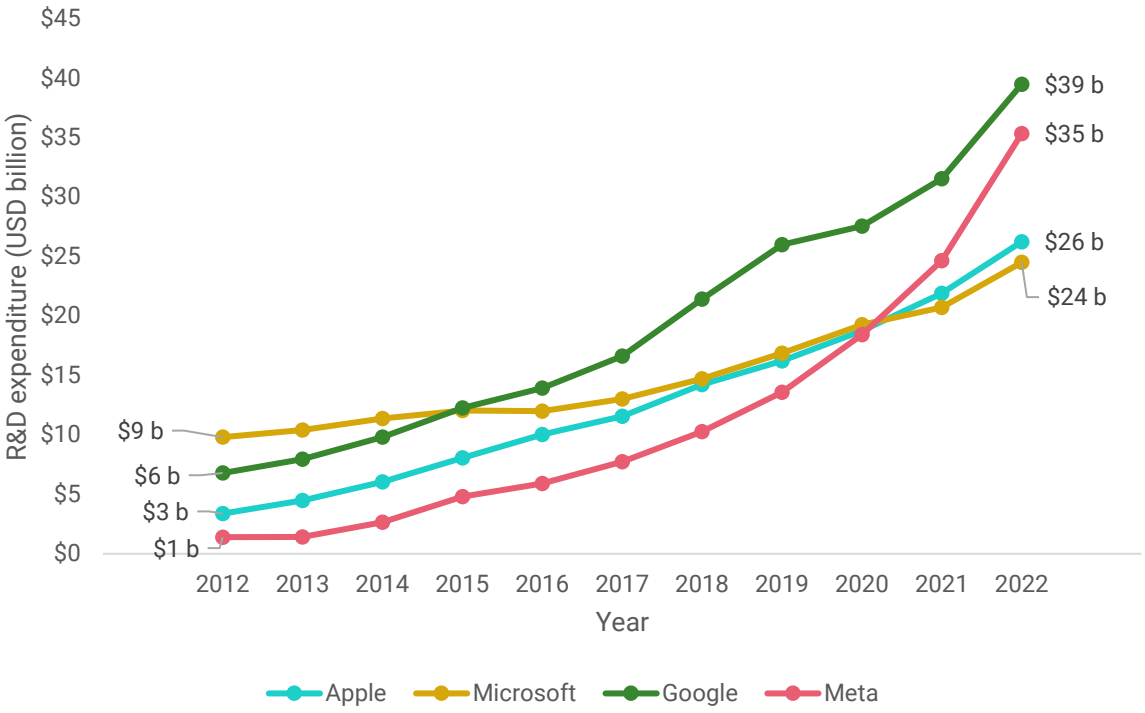
298 Amazon.com, Inc., Form-10K for the fiscal year ended December 31, 2022, p 25.

299 J Yee, 'Tencent says focus on cost-cutting, core business after first revenue fall', Reuters, 23 March 2023, accessed 14 September 2023; S Perez, 'Twitter Blue's troubles: Twitter's app has only generated $6.4m in consumer spending to date', *TechCrunch,* 1 November 2022, accessed 14 September 2023; Atlassian, Atlassian announces fourth quarter and fiscal year 2022 results [PDF 214KB], 4 August 2022, accessed 14 September 2023; Booking Holdings, Booking Holdings reports financial results for 4th quarter and full year 2022 [PDF 528KB], 23 February 2023, accessed 14 September 2023.

300 Grassano et al, The 2022 EU Industrial R&D Investment Scoreboard, 13 December 2022, p 43. The EU Industrial R&D Investment Scoreboard seeks to provide an R&D investment database that companies, investors and policymakers can use to compare individual company performances against the best global competitors in their sectors. The 2022 edition analyses the world's top 2500 companies that invested the largest sums in R&D in 2021.

hand, Apple's spending on R&D has increased from 2% of its total revenues in 2012 to 7% in 2022 and Meta's has ranged between 18% and 30%.[301]

Figure 4.21: Digital platform spending on R&D[302]



Digital platform service providers invest in a wide variety of areas to augment existing product offerings or expand into new products and services. Areas of investment include education, health and bio-science, hardware and architecture, machine intelligence, natural language processing, robotics, speech processing, AI, privacy, health, quantum technologies, robotics, cloud systems and sustainability, among others.[303] The impacts of digital platform service providers' expansion on innovation are discussed in section 5.2.4. These internal R&D efforts are often supplemented by strategic corporate acquisitions (see below), which allow these firms to provide products and services within their ecosystems to users faster.

Corporate acquisitions

Another common way for digital platforms to expand their range of products and services is through corporate acquisitions. Since the late 1980s, Apple, Amazon, Microsoft, Google and Meta have collectively acquired over 850 companies.[304] This includes around 190 acquisitions in the last 5 years alone. Google has been the most active acquirer (with over 270 acquisitions since 2001), while Apple has been the least (with around 130 acquisitions since 1988).[305]

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301 Based on ACCC analysis of Amazon, Apple, Google, Meta and Microsoft's US SEC Form 10-K Annual reports.

302 Based on ACCC analysis of Amazon, Apple, Google, Meta and Microsoft's US SEC Form 10-K Annual reports. Totals on chart have been rounded down to the nearest billion.

303 See, for example, Google, Research Areas, accessed 14 September 2023.; Apple, Machine Learning Research, accessed 14 September 2023; Amazon, Research Areas, accessed 14 September 2023.

304 ACCC analysis based on public merger and acquisition lists for Amazon, Apple, Google, Meta and Microsoft. For a regularly updated list, see the American Economic Liberties Project, Big Tech Mergers, accessed 14 September 2023.

305 Apple also noted in its submission that, measured by value, it has been far more restrained in its acquisitions than many of its main rivals. See Apple, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 552KB], May 2023, p 13.

These acquisitions have enabled digital platform service providers to expand their range of products and services and gain access to new users (as explored in figures 4.1–4.5 above and appendix B). Examples of such acquisitions include Apple's acquisition of Beats Electronics, Amazon's acquisition of Ring, Microsoft's acquisition of LinkedIn, Google's acquisition of YouTube and Meta's acquisition of WhatsApp and Oculus VR.

Digital platforms may seek to obtain certain assets — such as particular technologies, functionalities, intellectual property, data and/or talent — through corporate acquisitions. Various studies have been undertaken to understand the acquisition strategies of large digital platform service providers. For example, one study by Gautier and Lamesch found that these firms use acquisitions mostly to integrate the assets of the acquired firm into their ecosystem and strengthen their core market segments, rather than to expand into new markets.[306] In this regard, the authors see this acquisition activity as a form of external R&D.

This view that acquisition is a form of external R&D finds some support from Apple. Apple noted in its submission that where it has acquired complementary businesses, it has done so with the aim of acquiring technology and talent to improve Apple products. By way of example, Apple noted in its submission that its acquisition of PrimeSense (a 3D sensing company) was used to develop its Face ID technology, and that its acquisitions of Gliimpse (health data), Beddit (sleep tracking) and Tueo Health (asthma monitoring) were used to enhance its heath tracking features on the Apple Watch.[307]

Strategic partnerships

Digital platforms may also partner with other companies in order to develop and launch new products and services. These partnerships can have many benefits for digital platform service providers, allowing them to access technology and expertise as well as new user segments.

For example, Apple partnered with Goldman Sachs to launch the Apple credit card in the US.[308] Apple also partners with brands, such as Nike and Target.[309] Google has partnered with the Mayo Clinic on developing AI-related health projects,[310] and Google and Samsung have partnered to combine Wear OS and Tizen to create a unified operating system for wearables.[311]

Microsoft also has a strategic partnership with OpenAI. In January 2023, Microsoft announced the extension of this strategic partnership,[312] reportedly investing USD10bn in OpenAI.[313] The agreement will result in Microsoft increasing its investments in the development and deployment of specialised supercomputing systems to accelerate OpenAI's independent AI research, while Microsoft will act as OpenAI's exclusive cloud provider and deploy OpenAI models across its consumer and enterprise products. This partnership has enabled Microsoft to expand and improve its service offerings, for example, launching Bing Chat and Microsoft365 Copilot.

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306 A Gautier and J Lamesch, 'Mergers in the Digital Economy', *CESifo Working Papers*, 8056 (2020), pp 1, 3, 27.

307 Apple, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 552KB], May 2023, p 13.

308 A McDade, 'Goldman Sachs is thinking about breaking up with Apple after losing billions on its consumer banking push, reports say', *Business Insider*, 2 July 2023, accessed 14 September 2023.

309 Colaboratory, Apple brand collabs: How Apple leverages brand collabs to grow it's market share, accessed 14 September 2023.

310 T Kurian, How Google and Mayo Clinic will transform the future of healthcare, *Google Cloud*, 11 September 2019, accessed 14 September 2023.

311 C Welch, 'Google and Samsung are merging Wear OS and Tizen', *The Verge*, 19 May 2021, accessed 14 September 2023.

312 Microsoft, Microsoft and OpenAI extend partnership, 23 January 2023, accessed 14 September 2023.

313 D Bass and Bloomberg, 'It's raining money for ChatGPT company OpenAI as Microsoft officially throws down a $10 billion investment', *Fortune*, 24 January 2023, accessed 14 September 2023.

Financing

Digital platform service providers may also expand into new markets by financing new start-ups or via corporate venture capital funds.[314] Google (GV, Gradient Ventures, CapitalG), Microsoft (M12) and Amazon (Industrial Innovation fund and the Alexa Fund) all have investment arms. These corporate venture capital funds may seek to identify and exploit synergies between itself and a new venture.[315] Such investments may also be a path to acquisition, or may allow the digital platform service provider to monitor and have an effect on the activities and future direction of the start-up.

Low priced or free services

Another strategy used by digital platforms to enter and grow in new markets is through the supply of low priced or free services.

This may include aggressive pricing strategies to grow their user base in the new market, or another related market. In this regard, digital platforms may temporarily use profits obtained in one market to supply services at a low cost in the new market.

In addition, digital platform service providers also often offer certain consumer-facing services for free, allowing them to quickly build and maintain user bases. This can be employed in two-sided markets where fees paid on one side of the market can cover some or all of the costs of the other side of the market, or digital platforms may monetise services later once they grow and have users strongly attached to the platform.

Digital platform service providers can also offer services for free for a limited period of time. including through trial offers. This is often adopted for entertainment offerings. For example, Apple offers a free period of Apple Arcade and Apple TV+ with the purchase of new devices, and both Apple and Amazon offer free trial periods for their Apple TV+ and Amazon Prime Video offerings respectively.[316]

Data collection and use

Digital platforms may use insights they have gleaned from data gathered and analysed from existing services to inform their expansion. For example, Amazon may be able to use data collected from its marketplace to make predictions about the demand for new products, informing the markets in which it enters. Further, the aggregation of consumer data from additional products and services can create new assets for the digital platform service provider that can be monetised.

Moreover, the ability to monetise data across markets can be leveraged to facilitate expansion. For example, Condorelli and Padilla argue that Google's bundling of Google Search with Android enabled it to leverage the data generated by users of Google Search and monetise this via Google's online advertising platforms. They argue that this strategy allowed Google to ensure profitable entry in a way that could not be replicated by other competitors and contributed to its success in the mobile operating system market.[317]

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314 M Bourreau and A de Streel, Digital Conglomerates and EU Competition Policy [PDF 628KB], March 2019, accessed 14 September 2023, p 4.

315 H Chesbrough, Making sense of corporate venture capital, *Harvard Business Review*, March 2002, accessed 14 September 2023.

316 See Apple, Apple TV+, accessed 14 September 2023; Apple, Get 3 months of Apple Arcade for free accessed 14 September 2023; Amazon, Sign up for the Amazon Prime free trial, accessed 14 September 2023.

317 D Condorelli and J Padilla, 'Harnessing platform envelopment in the digital world', *Journal of Competition Law & Economics*, 16:2 (2020), p 144.

Tying/bundling

Digital platform service providers may tie or bundle new products or services together with existing products and services to grow their user base, by taking advantage of existing user bases for flagship products and/or by allowing them to offer new services at a lower (bundled) price. These strategies may reduce search costs for users on the demand-side and lower transaction costs for firms on the supply-side.[318] For example, Meta's recently launched social media service Threads requires an Instagram account to join, which takes advantage of the large existing pool of users on Instagram.[319]

Other expansion strategies

The above list is not exhaustive and the ACCC notes that several other strategies may be adopted, which include:

- *Cross-platform advertising:* Digital platform service providers may also market new products and services within their existing offerings through cross-platform advertising.
- *Pre-installation and default settings:* Digital platform service providers may seek to enter and expand in a new market via pre-installation or the use of default settings, which allow them to quickly reach a wide user base.
- *Membership programs:* Amazon's Prime membership program is a key tenet of Amazon's expansion strategy and has often been credited with Amazon's rapid expansion as it leads to increased customer engagement with the Amazon platform. In this regard, according to a 2021 Amazon Consumer Behaviour Report, Amazon Prime members in the US purchased from Amazon more often and spent more on Amazon compared to non-Prime members.[320]

4.2.2. Strategies adopted for expansion into consumer cloud storage

Consumer cloud storage services by Apple, Google and Microsoft were largely developed by the platforms internally, rather than through acquisition. They were introduced as part of these platforms' initial email or internet-based services. Over time, their cloud storage services have increasingly been bundled and integrated with more flagship and/or prominent products and services, including their devices, productivity suites, and operating systems, to support a broader range of cloud storage purposes. The potential competition issues arising from these bundling and integration behaviours are explored further at section 6.1.

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318 M Bourreau and A de Streel, Digital Conglomerates and EU Competition Policy [PDF 628KB], March 2019, accessed 14 September 2023, p 12.

319 Meta, Introducing Threads: A New Way to Share With Text, 5 July 2023, accessed 14 September 2023.

320 Feedvisor, The 2021 Amazon Consumer Behaviour Report: Based on a Survey of 2,000+ U.S. Shoppers [PDF 1119KB], 2021, accessed 14 September 2023, p 12.

Apple's entry and expansion of consumer cloud services

Apple's initial iDisk consumer cloud storage and Mac.com email offering was launched in 2000 under its iTools product,[321] and was retained under its subsequently branded Mac and MobileMe online services subscriptions. Apple's iWork productivity suite, initially introduced in 2005, gained limited cloud file sharing and commenting functionality in 2009 through iWork.com.[322] In October 2011, Apple introduced iCloud,[323] which refers to Apple's broader collection of online services, as part of iOS 5.[324] iCloud bundles the iCloud Drive consumer cloud storage service and iCloud mail email service with Apple's other cloud synchronisation services (such as contacts, calendars, and reminders), while also offering full-device iCloud Backup functionality to iPhone and iPad users. In 2013, iWork for iCloud was introduced which integrated a web version of the productivity suite with iCloud.[325] In 2014, iCloud Photo Library was introduced as part of iOS 8.1, which enabled users to back up and access their personal photos and videos, including those taken with the iPhone, from iCloud within the system Photos app.[326]

Google's entry and expansion of consumer cloud services

Google's consumer cloud offering initially focussed on mail with the launch of Gmail in 2004, which initially included 1GB of free storage.[327] This was followed with web-based productivity software with the launch of Google Docs and Google Sheets in 2006 (based on acquired text editor Writely and spreadsheet software XL2Web).[328] With Google Drive's launch in 2012, Google incorporated the Google Docs Editors suite into Drive's interface.[329] In 2015, Google introduced its Google Photos application which included photo backup features that utilised Google Drive's storage space.[330] Google has also made strategic partnerships with other cloud providers to develop collaboration capabilities.[331] It has also sought to expand its Drive and Docs Editors offering into the education sector, with many Australian state school systems using Google Workspace for Education. This expansion is further discussed in box 7.3.

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321 Apple's iTools product was a set of internet services that it offered for users of Mac OS 9, which included email services, a web page creation and hosting service and an online greeting card service. When iTools launched it included iDisk, Apple's first cloud storage service, providing users with 20MB storage capacity, with additional storage available via an annual subscription for 50MB (USD50), 100MB (USD100), 200MB (USD200), and 400MB (USD400). Apple, Apple Unveils More Powerful and Easier-to-Use HomePage iTool, *Apple Newsroom,* 19 July 2000, accessed 14 September 2023.

322 J Cheng, 'MobileMe officially shut down; iWork.com is next', *Ars Technica*, 3 July 2012, accessed 14 September 2023.

323 iCloud launched with 5GB free storage capacity. Additional storage was available via an annual subscription for 10GB (AUD21), 20GB (AUD42), 50GB (AUD105). A Kidman, 'iCloud Upgrade Pricing: How Does It Compare?', *Lifehacker Australia*, 5 October 201, accessed 14 September 2023.

324 Apple, Apple to Launch iCloud on October 13, *Apple Newsroom,* 5 October 2011, accessed 14 September 2023.

325 G Keizer, 'Apple quietly launches iWork for iCloud public beta', *ComputerWorld*, 24 August 2013, accessed 14 September 2023.

326 A Cunningham, 'Apple announces iOS 8.1 with Apple Pay, iCloud Photo Library', *Ars Technica*, 17 October 2014, accessed 14 September 2023.

327 Google's Press release states that the 1GB of included storage is 'more than 100 times what most other free webmail services offer'. Google, Google Gets the Message, Launches Gmail, *News from Google,* 1 April 2004, accessed 14 September 2023.

328 M Arrington, 'Google "Docs & Spreadsheets" Launches', *TechCrunch*, 11 October 2006, accessed 14 September 2023; Staff Writer, 'Google: set to launch Google Spreadsheets', *Tech Monitor*, 8 June 2006, accessed 14 September 2023. Writely and XL2Web were provided by acquired companies, Upstartle and 2 Web Technologies, respectively.

329 Google Drive launched with 5GB free storage capacity. Additional capacity available via monthly subscription for 25GB (USD2.45), 100GB (USD4.99), 1TB (USD49.99). S Pichai, Introducing Google Drive... yes, really, *Google Official Blog,* 24 April 2012, accessed 14 September 2023.

330 A Sabharwal, Picture this: A fresh approach to Photos, *Google Blog*, 28 May 2015, accessed 14 September 2023.

331 E Chen, 'Google Cloud and Box Announce Deepened Strategic Partnership to Transform Work', *Box Blogs*, 23 July 2020, accessed 14 September 2023.

Microsoft's entry and expansion of consumer cloud services

Microsoft's initial entry into consumer cloud services commenced with its acquisition of Hotmail in 1997 (later renamed to Outlook.com in 2012), which initially launched with 2MB of free storage.[332] In August 2007 Microsoft launched its OneDrive cloud storage,[333] and has since added features – including allowing photo and video storage, access to files offline, automatic photo backup and versioning. Microsoft's Office suite, which launched on Windows in 1990,[334] introduced its web-editor offering in 2009 as Office on the Web,[335] then introduced co-authoring functionality using OneDrive in Office 2010.[336] Microsoft then began integrating OneDrive more closely with the release of Office 365 plans for consumers in 2013 which allowed users to access their OneDrive files from the Office applications.[337] Although Microsoft has not maintained a mobile OS since the discontinuation of Windows 10 Mobile in 2017, OneDrive has been pre-installed on Samsung Galaxy Android devices since 2019,[338] and has replaced the gallery sync and file backup functionalities of Samsung Cloud since their discontinuation in 2021.[339] As of January 2023, Microsoft has rebranded its standalone OneDrive product as 'Microsoft 365 Basic'.[340]

Incentives and strategies for the expansion of consumer cloud storage services

Apple, Google and Microsoft have each opted to make their base-level consumer cloud storage services free, with further tiered upgrades available at a low-cost. These services are often bundled with or integrated into devices. As further explored in chapter 6, consumers using digital platform devices may be encouraged by these bundled and integrated products to utilise this free storage, and therefore become familiar with these integrated or bundled products. Large digital platforms then offer paid consumer cloud storage services on a monthly or annual subscription, often commercially bundled with other products. This represents a broader trend in the software market whereby industry operators have moved from supplying software products outright (e.g., as a one-time download or on external storage media) to engaging in a subscription-based pricing model.[341]

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332 Microsoft, Microsoft Acquires Hotmail, *Microsoft Source,* 31 December 1997, accessed 14 September 2023; D Craddock, A short history of Hotmail, *Windows Blog,* 6 January 2012, accessed via Wayback Machine 14 September 2023.

333 OneDrive launched in Australia in May 2008, and has previously been referred to as Windows Live Folders and Windows Live SkyDrive. Microsoft, OneDrive turns 15: Delivering new and intuitive experience, 9 August 2022, accessed 14 September 2023.

334 Microsoft, Looking back at 10 years of Microsoft 365 making history, 11 January 2023, accessed 14 September 2023.

335 Microsoft, Microsoft Web Apps: Office Goes to the Web, *Microsoft News*, 17 September 2009, accessed 14 September 2023.

336 N Simons, Now available: Co-author documents in the Word Web App, *Microsoft Developer Network,* 7 July 2011, accessed via Wayback Machine 14 September 2023.

337 Microsoft, Microsoft Launches Office 365 Home Premium, *Microsoft News*, 29 January 2013, accessed 14 September 2023.

338 Samsung, Samsung and Microsoft Expand Strategic Partnership to Deliver Unified Experiences Across Mobile Devices, *Samsung Newsroom*, 8 August 2019, accessed 14 September 2023.

339 Samsung, Samsung and Microsoft Expand Strategic Partnership to Deliver Unified Experiences Across Mobile Devices, *Samsung Support UAE*, last updated 27 December 2022, accessed 14 September 2023; Samsung, 'Samsung Cloud | Apps and Services', *Samsung Australia*, accessed 14 August 2023, accessed 14 September 2023.

340 T Warren, 'Microsoft 365 Basic is a new $1.99 a month subscription with 100GB of storage and more', *The Verge*, 12 January 2023, accessed 14 September 2023.

341 IBISWorld, Industry Report OD5463, Software Suppliers in Australia Cloud coverage: Rising software and mobile device usage have increased industry demand, March 2022, p 9.

File sharing and collaboration functionalities in consumer cloud storage services result in these services benefiting from network effects[342] as discussed above in section 3.1.2. Consumers who wish to access files shared by other users are incentivised to sign up to these consumer cloud storage services and, in turn, users who wish to share files are incentivised to use services that are currently used by those who they wish to share files with. This effect is strengthened by collaborative features such as shared photo albums (in services such as iCloud Photos and Google Photos), and co-authoring functionality (in productivity suites including Microsoft Office and Google Docs Editors). Users that wish to use these features must continue to use a common consumer cloud storage service to do so. These network effects enhance the value of the consumer cloud storage services and the products and services that they are integrated into.

The strategies taken by these digital platforms may also be influenced by each digital platform service providers' incentives. Google, which has a core advertising-based content platform, may be incentivised to grow its user base by offering more consumer-facing services for a zero monetary price. Further, through both general and consumer cloud storage-specific network effects Google may improve the attractiveness of their service to advertisers. Apple, which has a core service based around its devices and operating systems, may instead be incentivised to improve the functionality of their Apple devices to support sales and increase paid iCloud+ subscriptions. Similarly, Microsoft with its core operating system platform and productivity software subscriptions, may be incentivised to improve the functionality of Windows devices, while also increasing the number of subscribers to their higher-priced subscription products. It may also be incentivised to help secure customer retention through the added value associated with consumer cloud storage services. These different incentives may lead to varied strategies. For example, Google Drive applications are available across Apple, Google, and Microsoft's operating systems, while iCloud is integrated into Apple's operating systems and available on Microsoft Windows, which may discourage iCloud users from switching to an Android phone or tablet. OneDrive is heavily bundled with Microsoft's broader subscription offering to the extent that it is no longer offered as a standalone subscription and now marketed as the base-tier of the Microsoft 365 productivity software subscription,[343] and integrated across Microsoft's operating system and productivity software. Bundling practices are discussed further in box 6.1, and the integration of iCloud and OneDrive into iOS and Windows respectively are discussed further in box 6.8.

Generally, these digital platforms' expansion into consumer cloud storage has meant an additional source of revenue for these platforms. Apple, Google and Microsoft's account numbers for consumer cloud storage services for each of these products have increased in recent years, as shown in figures 4.10 and 4.11 above. While it is a small proportion of revenue from products and services in Australia, the share of consumer cloud revenue for Apple and Microsoft has increased between 2019 and 2022.[344] For Google, the share of consumer cloud revenue is also a small proportion of revenue from its consumer products and services, and it has also increased between 2019 and 2022.[345] However, consumer cloud storage services can bring value to each platform outside of the revenue earnt. For example, digital platform service providers may use consumer cloud storage services as a

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342 For example, in a podcast interview Dropbox's CEO Drew Houston has noted that during Dropbox's initial stages (Dropbox was an early entrant) the network effects gained through users joining Dropbox accounts to share files with one another was an intentional growth strategy. See G Raz, 'Dropbox: Drew Houston', *How I Built This podcast*, 9 November 2020, accessed 14 September 2023.

343 The Microsoft 365 Basic subscription has been introduced at the same price point as the previous OneDrive 100GB plan. T Warren, 'Microsoft 365 Basic is a new $1.99 a month subscription with 100GB of storage and more', *The Verge*, 12 January 2023, accessed 14 September 2023.

344 Information provided to the ACCC.

345 Information provided to the ACCC.

way to retain consumers through disincentivising switching to competing platforms. Lock-in practices are discussed further in chapters 6 and 7.

Some digital platform service providers also participate in other areas of the cloud market and have access to the infrastructure for cloud storage. For example, Google and Microsoft participate in the infrastructure and platform cloud services market and in the cloud computing market for enterprise. They also have a number of data centres. This means that these digital platforms have access to infrastructure that may be required to build scale. However, prominence in the infrastructure and platform cloud services segment has not always led to successful consumer cloud storage products. For example, Amazon Web Services has a substantial presence in the infrastructure and platform cloud services segment, however this has not resulted in the success of Amazon Drive.

4.2.3. Strategies adopted for expansion into smart home devices

Amazon, Apple and Google have each expanded into providing smart home devices and related technologies (such as voice assistants) through a combination of the strategies discussed above at section 4.2.1, particularly corporate acquisitions and R&D. This section outlines the history of each firm's entry and expansion in the sector with a focus on these 2 strategies.

Amazon, Apple and Google entered the market or expanded their offerings through acquisitions of firms specialising in smart home devices or related technologies. Potential competition issues arising out of digital platforms' strategic acquisitions are examined ahead at section 6.3.

The ACCC also considers that Amazon, Apple and Google may also have benefited from substantial economies of scope arising from their broad ecosystems of products and services that relate to smart home devices. For example, by leveraging their existing digital platform services, or manufacturing capabilities, cloud infrastructure, or data collected through other relevant business units.

Google's entry and expansion into the smart home sector

Google Nest smart home device range

Google's entry into providing smart home device hardware was primarily achieved through its acquisition of Nest Labs Inc. (Nest), Dropcam and Revolv in 2014.

At the time of the Nest acquisition, Nest's product line consisted of smart thermostats and smoke alarms. Media reports highlighted the potential value of Nest's promising hardware products[346] and human resources[347] (both in terms of leadership, and expertise of its engineering and design teams). This value was reflected in in Google's US SEC Form 10-K for the year ended 31 December 2014, in which Google attributed USD2.3bn of the USD2.6bn purchase price to goodwill "attributable to synergies expected to arise after the acquisition".[348] Some media coverage at the time suggested that the acquisition was likely intended to capture a share of the then-USD600bn Internet of Things market.[349] However,

346 A Oreskovic, 'Google to acquire Nest for $3.2 billion in cash' *Reuters*, 14 January 2014, accessed 14 September 2023.

347 M Wohlsen, 'What Google really gets out of buying Nest for $3.2 billion', *Wired*, 14 January 2014, accessed 14 September 2023; A Oreskovic, 'Google to acquire Nest for $3.2 billion in cash' *Reuters*, 14 January 2014, accessed 14 September 2023.

348 Alphabet Inc., Form 10-K for the fiscal year ended December 31, 2023 [PDF], p 72.

349 Trefis Team, 'Google's Strategy Behind The $3.2 Billion Acquisition Of Nest Labs', *Forbes*, 17 January 2014, accessed 14 September 2023.

others noted that Google's business model relied heavily on data collection and monetisation,[350] suggesting that the expected synergies may relate to Google's ability to monetise Nest user data gained through the acquisition. For example, one author noted that Nest's products generated individualised data on household energy use, house fires and carbon monoxide leaks, which might then be monetised through Google's targeted advertising business.[351]

Later in 2014, Google (via its wholly-owned subsidiary Nest) acquired Dropcam, a manufacturer of smart home surveillance products,[352] and Revolv, a manufacturer of smart home automation hubs.[353] Regarding the Dropcam acquisition, Nest staff anticipated likely synergies arising from the fact that many Nest customers also owned Dropcam products.[354] Nest staff characterised Revolv acquisition as an acquihire aimed at bolstering Nest's interconnectivity, noting the expertise of Revolv's human resources.[355] Google's current smart home hardware range (branded 'Google Nest') closely matches the acquired companies' product lines, covering smart speakers and displays (which also function as smart home hubs), smoke and carbon monoxide alarms, smart cameras and video doorbells, wi-fi and media streaming.

Google Assistant

As noted in section 4.2.1 above, R&D is an important part of Google's expansion strategy. In a 2012 Google staff paper, the authors describe Google's 'hybrid research model' as aiming to generate advances through a series of discrete and achievable steps, while maximally leveraging its cloud computing models and large user base.[356] This approach is clearly demonstrated by Google's lead-up to launching Google Assistant in May 2016;[357] in this process it appears Google benefited substantially from economies of scope and data access arising from its broad ecosystem of products and services, and its large userbase.

For example, in 2007 Google launched GOOG-411, a free speech recognition-based telephone search service.[358] In an interview at the time, Google's vice president of Search Products and User Experience stated this project was primarily intended to accumulate a large body of voice data for R&D purposes.[359]

The following year, in 2008, Google integrated voice search to Google Maps for mobile apps. Since 2010, Google has used a version of its voice search processing software to provide automatic annotation of YouTube videos. In 2011, Google introduced voice search to Google

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350 See, for example, R Sharma, 'Google's Acquisition of Nest And Your Privacy', *Forbes*, 13 January 2014, accessed 14 September 2023.

351 C Johnston, 'What Google can really do with Nest, or really, Nest's data', *Ars Technica,* 16 January 2014, accessed 14 September 2023.

352 B Frank, 'Google-owned Nest to acquire Dropcam for $555 million', *GeekWire*, 20 June 2014, accessed 14 September 2023.

353 D Pierce and N Patel, 'Nest acquires Revolv in a bid to control your entire smart home', *The Verge*, 25 October 2014, accessed 14 September 2023.

354 B Frank, 'Google-owned Nest to acquire Dropcam for $555 million', *GeekWire*, 20 June 2014, accessed 14 September 2023.

355 D Pierce and N Patel, 'Nest acquires Revolv in a bid to control your entire smart home', *The Verge*, 25 October 2014, accessed 14 September 2023; L Gannes, 'Nest acquires home automation hub Revolv, but will stop selling it', *Vox,* 24 October 2014 , accessed 14 September 2023.

356 A Spector, P Norvig and S Petrov, 'Google's Hybrid Approach to Research', *Communications of the ACM,* 55:7 (2012), pp 34–37.

357 M Lynley, 'Google unveils Google Assistant, a virtual assistant that's a big upgrade to Google Now', *TechCrunch,* 19 May 2016, accessed 14 September 2023.

358 M Arrington, 'Google launches free 411 service', *TechCrunch*, 7 April 2007, accessed 14 September 2023.

359 JC Perez, 'Google wants your phonemes', *InfoWorld*, 23 October 2007, accessed 14 September 2023. This was later corroborated by Google's then-Director of Speech Technologies – see J Kincaid, 'The power of voice: A conversation with the head of Google's speech technology', *TechCrunch*, 14 February 2011, accessed 14 September 2023.

Search on desktop via the Google Chrome browser.[360] In 2012, Google launched its first voice assistant Google Now, which was integrated within its Google Search app for iOS and Android until the launch of Google Assistant in 2016. As an example of the volume of relevant data accrued through these offerings, at the time of the 2011 introduction of voice functionality to Google Search on desktop, Google announced that it was processing "more than 2 years of non-stop speech [data]" every day.[361]

These voice services, integrated with Google's other services and provided at low- or zero monetary cost to consumers, would have enabled Google to accrue large volumes of voice data to assist in developing Google Assistant.

Amazon's entry and expansion into the smart home sector

Like Google, Amazon's entry and expansion strategy in the smart home device sector has involved a combination of R&D, and acquisitions of promising technology and talent.

As discussed above at section 4.2.1., Amazon invests heavily in R&D.[362] In addition to R&D, Amazon has used a series of corporate acquisitions both to acquire smart home device hardware product lines (Ring and Eero) and voice assistant technology (IVONA Software, Evi, Yap) to build Alexa and the Echo smart speaker range. Amazon also announced the iRobot merger agreement (USD1.7bn) in March 2022, which is currently being considered by the European Commission[363] and the Federal Trade Commission in the United States.[364]

Alexa and the Echo smart speaker

Amazon founder Jeff Bezos reportedly first pitched the idea for a voice assistant and cloud computing-powered smart speaker in early 2011 to leverage the company's existing cloud capabilities.[365] Later that year, Amazon purchased Yap, a speech recognition and transcription start-up; no media release was issued regarding the intention behind the transaction.[366] In January 2013, Amazon purchased IVONA Software, a leading voice technology firm that had developed the pioneering speech synthesiser 'Ivona'.[367] The founder of IVONA Software later described the acquisition as an acquihire, intending to the team's expertise to develop a voice assistant (Alexa).[368] The acquisition was also characterised in the press as an attempt to compete with Apple's Siri, then the leading voice

360 L Rao, 'Google launches voice search on desktop', *TechCrunch,* 15 June 2011, accessed 14 September 2023.

361 L Rao, 'Google launches voice search on desktop', *TechCrunch,* 15 June 2011, accessed 14 September 2023.

362 For example, in its 2022 Form 10-K filing, Amazon reported spending USD73.2bn on "technology and content" which is the line item in its consolidated statement of operations that encompasses research and development – Amazon.com, Inc., Form 10-K for the fiscal year ended December 31, 2022, p 25.

363 European Commission, Mergers: Commission opens in-depth investigation into the proposed acquisition of iRobot by Amazon, 6 July 2023, accessed 14 September 2023.

364 Reuters, FTC seeks more data on Amazon's $1.7-billion deal for vacuum maker iRobot, 21 September 2022, accessed 14 September 2023.

365 B Stone, 'The secret origins of Amazon's Alexa', *Wired*, 11 May 2021, accessed 14 September 2023.

366 D Miller, 'The Siri Chronicles: Amazon.com quietly acquired Yap; the speech-enabled Kindle awaits', *OpusResearch*, 9 November 2011, accessed 14 September 2023.

367 Amazon, Amazon.com announces acquisition of IVONA Software, *Amazon Press Centre*, 25 January 2013, accessed 14 September 2023; M Redzisz, Ivona, Alexa, Vika or intelligent girls from Gdansk, *Sztucznainteligencja (Artificial Intelligence),* 22 May 2020, accessed 14 September 2023.

368 M Redzisz, 'Ivona, Alexa, Vika or intelligent girls from Gdansk', *Sztucznainteligencja (Artificial Intelligence),* 22 May 2020, accessed 14 September 2023.

assistant service available to consumers.[369] In April 2013, Amazon also acquired EVI, another mobile voice assistant developer.[370]

In November 2014, Amazon launched its Echo smart speaker and the in-built Alexa voice assistant. In the process of development, Amazon likely benefited substantially from the human resources and intellectual property acquired through its acquisitions of Yap, IVONA Software, and EVI. While Apple's Siri was available on Apple's mobile and computer operating systems at the time, Amazon's Echo was the first smart home device to incorporate a voice assistant.[371]

Amazon's product offering expansion through acquisition: Ring, Eero and proposed acquisition of iRobot devices

Amazon's Ring video doorbells and smart cameras, Eero smart Wi-Fi routers, and iRobot smart cleaning product ranges were originally provided by category-leading standalone device manufacturers prior to being acquired by Amazon.

Doorbot (later rebranded to Ring) launched its range of video doorbells and security cameras in 2012.[372] Amazon purchased Ring in 2018, by which time Ring was a market leader in its category. In internal emails prior to the transaction, Amazon vice president Jeff Helbling wrote he was "willing to pay for market position as it's hard to catch the leader", with Amazon founder Jeff Bezos agreeing that "we're buying market position – not technology".[373]

Eero, a first-mover 'smart' Wi-Fi router company which utilises mesh technology to overcome coverage issues associated with traditional routers, launched its product line in 2014.[374] Amazon acquired Eero in 2019, with media pointing to various commercial rationales including Amazon's increased access to data (for example, the number and type of internet-connected devices in a given user's home) and demand-side synergies (for example, smart home devices working better for users with consistent home Wi-Fi).[375]

As mentioned above, Amazon is seeking to acquire iRobot. iRobot was a first-mover in the robotic vacuum industry, launching its product line in 1990. In 2020, iRobot had a global market share of 46%.[376]

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369 I Lunden, 'Amazon gets into voice recognition, buys Ivona Software to compete against Apple's Siri', *TechCrunch*, 25 January 2013, accessed 14 September 2023.

370 D Miller, 'Virtual assistant update: Amazon buys EVI for $26 million; speech enabled shopping is on its way', *OpusResearch*, 17 April 2013, accessed 14 September 2023.

371 D Etherington, 'Amazon Echo is a $199 connected speaker packing an always-on Siri-style assistant', *TechCrunch*, 7 November 2014, accessed 14 September 2023.

372 Doorbot Wi-Fi video doorbell commenced crowdfunding in December 2012. M Flacy, DoorBot Wi-Fi doorbell camera lets you see visitors on your smartphone, *Digital Trends,* 9 December 2012, accessed via Wayback Machine 14 September 2023.

373 M Kelly, 'Amazon bought Ring for market position, not technology, emails suggest', *The Verge*, 31 July 2020, accessed 14 September 2023.

374 C Welch, 'Amazon is buying mesh router company Eero', *The Verge*, 12 February 2019, accessed 14 September 2023.

375 T Haselton, 'Here's how Amazon could use the WiFi tech it just bought', *CNBC*, 12 February 2019, accessed 14 September 2023.

376 Statista, Robotic vacuum cleaner market share worldwide from 2014 to 2020, by brand, accessed 14 September 2023.

Apple's entry and expansion into the smart home sector

Smart home devices: HomePod and Apple TV ranges

In developing its HomePod and Apple TV ranges, Apple appears to have benefited from substantial economies of scope arising from its expertise and production capabilities in mobile hardware and operating systems, and computer hardware and operating systems.

Apple's tvOS operating system for its Apple TVs was originally based on its iOS mobile operating system. Similarly, Apple's operating system for its HomePod range was originally based on iOS and later based on tvOS.[377]

Siri voice assistant

As noted in section 4.1.3., Apple's Siri voice assistant is an important part of Apple's home offering (as an avenue to control the HomePod and Apple TV via voice prompts). Apple's submission states that where it has acquired complementary businesses, the aim of such acquisitions has been to acquire technology and talent to improve its products.[378]

Apple has made several acquisitions relating to its voice assistant offering. First and most significantly, Apple acquired Siri for USD200mil in April 2010, 2 months after Siri was listed on Apple's App Store.[379] The following year, Apple released Siri as a pre-installed feature of its iPhone 4S.[380]

Apple has made a number of acquisitions related to voice assistant technology since then, including Novauris Technologies (speech recognition)[381] and Cue (personal assistant)[382] in 2013, and Voysis (natural language artificial intelligence) in 2020.[383] Each of these acquisitions appear to have been intended to build up Siri's capability as a general-purpose voice assistant.[384]

4.2.4. Summary of digital platform service providers' expansion into consumer cloud storage and smart home device sectors

The examples of consumer cloud storage and smart home devices illustrate how the expansion strategies (outlined in section 4.2.1) have been used in these sectors.

In consumer cloud storage, Apple, Google, and Microsoft have expanded in ways directly relevant to their broader offerings primarily through internal development (rather than acquisitions or partnerships). These firms have each developed significant presences in the consumer cloud storage sector over smaller providers, and have likely been able to draw

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377 F Espósito, 'HomePod now runs on tvOS, here's what that could mean', *9to5Mac*, 13 April 2020, accessed 14 September 2023.

378 Apple, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 552KB], May 2023, p 13.

379 P Olson, 'Steve Jobs Leaves A Legacy In A.I. With Siri', *Forbes*, 6 October 2011, accessed 14 September 2023.

380 C Arthur, 'iPhone 4S, Siri and iCloud: what you need to know', *The Guardian*, 5 October 2011, accessed 14 September 2023.

381 S Perez, 'Speech recognition pioneer Novauris bought by Apple, team now works on Siri', *TechCrunch,* 4 April 2014, accessed 14 September 2023.

382 A Tsotsis, 'Apple buys Cue for over $40m to compete with Google Now', *TechCrunch*, 4 October 2013, accessed 14 September 2023.

383 M Campbell, 'Apple acquires AI startup Voysis in apparent push to bolster Siri's natural language skills', *Apple Insider*, 3 April 2020, accessed 14 September 2023.

384 S Perez, 'Speech recognition pioneer Novauris bought by Apple, team now works on Siri', *TechCrunch,* 4 April 2014, accessed 14 September 2023; M Campbell, 'Apple acquires AI startup Voysis in apparent push to bolster Siri's natural language skills', *Apple Insider*, 3 April 2020, accessed 14 September 2023.

upon their strengths in their adjacent services. Expansion strategies have included low-priced or zero monetary cost services, tying/bundling, and other strategies such as pre-installation and default settings. Integration is discussed further in chapter 5, with tying and bundling and pre-installation examples provided in chapter 6.

In smart home devices, Amazon, Apple, and Google have expanded through both a number of strategic acquisitions as well as internal product R&D. These firms' internal product R&D has benefited from substantial economies of scope and scale arising from the size and breadth of their ecosystems. Additionally, each firm's entry and expansion in the smart home sector has likely benefited from a high degree of interconnection with their other products and services (discussed in chapter 5) as well as other commercial strategies such as bundling (examples provided in chapter 6).

5. Interconnection between products and services within digital platform ecosystems

This chapter considers a range of methods used by digital platform service providers to interconnect the products and services in their ecosystem. It also considers the benefits and implications of these interconnections for consumers. The chapter explores some of the common methods used to interconnect products and services generally (section 5.1.1), and then with regard to consumer cloud storage services (section 5.1.2) and smart home devices (section 5.1.3). The second half of this chapter (section 5.2) then considers the impacts of an interconnected ecosystem on quality, price, choice and variety, and innovation and competition, highlighting examples relevant to consumer cloud storage services and smart home devices.

5.1. Interconnections within digital platform ecosystems

5.1.1. Ways products and services are interconnected

Digital platform service providers interconnect products and services in their ecosystems in various ways. Interconnections can occur between devices, between services, and between software and hardware. Interconnection may be technical or commercial. The complementary nature of many products and services within digital platform ecosystems means that many products and services will inherently be linked.

In other cases, more explicit strategies enable interconnection between more disparate products and services. These strategies may increase complementarity between products and services to enhance the consumer experience or encourage uptake of new products.[385] Each interconnection can deepen consumer engagement with the ecosystem and increase its overall value. This may also allow digital platform service providers to protect their position in core markets and/or aid in their expansion into other markets.

These interconnections may have the effect of encouraging users to remain in the ecosystem when purchasing or using new products and services. They may also reduce the likelihood of consumers switching away from core services in the ecosystem. Seamless integration between products and services can bring convenience for consumers. At the same time, the wider the breadth of products and services from an ecosystem used by a consumer, the more deeply that ecosystem will be embedded into their daily lives and the more dependent they are likely to be on the ecosystem. These interconnections can also facilitate greater data collection and combination, to inform improvements to quality of service, enable digital platforms to offer more finely targeted advertising or expand into further markets and services.

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[385] M Bourreau, Some Economics of Digital Ecosystems, Hearing on Competition Economics of Digital Ecosystems, OECD, 3 December 2020, accessed 14 September 2023, p 3.

As described in section 3.1.2 above, some platforms may also have an incentive to be open to interconnections with third parties to increase the overall value of the ecosystem. Thus, while many interconnections will link products and services within the digital platform ecosystem, some digital platform service providers will also enable interconnections with third-party products and services, for example, in an operating system platform via APIs and SDKs. The degree of openness varies across markets, over time and is impacted by the incentives of the ecosystem. See box 5.1 below for a relevant example.

Box 5.1 Amazon and Google's incentives to link audio streaming services on smart speakers (Spotify)

Google's Nest Audio and Amazon's Echo smart speakers both offer native support for Spotify as well as first-party music streaming services (YouTube Music for Google and Amazon Music for Amazon).

Spotify is a leading music app in Australia.[386] The decision to offer Spotify likely reflects each of Google's and Amazon's position in the music streaming market and users' expectation to be able to access Spotify. The value of retaining smart speaker users who want to access Spotify likely outweighs the value of gaining additional music streaming users to their first-party services through an exclusionary strategy, such as only offering first-party music streaming services.

On the other hand, certain Google Nest smart home devices offer Google Search but not competing search engines, such as Bing. This may reflect Google's market position in search. It may also reflect that consumers may be less likely to choose a smart home device based on the search provider, compared to availability of a preferred music streaming service.

The range of strategies used for interconnections include: access, integration and interoperability; defaults and pre-installation; user accounts and bundling/tying strategies. Each of these will be discussed in turn below.

Figure 5.1: List of ways products and services are interconnected

Access, integration and interoperability

Digital platform service providers can provide convenient access to related services within the ecosystem. For example:

- a Google Search query for 'restaurants' also provides integrated and convenient access to information about the locations of restaurants via Google Maps
- Apple's Shazam app provides convenient in-app links to Apple Music
- Amazon's online retail marketplace provides access to first-party products sold on its platform (as well as third-party products).

[386] Telsyte, Australia's subscription entertainment market growth eases but remains vital, 28 August 2023, accessed 14 September 2023.

A consistent user experience across products and services may also act as an interconnection between services, such as the use of common commands across Microsoft 365 applications. Digital platform service providers can also promote the use of other products or services within their ecosystem. For example, when completing a purchase on Amazon's online retail marketplace, a consumer may be prompted to upgrade to an Amazon Prime membership which includes free express delivery. As another example, in August 2023, to promote engagement with its new service, Threads, Meta began showing a carousel of suggested Threads posts to users on their Instagram app.[387]

Digital platform service providers also make products and services within their ecosystem interoperable. For example:

- data can easily be transferred between devices within their ecosystems via services such as AirDrop (Apple), Nearby Share (Google) and Nearby sharing (Microsoft)[388]
- Meta enables users to automatically cross-post Instagram posts, stories and videos to Facebook,[389] and similarly enables users to send personal messages across its Messenger and Instagram direct messages[390]
- Apple's mobile wallet service, Apple Pay, has access to the Near Field Communication (NFC) technology embedded in iPhones to enable mobile payments.[391]

As explored in section 5.2 below, greater access, integration and interoperability can bring convenience for consumers. However, it can also increase switching costs or potentially limit competition, particularly where interconnections with third-party products and services are restricted.

Defaults and pre-installation

Pre-installations and defaults are a common way to interconnect products. For example, a digital platform service provider may offer an operating system which comes with other services pre-installed or set as defaults. Apple, Google and Microsoft devices include pre-installed first-party services, such as Microsoft Edge on Microsoft Surface laptops, a range of Apple apps on iPhones and Google apps on Google Pixel smartphones.

Interconnections can also be enabled via opt-in prompts, as described in section 5.1.2 below for consumer cloud storage.

In some cases, digital platforms may make third-party services a default or extend their own services to operate as default on devices outside of their ecosystem. For example, Apple offers Google Search as the default search engine on its Safari browser. As noted in the ACCC's Search Defaults and Choice Screens Report, the majority of original equipment manufacturers of smartphones that use the Android operating system also license Google Mobile Services. Google Mobile Services includes widely used apps such as Google Play Store, Google Maps, Chrome and Google Search. If an original equipment manufacturer

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387 I Mehta, 'Meta is now showing a carousel of suggested Threads on Instagram to bump up engagement', *TechCrunch,* 1 September 2023, accessed 14 September 2023.

388 Apple, Use AirDrop on iPhone to send items to nearby devices, *Apple Support,* accessed 14 September 2023; Microsoft, Share things with nearby devices in Windows, *Microsoft Support*, accessed 14 September 2023; Google, Share files or apps with Nearby Share, *Files by Google Help*, accessed 14 September 2023. Note that this applies to Android devices, not purely Pixel smartphones (i.e., extends beyond the Google ecosystem).

389 Meta, Cross-posting, *Meta for Media,* accessed 14 September 2023.

390 A Hutchinson, 'Facebook Announces Integration of Messenger and Instagram Direct, Adds New Messaging Features', 30 September 2020, *SocialMediaToday*, accessed 14 September 2023; Meta, A Mosseri and S Chudnovsky, Say 👋 to Messenger: Introducing New Messaging Features for Instagram, *Meta Newsroom*, 30 September 2020, accessed 1 September 2023.

391 ACCC, Digital Platform Services Inquiry Second Interim Report, 28 April 2021, p 59.

requires access to one of these apps, such as Google Play Store, it must agree to install all of the apps in Google Mobile Services.[392]

As explored in section 5.2 below and in chapter 6, the use of defaults and pre-installation may offer convenience for consumers but may potentially inhibit a consumer's discovery of preferable alternatives, and choice.

User accounts

User accounts enable interconnections between products and services in a number of ways.

Firstly, a user account may allow a consumer access to products or services within an ecosystem in a convenient manner, without needing to create accounts for each service individually. For example, consumers can use their Facebook account to log in to Meta Quest.[393] They can use a single Apple ID, Microsoft, Amazon or Google account across a variety of services, rather than needing to create an account for each service.[394] Similarly, users of Facebook and Instagram can link their accounts to make it easier to log-in and use their social media accounts.[395]

Secondly, several digital platform service providers now offer 'single sign on' services for third-party apps and services outside of their ecosystem.[396] This avoids the need for consumers to create accounts with third parties. These interconnections with third-party services may allow platforms to track consumer behaviour outside of their ecosystem and collect additional data.[397] It may also mean that third parties rely on the digital platform service provider to access consumers.

Creating interconnections between products and services in this way can also generate economies of scope for a digital platform service provider. Where a consumer accesses multiple services using a single account, a digital platform service provider may be able to analyse the user's data from across its interconnected services to inform its service offering. For example, YouTube uses a consumer's Google Account data to provide more relevant recommendations and search results.[398]

Thirdly, user accounts allow consumers to synchronise account usage across devices.[399] For example, a user could begin to draft an email on their smartphone but complete and send the draft using the same application on a laptop, or begin a game on one device and continue it on another.[400] User accounts may also enable users to automatically transfer data between old and new devices.[401]

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392 ACCC, Digital Platform Services Inquiry Third Interim Report, 28 October 2021, p 11.

393 Meta, Logging in to Meta Quest, accessed 14 September 2023.

394 For example, Apple, Apple ID support, *Apple Support*, accessed 14 September 2023; Google, Create a Google Account, *Google Support*, accessed 14 September 2023; Microsoft, What is a Microsoft account, *Microsoft Support*, accessed 14 September 2023.

395 Meta, Making it easier to switching between and create new accounts and profiles on Facebook and Instagram, *Meta Newsroom,* 26 September 2022, accessed 14 September 2023.

396 For example, Google, Use your Google Account to sign in to other apps or services, *Google Support,* accessed 14 September 2023; Meta, Login Button, *Meta for Developers,* accessed 14 September 2023; Amazon, Use Login with Amazon, accessed 14 September 2023.

397 K Krämer, and D Schnurr, Big Data and Digital Markets Contestability, *Journal of Competition Law & Economics*, 18:2 (2022), pp 263-264.

398 Google, Understanding the basics of privacy on YouTube apps, *Google Support,* accessed 14 September 2023.

399 See, for example, Microsoft, Sign in to sync Microsoft Edge across devices, accessed 14 September 2023.

400 See, for example, Apple, Play across your devices, accessed 14 September 2023.

401 See, for example, Google, Set up your Pixel phone, *Google Support*, accessed 14 September 2023.

As described in section 5.2 below, while user accounts enable interconnections that can bring benefits for consumers (for example, increasing convenience), they could also have detrimental effects on consumers, for example, in relation to the collection and use of data.

Bundling/tying strategies

Digital platform service providers utilise bundling or tying strategies to interconnect products and services in their ecosystem. These strategies may leverage strength from one area to another. For example:

- Amazon Prime membership includes Prime delivery (a free expedited delivery service for eligible items), Prime Video (video streaming service), Prime Member exclusives (exclusive shopping deals), Prime Reading (ebook library access) and other benefits[402]
- Microsoft offers its Microsoft 365 subscription service (in various iterations designed for individuals, families, businesses, and education) which provides a range of products and services under a single bundled subscription. A Microsoft 365 Personal subscription includes: Word, Excel, PowerPoint, Outlook, OneDrive, and 1TB of cloud storage per user, among other things[403]
- Apple Arcade comes free for 3 months with the purchase of eligible Apple devices[404]
- access to Meta's new service Threads is tied to users having an Instagram account.[405]

Use of these interconnections may allow a digital platform service provider to take advantage of its existing user base when launching a new service, particularly where network effects may be important. For example, Meta's recently launched service Threads easily enables new users to follow the same accounts on Threads as they do on Instagram,[406] ensuring consumers have immediate access to relevant content.

As discussed in section 5.2 and chapter 6 below, these strategies can potentially enable price reductions or reduce search and transaction costs for consumers, but may raise barriers to entry and expansion.

Concluding comments on ways products and services are interconnected

The above methods of interconnection are not exhaustive or mutually exclusive. Individual products or services can deploy several of these approaches at once. For example, an app may be pre-installed on a smartphone, linked to a user account, and/or set as the default for use by a voice assistant. It may also improve quality of service by generating insights from consumers' use of related services. By interconnecting a core service in a variety of ways to a number of other products and services within the ecosystem, a digital platform service provider may be able to protect their core service from competition.

Although the above strategies are focussed on interconnections used on the consumer side, digital platform service providers can also use interconnection strategies on the business side. For example, Meta's Ads Manager, which is an advertising tool used by businesses to create and manage ads, can be used to run ads on Facebook, Instagram or Messenger.[407]

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402 Amazon, Make every day better with Prime, accessed 14 September 2023.

403 Microsoft, Apps to manage everyday, accessed 14 September 2023.

404 Apple, Get 3 months of Apple Arcade for free, accessed 14 September 2023.

405 Instagram, Introducing Threads: A new way to share with text, 5 July 2023, accessed 14 September 2023.

406 Instagram, Introducing Threads: A new way to share with text, 5 July 2023, accessed 14 September 2023.

407 Meta, Ads Manager, accessed 14 September 2023.

Meta Business Suite can also be used by businesses to manage their social media content across Facebook and Instagram in one place.[408]

The interconnections between products and services within ecosystems will continually evolve over time as markets develop, and as ecosystems continue to expand. As digital platform ecosystems expand to offer new services, some third-party products and services that began as complementary to a digital platform ecosystem may over time become substitutes. This could have implications for how a digital platform service provider allows third-party products to be interconnected with its ecosystem. As will be explored in section 5.2 and chapter 6 below, digital platform service providers have a strong incentive to stimulate complementary innovation but also to prevent those complements from developing into substitutes for the platform's core services.[409]

5.1.2. Consumer cloud storage services within a digital platform ecosystem

Apple, Google and Microsoft's consumer cloud storage services are interrelated to most of the main services or devices they offer as they are linked to the respective digital platform service providers' user accounts. As discussed above in section 4.1.2, consumer cloud storage comes bundled with other services, or can be interconnected with other services within the ecosystems via opt-in or opt-out prompts that consumers may encounter when using the service for the first time or while using the service at later points.

Cloud storage services are typically accessed through:

- logging into the account that is associated with that platform
- using a device that is logged into the account that is associated with that platform
- using a service that is logged into the account that is associated with that platform.

After the initial login, a consumer may remain logged in meaning that consumers may continue to have access to or upload to their consumer cloud storage services without being prompted to log in. As a cloud storage service is linked to a user's account with a digital platform service provider, a user is further connected to even more services, products and features that form part of the digital platform service provider's ecosystem and which enable or require a user to be logged in.

The digital platforms are also linking consumer cloud storage services to services beyond their core offerings to consumers. For example, consumer cloud storage services are offered with education, productivity suites and gaming.

Interconnection of Apple's consumer cloud services

Apple's iCloud functionality is integrated into its ecosystem of hardware devices and associated operating systems. A user will gain access to cloud storage services on these devices when they log into the device using their Apple ID, as illustrated by figure 5.2 below. iCloud Drive and Photos are integrated into, and sync user files between, iPhones, iPads, Macs, while Photos is also available on Apple TVs and, to an extent, Apple Watches.[410]

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408 Facebook, Meta Business Suite, accessed 14 September 2023.

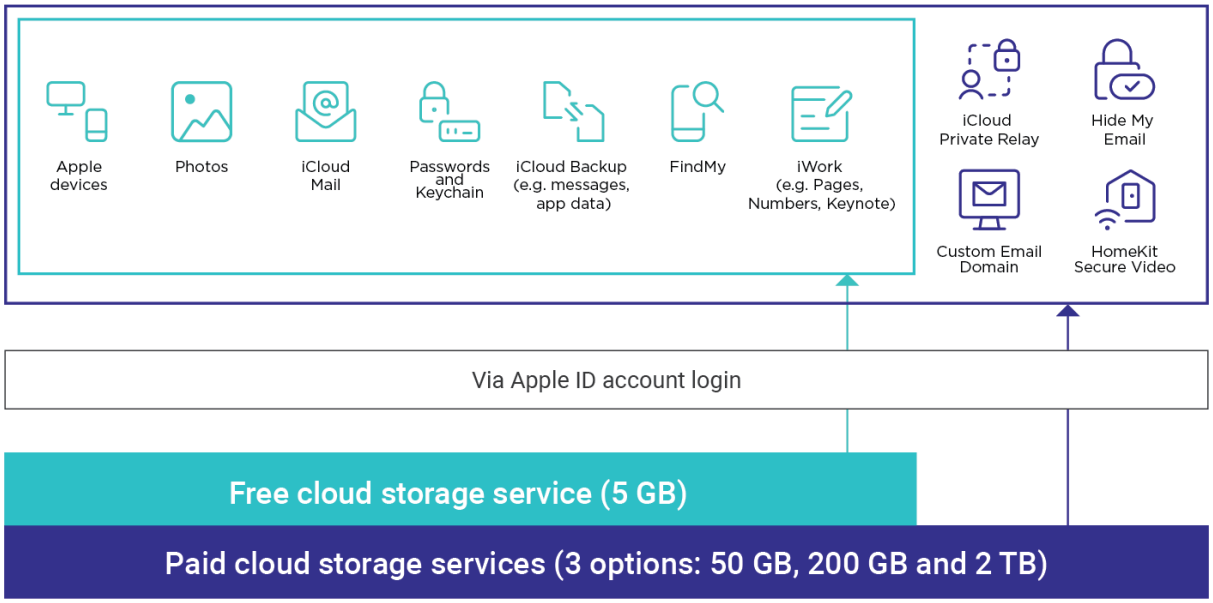
409 A Gawer, Theories of Harm for Digital Mergers: Digital Platforms & Ecosystems' Competition & Innovation, Presentation for OECD, 140th Meeting of the Competition Committee, Roundtable on Theories of Harm for Digital Mergers, 16 June 2023, accessed 14 September 2023, slide 8.

410 Apple, iCloud User Guide, Sign in to iCloud on all your devices, *Apple Support,* accessed 14 September 2023; Apple, Apple TV User Guide, *Apple Support,* accessed 14 September 2023.

iCloud is also integrated into Apple's productivity software Pages, Numbers, and Keynote, and collaboration on these services is available to users when they are logged in to an Apple device.[411] Users can save directly to iCloud from these applications on iPhones, iPads, and Macs. Users can also access web versions of these applications through iCloud.com.

Various Apple services take up a user's cloud storage allotment, including for example, iCloud Mail and iWork files and Photos,[412] or are features that the cloud enables, such as Passwords and Keychain, or the Find My app. Other Apple services are only available to users bundled together with paid tiers of storage, such as the HomeKit secure video, or email features such Custom Email Domain or Hide My Mail.[413] iCloud also allows users to link their iCloud storage to Apple's other software including GarageBand, iMovie, as well as other third-party apps available in the Apple App Store. Further, Apple offers Apple One which bundles its paid iCloud storage subscriptions with other Apple subscription services such as Apple TV, Apple Music, Arcade, Fitness+ and News+.[414]

Figure 5.2: How Apple's consumer cloud storage products are interconnected with other Apple product and service offerings[415]



411 Apple, Collaborate on documents in Pages, Numbers and Keynote on iPhone, iPad and Mac, *Apple Support,* accessed 14 September 2023.

412 Apple, iCloud User Guide, Send and receive iCloud Mail on all our devices and keep Mail settings up to date, *Apple Support*, accessed 14 September 2023; Apple, Collaborate on documents in Pages, Numbers and Keynote on iPhone, iPad and Mac, *Apple Support*, accessed 14 September 2023; Apple, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 552KB], May 2023, p 7.

413 Apple, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 552KB], May 2023, p 7.

414 Apple, Apple One, *Apple One,* accessed 14 September 2023.

415 This infographic is illustrative only, based on ACCC analysis of publicly available information, and does not reflect an exhaustive list of services and products linked to Apple's cloud storage services. The infographic highlights products and services that are bundled with a cloud service, contribute to a cloud storage service or come integrated with cloud storage service capability. This infographic does not include the full range of services that can be synced to an Apple's iCloud account.

iCloud is linked to Apple's education offering by way of its devices. Apple's K-12 education offering is focussed on iPad and Mac device sales to schools and students. Apple offers 'managed' Apple IDs to schools for each student with limited iCloud functionality and 200GB included free storage.[416] It also offers device and account management software to schools which integrates with Google and Microsoft login information.[417]

Apple offers the 'Apple Business Essentials' bundle in the US, which includes iCloud storage.[418] Apple does not appear to specifically target the iCloud suite to business or enterprise customers outside of general device and account management software for IT.

Interconnection of Google's consumer cloud services

As described in section 4.1.2, Google's consumer cloud storage services are integrated with its Android operating system and productivity suite. The interconnection of Google's consumer cloud storage service with its other products is demonstrated in figure 5.3.

Google Drive and Google Photos apps are pre-installed on most Android phones and tablets,[419] and on Google devices, such as Chromebooks. When Google Drive was introduced to Chrome OS in 2012, then product manager (now CEO) Sundar Pichai was quoted as saying that "with Chromebooks, [Google Drive] is even more powerful because it just starts working naturally. Your local drive is also Google Drive. This makes it really powerful because you just don't think about it".[420] A Google Account is needed to access many key services on these devices.

Google Drive is integrated into Gmail and its productivity services, including Google's Docs Editors (Docs, Sheets and Slides), Jamboard (a whiteboard app), Google Meet, Calendar and Chat. Files contained in Google apps like Gmail, and Google Photos also contribute to a users' Google storage capacity.

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416 Apple, K-12 Education, *K-12 Education,* accessed 14 September 2023.

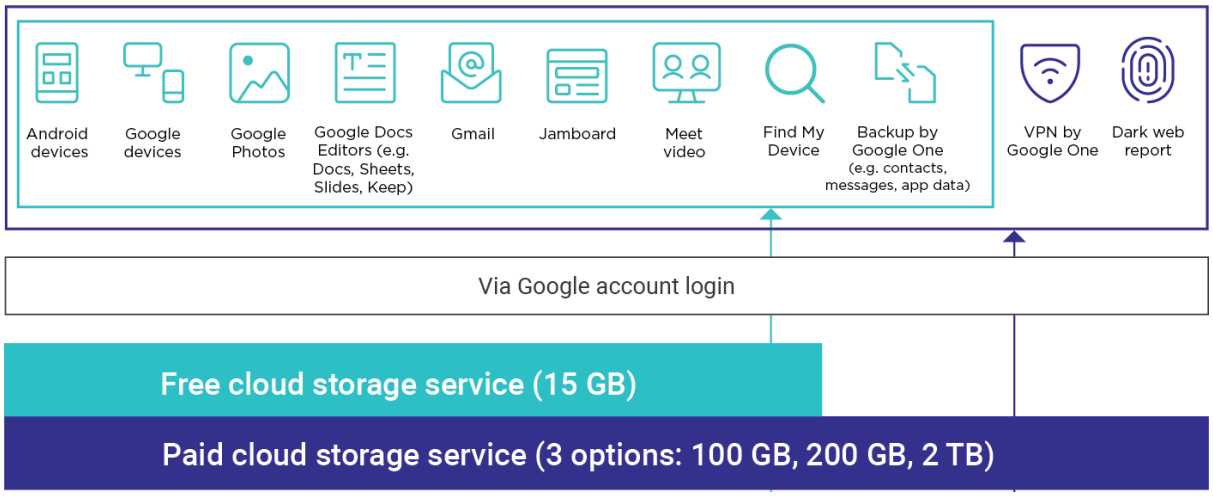
417 Apple, K-12 Education, *K-12 Education,* accessed 14 September 2023.

418 Apple, Business Essentials, accessed 14 September 2023.

419 Google Drive is bundled with Google Mobile Services and is pre-installed on Android devices that have the Google Play Store pre-installed. See K Bradshaw, 'These are the new default Google apps for Android 10 and Android Go', *9to5Google,* 7 October 2019, accessed 14 September 2023; P Shah, 'Google Photos: Everything you need to know', *Android Police,* 17 June 2023, accessed 14 September 2023; S Okoruwa, 'How to Back Up Android Phone in 2023: Keeping your Android Device Safe', *Cloudwards*, 1 December 2022, accessed 14 September 2023.

420 Wired, Google Drive and Chrome OS: Has the New 'PC' Arrived?, accessed 14 September 2023.

Figure 5.3: How Google's consumer cloud storage products are interconnected with other Google product and service offerings[421]



Google Workspace (formerly referred to as G Suite, Google Apps for Work, and Google Apps) bundles Google Drive with other services including Gmail and Docs Editors, and is marketed towards small businesses and enterprises.[422] Businesses are able to use custom email addresses (that do not end in @gmail.com). Subscriptions are generally sold to a business with separate accounts for each user. Pricing is tiered based on storage per user and other features.

Google Workspace for Education functions similarly to Google Workspace and is marketed towards K-12 schools, and also includes additional education-focussed features through Google Classroom. Google Workspace for Education accounts are generally purchased by State and Territory governments for the entire jurisdiction and students are each provided with their own accounts.[423] Chromebooks are marketed as price-competitive options for schools, and are integrated with the Google Workspace for Education offering.

Interconnection of Microsoft's cloud services

As illustrated by figure 5.4, Microsoft OneDrive is integrated with Windows, on both its first-party Surface PCs, third-party PCs and other Windows devices. OneDrive is also pre-installed on Microsoft's Surface Duo phones and integrated into Microsoft's Xbox family of game consoles.[424]

Microsoft's consumer cloud storage service is also closely integrated into its productivity suite including Word, Excel, PowerPoint, Outlook, Teams, plus Microsoft's free email service

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421 This infographic is illustrative only, based on ACCC analysis of publicly available information, and does not reflect an exhaustive list of services and products linked to Google's cloud storage services. The infographic highlights products and services that are bundled with a cloud service, contribute to a cloud storage service or come integrated with cloud storage service capability. This infographic does not include the full range of services that can be synced to a Google account.

422 Google, Google Workspace | Business Apps & Collaboration Tools, *Google Workspace,* accessed 14 September 2023.

423 In Victoria, government school students and teachers can collaborate using Google Workspace for Education, see Department of Education and Training, Victoria, Arc, Google Workspace for Education, Arc | Software | Google Workspace for Education, accessed 14 September 2023. The NSW Department of Education and Training has opted with Google Apps for Education for students, see Google, Google has also announced that 1.2 million NSW school students move to Google Apps for Education [PDF 242KB], accessed 14 September 2023.

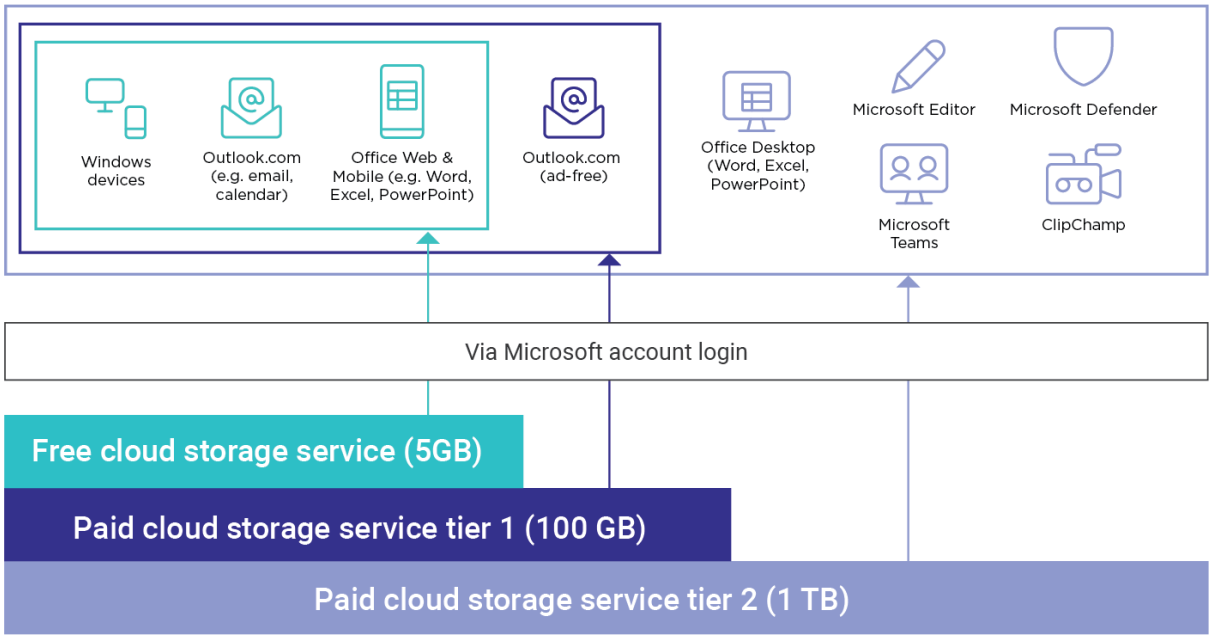
424 Microsoft has offered Surface Duo range of phones in 2020 that use the Android operating system and have Microsoft applications and services pre-installed. See Microsoft, Ankita Kirti, 'Do one better with OneDrive and Surface Duo – modern productivity on the go', *Microsoft Tech Community*, 15 September 2020, accessed 14 September 2023. T Warren, Xbox clips will soon automatically upload to OneDrive cloud storage, 31 August 2023, accessed 14 September 2023.

Outlook.com (formerly Windows Live Mail and Hotmail). Microsoft submits that its cloud storage service is an 'ancillary feature' to enable online products to work.[425]

Microsoft offers paid OneDrive storage exclusively as part of the Microsoft 365 bundle, which is marketed in different bundles for Personal and Family, Business, Enterprise and Education. Microsoft's Enterprise offering is popular with many Australian companies and government, and includes OneDrive storage.[426]

Microsoft's Education offering is chosen by some Australian states for their K-12 education system.[427] This means that a OneDrive storage service is accessed by businesses, government and students.

Figure 5.4: How Microsoft's consumer cloud storage products are interconnected with other Microsoft product and service offerings[428]



425 Microsoft, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [101KB], June 2023, p 5.

426 Microsoft, Find the right Microsoft 365 enterprise plan for your organization, accessed 14 September 2023.

427 For example, the Western Australia Government has a common use arrangement for the supply of Microsoft products for the education sector; see The Government of Western Australia, Supply of Microsoft product licences and licensing solutions CUAMS2019, last updated on 10 July 2023, accessed 14 September 2023. In 2016, Microsoft Surface 3s were deployed to public schools in Tasmania; see Microsoft MSAUEDU, Category: Tasmania Department of Education, accessed 14 September 2023. The Queensland Department of Education provides all Queensland state school staff and students with an Education Queensland email account hosted in Microsoft Office 365 which includes OneDrive and allows staff and students to download free copies of Microsoft Office to their personal home computers and mobile devices; see Queensland Department of Education, The internet at school, accessed 14 September 2023. Primary and secondary students in the Northern Territory have access to Microsoft Office software, including cloud storage, this includes if a student brings their own device to school, they will not need to purchase Office software and will be able to access cloud files from any device and network; see Northern Territory Government, Technology in schools, accessed 14 September 2023.

428 This infographic is illustrative only, based on ACCC analysis of publicly available information, and does not reflect an exhaustive list of services and products linked to Microsoft's cloud storage services. The infographic highlights products and services that are bundled with a cloud service, contribute to a cloud storage service or come integrated with cloud storage service capability. This infographic does not include the full range of services that can be synced to a Microsoft account.

5.1.3. Smart home devices within a digital platform ecosystem

Amazon, Apple and Google smart home devices interconnect with various products and services within each firm's ecosystem and in several ways, including:

- interconnection with first-party gateway devices and voice assistant technology for functionality and control of the device
- interconnection with first-party services, often available as apps on devices
- through commercial strategies such as bundling free trials of paid services with device purchases
- data collection and use through devices, services and user accounts.

This section focusses on the forms of interconnection that Amazon, Apple and Google smart home devices have with first-party products and services within each ecosystem. As noted above at box 5.1 (section 5.1.1), part of the value of smart home devices for consumers includes the option to access preferred third-party services (such as Spotify for music streaming via a smart speaker). However, this section highlights the high degree of interconnectedness within digital platforms' ecosystems between their first-party smart home devices and their first-party services. Potential competition implications of this interconnectedness are discussed below in chapter 6.

Interconnection with first party gateway devices and voice assistant technology for functionality and control of smart home devices

As explained in section 4.1.3, smart home devices can be controlled directly through the device, through gateway devices and/or through voice assistant technology, which are often first-party technologies.

In using these gateway devices to control smart home devices, users are generally required to set up the device on the associated companion app that interconnects with the smart home device.[429] These smart home companion apps include the Amazon Alexa App, the Apple Home App and Google Home app. To use these apps, users are typically required to create an account, including an Amazon Account, Apple ID account or Google Account.

Interconnection with first-party services available on the smart home device

Many first party services are accessible (and often pre-installed as apps) on Amazon, Apple and Google's smart home devices. These features are accessed either directly on the device (such as touching a display hub screen), through a gateway device (such as a smartphone via a companion app) or through first-party voice assistant technology (either directly or also via a gateway device).

To illustrate several indicative examples:

- On an Amazon Echo Show smart display, a consumer can access first party Amazon services including Amazon Prime Video, Amazon Music, Audible, Amazon Shop, and Amazon Photos.

[429] A Google Account is usually needed to set up smart home devices in the Google Home app, an Amazon Account is usually needed to set up smart home devices in the Alexa app and an Apple ID is usually associated with the Apple Home app to set up the HomePod devices.

- On an Apple TV 4K smart TV dongle, a consumer can access first party Apple services including Apple Music, Apple Podcasts, Apple Arcade, Apple Fitness+, Apple TV+, and iCloud Photo Library.
- On a Google Nest Audio smart speaker, a consumer can access first party Google services including YouTube Music, Google Podcasts, Google Play Books, Google News, Google Shopping, and Google Search.

A full table of first-party services available on first-party smart home devices provided by Amazon, Apple and Google is available in appendix C.

Interconnection through bundling and promotional strategies

Amazon uses commercial strategies to promote first-party products and services via its devices. For example, Amazon runs Alexa-only discounts on its online retail marketplace service, accessible via its Alexa-enabled Echo smart speakers. These discounts have in turn been used to promote discounted first-party products, such as the Ring Doorbell, Fire TV, and Amazon Eero Router.[430]

Apple also uses commercial strategies to promote first-party services on its devices. For example, new subscribers currently get 6 months of Apple Music free on HomePod and HomePod mini purchases.[431]

Google also uses commercial strategies, such as mixed bundling strategies, to promote first-party products and services on devices. For example, Google offers up to 3 months of free access to YouTube Premium "to enjoy your favourite videos and music, ad-free" on the Google Nest Hub Max and other eligible devices.[432]

Interconnected data collection and use

The interconnection of products and services within digital platform ecosystems also extends to data collection and use by the firms. Amazon, Apple and Google can access and collate detailed user data through first-party smart home devices that may be utilised elsewhere in their ecosystems, for example, for more effective targeted advertising. This data may be obtained through first-party smart home devices and their features (including first-party voice assistants), integrated services, and through linked user accounts.

5.2. Impacts of an interconnected digital platform ecosystem

This section will explore the benefits and implications of offering interconnected products and services in digital platform ecosystems from a consumer perspective. Discussion of benefits and implications are captured under key headings of: *quality, price, choice and variety*, and *innovation and competition*. These headings are intended to be broad; it is also recognised that these concepts are related, and that some benefits or implications may, in practice, be relevant to several of these concepts. Competition issues will be further explored in chapter 6.

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430 C Cawley, 'How to find secret Alexa-only deals with your Amazon Echo', *Android Police*, 2 July 2022, accessed 14 September 2023.

431 Apple, Apple Music, accessed 14 September 2023.

432 Google, Nest Hub Max, accessed 14 September 2023.

5.2.1. Impacts relevant to quality

Seamless experience and/or convenience

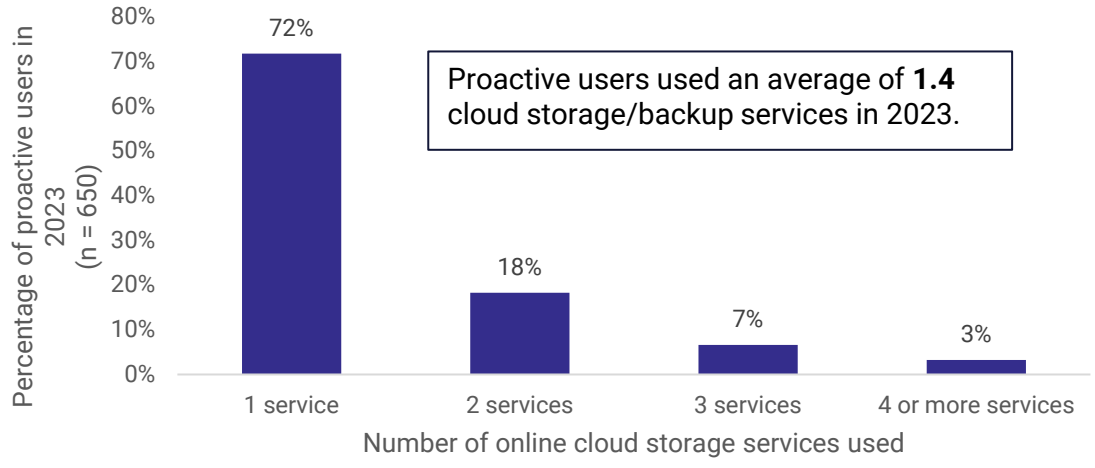
Consumers may benefit from greater ease of use and convenience when interconnected products work seamlessly with one another. For example, consumers may value the ability to access a range of products and services using a single user account from a single ecosystem,[433] or using a range of integrated services or interoperable products. Box 5.2 below provides an example in the context of consumer cloud storage services.

Box 5.2 Consumer convenience with accessing one cloud service

Google, Apple and Microsoft's cloud storage services are increasingly integrated with multiple products and services. Consumers can use one cloud product for multiple purposes – for example, device back-up, file and photo storage, collaboration and productivity, as described in section 4.1.2. This provides the user a 'one-stop-shop' of cloud services with a digital platform service provider. For example, a Google One account can provide device backup for an Android phone, store photos taken on the Android phone, facilitate team collaboration on a Google Doc and store emails received via Gmail.

Data from Telsyte indicates that most active users of consumer cloud storage services only use one cloud service (see figure 5.5 below). Consumers of cloud storage services from these digital platform service providers may benefit from the ease of only storing their files in one central location.

Figure 5.5: Number of cloud storage services consumers use concurrently[434]



Interoperability interconnections may also deliver greater ease of use and convenience for consumers.[435] Interconnections between products in the ecosystem can offer effective and stable interoperability, ensuring a seamless experience for consumers. Where individual products from multiple providers are used in conjunction with one another, in the absence of

[433] A Fletcher, Digital Competition Policy: Are ecosystems different?, Hearing on Competition Economics of Digital Ecosystems, OECD, 3 December 2020, p 6.

[434] Telsyte Australian Consumer Cloud Insights 2023.

[435] See, for example, OECD, Data Portability, Interoperability and Digital Platform Competition, OECD Competition Committee Discussion Paper, 2021, p 20.

standardisation, there are more likely to be failures of interoperability, especially at key upgrade points.[436]

Moreover, consumers may benefit from the use of interconnected products where a digital platform has increased complementarity between them.[437] This can enable products to deliver more value than the products could individually. For example, a smart watch synchronising with a mobile device, which then shares the watch's data with a fitness app.[438]

Reduced search, transaction and learning costs

Interconnected products and services can also reduce search, transaction and learning costs for consumers. Consumers may benefit from lower transaction and learning costs (e.g., search costs) when using integrated first party services, as it can conveniently enable them to use multiple products or services from a single digital platform ecosystem.[439] For example, a Google search query for 'restaurants' can also provide integrated and convenient access to information about the location of restaurants via Google Maps, as noted in section 5.1.1.

The use of defaults (or pre-installation) may enable consumers to use products 'out of the box'. This reduces search costs and setup costs that a consumer would face if they needed to look for alternatives offered by competitors, and then install the product themselves.

Commercial strategies such as bundling can also provide convenience for consumers. For example, in the context of Microsoft 365 products, it may be convenient for consumers to receive the component products (e.g., Word, Excel, PowerPoint) in a bundle rather than facing the search and transaction costs associated with assembling their own bundle.[440] Consumers could also value receiving a single monthly bill. On the other hand, where a single monthly bill does not provide a breakdown of the products or services included in the bundle, this could potentially reduce consumer awareness of the services that consumers are subscribed to and paying for.[441]

Moreover, integrating a consistent user experience across products and services can also deliver synergies for consumers. For example, common commands across applications, the ability to create links between applications or having a single point for customer service.[442] This could help to explain why consumers use several products with the Microsoft 365 suite, as opposed to procuring separate pieces of software from different producers.[443] As described above, using multiple Microsoft 365 products allows a user to leverage common commands across products. This may offer greater convenience than learning how to use multiple products from different providers.

Through accessing multiple interconnected services with a similar interface, consumers can access their preferred user experience across products and services. For example, Apple

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436 A Fletcher, Digital Competition Policy: Are ecosystems different?, Hearing on Competition Economics of Digital Ecosystems, OECD, 3 December 2020, p 5.

437 M Bourreau, Some Economics of Digital Ecosystems, Hearing on Competition Economics of Digital Ecosystems, OECD, 3 December 2020, p 3

438 OECD, The Evolving Concept of Market Power in the Digital Economy, OECD Competition Policy Roundtable Background Note, 2022, p 15.

439 M Bourreau, Some Economics of Digital Ecosystems, OECD Hearing on Competition Economics of Digital Platforms, 3 December 2020, p 4.

440 B Nalebuff, Bundling, *Yale International Centre for Finance Working Paper No 99-14*, 22 November 1999, p 3.

441 ACCC, Consumer Issues Discussion Summary [PDF 123KB], 25 July 2023, p 4.

442 B Nalebuff, Bundling, *Yale International Centre for Finance Working Paper No 99-14*, 22 November 1999, p 3.

443 D Condorelli and J Padilla, Harnessing platform envelopment in the digital world, *Journal of Competition Law & Economics*, 16:2 (2020), p 155.

consumers may prefer the Apple user experience, and benefit from the expectation that future products will be designed to smoothly operate with existing ones.[444]

Impacts from data combination and use

By using multiple products from across an ecosystem, consumers may be able to enjoy a higher quality of service as data gleaned from one market by the digital platform service provider can help improve the product offered in another market.[445] For example, a consumer may receive more relevant search queries or targeted advertising if Google uses the data it gathers on the user from their other activity across the Google ecosystem (e.g., YouTube, Gmail) to personalise a user's experience.[446]

Similarly, Meta requiring users to link their Instagram accounts to Threads easily enables new users to follow the same accounts on Threads as they do on Instagram.[447] If their account data with Instagram was not shared across services, a consumers' initial experience on the Threads platform would provide less relevant content and they would be required to individually follow accounts to improve the relevance of the content they see.

Further, given that data collected can potentially be combined with many different sources to derive insights, it can be difficult to anticipate all the ways that data may be re-used in future. Given the expanding array of services offered by platforms, further uses may be unlocked through the creation of new services.[448] Thus, data aggregation can create new assets for the digital platform service provider which may provide additional value over time. Just as data may be used to improve the quality of service offered to consumers, it can also be used to innovate and create new products.[449] Box 5.3 below considers how data from smart home devices can be used to improve and create new products.

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444 D Condorelli and J Padilla, Harnessing platform envelopment in the digital world, *Journal of Competition Law & Economics*, 16:2 (2020), p 155.

445 D Condorelli and J Padilla, Harnessing platform envelopment in the digital world, *Journal of Competition Law & Economics*, 16:2 (2020), p 166; A Fletcher, Digital Competition Policy: Are ecosystems different?, Hearing on Competition Economics of Digital Ecosystems, OECD, 3 December 2020, p 5.

446 A Fletcher, Digital Competition Policy: Are ecosystems different?, Hearing on Competition Economics of Digital Ecosystems, OECD, 3 December 2020, p 5.

447 Instagram, Introducing Threads: A new way to share with text, 5 July 2023, accessed 14 September 2023.

448 N Petit and D Teece, Taking Ecosystems Competition Seriously in the Digital Economy, OECD Hearing on Competition Economics of Digital Ecosystems, 2 December 2020, p 7. Petit and Teece compare this to early Australian sheepherders who raised sheep for wool, with mutton merely being a by-product of no value at first. But with the invention of refrigeration, it became a valuable and tradeable product.

449 M Bourreau and A de Streel, Digital Conglomerates and EU Competition Policy [PDF 628KB], March 2019, accessed 14 September 2023, pp 11-12. At the same time, the collection and combination of data can reduce uncertainty for a digital platform service provider when it is investing and entering a new market. For example, data gleaned from trends in search engine queries may help to inform the design of new products. D Condorelli and J Padilla, Harnessing platform envelopment in the digital world, *Journal of Competition Law & Economics*, 16:2 (2020), p 166.

Box 5.3 Data from smart home devices can be used to improve and create new products

Smart home devices collect vast amounts of user data, including:

- User input when creating or linking a Google Account, Amazon Account or Apple ID, which may collect information such as user's name and email address
- Using the device, such as voice assistant queries, search queries, purchase activity and other data points
- Automatic and background data collection, such as sensor data from cameras, microphones and other sensors.

Amazon, Apple and Google have access to this data and several other user data points collected from smart home devices. Amazon, Apple and Google submit that this data is used to improve or create new products or services.[450] For example, Google submits that the data collection allows Google to determine what queries or features are most popular so it can improve those features, and device statistics and usage data can help improve users' devices' performance and reliability.[451]

Behavioural insights can be drawn from the data points collected on smart home devices. They may be used to better understand user preferences and needs that a digital platform may rely on in the development of new products.

Data collection at scale can also be important for smart home devices, especially where the functionality relies on machine learning and artificial intelligence, particularly for voice assistant technology.[452]

Another implication of data combination is that digital platform service providers may be able to build a more detailed user profile of consumers. While this can be used to improve the quality of service provided as described above, it could also be used to target customers in ways that do not align with consumer preferences. For example, some consumers may be uncomfortable with how their data is used to finely target advertising. This issue is discussed further in chapter 7 (see section 7.2). As discussed in section 5.2.2 below, the creation of detailed user profiles may also have implications for the prices faced by consumers.

Even where consumers would prefer that their data is not used in these ways, information asymmetries between the platform and consumers may limit a consumer's ability to make informed choices about whether a platform should be allowed to combine their data. Alternatively, consumers may feel the need to accept undesirable 'take-it-or-leave-it' terms of use,[453] owing to market power or bargaining power imbalances. As further explored in section 7.2, consumers may be forced to give away more data than intended or required to use the service.

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450 Google, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 325KB], May 2023, p 18; Amazon Australia, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 330KB], May 2023, p 9; Apple, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 552KB], May 2023, p 5.

451 Google, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 325KB], May 2023, p 18.

452 OECD, Consumer Policy and the Smart Home, April 2018, p 18.

453 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 43.

Access to interconnected user base

Where the user bases of interconnected services are linked via user accounts, consumers may benefit from leveraging their contacts from one service to another. For example, by incorporating Marketplace into its Facebook social media service, users of Marketplace have immediate access to a huge network of users. This increases the likelihood that they will be able to find their desired products (when buying) or a buyer (when selling). That is, where network effects are present, a digital platform service provider could use its existing user base from a core market to improve the quality of service offered to users in an interconnected market within the ecosystem. For a consumer, if Meta offered a standalone marketplace service that did not leverage its existing user base, the initially small user base would be less likely to enable trades and therefore be a less attractive offering.

5.2.2. Impacts relevant to price

Economies of scope enabling potential price reductions

For digital platform service providers, economies of scope are likely to be especially strong given the potential for the same core infrastructure to be used across a range of different markets.[454] Data, expertise, algorithms, digital infrastructure, and established sales channels can be shared across different digital products.[455] One firm producing a wide range of products and services can deliver efficiency savings which could enable the ecosystem to offer products or services at lower prices to consumers.[456] See box 5.4 below which considers economies of scope in the context of smart home devices.

Box 5.4 Economies of scope associated with smart home devices through access to data and cloud capabilities

Increased access to data through interconnecting digital platform products and services with smart home devices can create economies of scope. This allows digital platforms to create advanced smart home device technologies, including voice assistants, at lower costs than without the access to data. As mentioned above at box 5.3, voice assistant technology is both a key function of some smart home devices and requires a large amount of data for development. The data collected through Google Accounts, Amazon Accounts, Apple IDs and other forms of data collected may be used in developing the voice assistant technology.

The European Commission also recently noted that 'cloud storage and computing is increasingly necessary for the operation of certain smart home devices and services, as data storage and resource-intensive computing often cannot be carried out locally on the device'.[457] Each of Amazon, Apple and Google have their own cloud capabilities and are likely to also benefit from efficiencies by leveraging the cloud for data processing and providing video storage solutions for smart home device users.

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454 A Fletcher, Digital Competition Policy: Are ecosystems different?, Hearing on Competition Economics of Digital Ecosystems, OECD, 3 December 2020, p 5.

455 OECD, The Evolving Concept of Market Power in the Digital Economy, OECD Competition Policy Roundtable Background Note, 2022, p 15.

456 OECD, Executive Summary of the Hearing on Competition Economics of Digital Ecosystems, Directorate for Financial and Enterprise Affairs Competition Committee, 3 December 2020, p 3.

457 European Commission, Final report - Sector inquiry into consumer Internet of Things, Commission staff working document, 20 January 2022, p 41.

Innovative pricing structures

Interconnections between products and services within ecosystems can enable the emergence of innovative business models centred around cross-subsidisation and new pricing arrangements.[458] This could be driven, for example, by tying/bundling strategies. This could lead to overall prices being lower for consumers.[459]

For example, consumers could benefit from interconnected products and services being sold at a lower price for a bundle than individually. This is particularly where most consumers would purchase those products and services together anyway. Some interconnected products or services could also be sold at lower prices to attract users or deepen engagement with the ecosystem. For example, the Apple One bundle includes multiple Apple services (e.g., iCloud+, Apple Music, Apple Arcade, Apple TV+) at a lower price than purchasing each service separately.[460] Apple also includes 3 months access to Apple Arcade when purchasing eligible Apple devices.[461] Examples of pricing structures used in consumer cloud storage are discussed in box 5.5 below.

Box 5.5 Consumer cloud storage services pricing

Prices for consumer cloud storage services have remained low to no monetary cost for entry level products. As shown below, each of the digital platform service providers offer at least 5GB for zero cost entry level products. In comparison, cloud storage only provider Dropbox offers 2GB of free storage for its entry level product. As noted at section 4.1.1, digital platforms provide free or low-priced services (or in this instance, more substantial zero cost offerings), to attract consumers to use their services. These free cloud storage users provide value to the service by increasing the network effect benefits of a larger user base, and may be more likely to shift to a paid tier at a later date.

Table 5.1: Entry level cloud storage capacity for popular providers[462]

Provider	Product	Free storage amount
Apple	iCloud	5GB
Google	Google Drive	15GB
Microsoft	OneDrive	5GB
Microsoft	Outlook.com	15GB
Dropbox	Dropbox Basic	2GB

458 OECD, Data Portability, Interoperability and Digital Platform Competition, OECD Competition Committee Discussion Paper, 2021 p 20.

459 A Fletcher, Digital Competition Policy: Are ecosystems different?, Hearing on Competition Economics of Digital Ecosystems, OECD, 3 December 2020, p 6.

460 Apple, Apple One, accessed 14 September 2023.

461 Apple, Apple Arcade, accessed 14 September 2023.

462 Apple, iCloud+, accessed 14 September 2023; Google, Personal Cloud Storage & File Sharing Platform, accessed 14 September 2023; Microsoft, Compare Cloud storage pricing and plans, accessed 14 September 2023; Microsoft, Storage limits in Outlook.com, *Microsoft Support,* accessed 14 September 2023; Dropbox, Dropbox Basic, accessed 14 September 2023. Microsoft maintains separate free storage quotas for its free OneDrive and Outlook.com products, however as of 1 February 2023 attachments in Outlook.com count towards OneDrive's free 5GB storage, see Microsoft, Changes to Microsoft 365 email features and storage, accessed 14 September 2023.

For some providers, price per gigabyte of storage has generally also decreased over time and larger capacity products are being offered. For example, Apple's cloud storage services have either decreased or remained stagnant over the last 8 years. What was once the 20GB plan offered in 2014 to 2015, priced at AUD1.29/month, changed to the 50GB plan priced at AUD1.49/month in September 2015, and has remained the same price since. Apple's 200GB plan that was AUD4.99/month between 2014 and 2015, is now AUD4.49/month.[463] Similarly, Google's 100GB plan that was USD4.99/month in 2013, is now USD2.49/month. Google now offers 2TB for USD9.99/month when it used to offer 1TB for the same price in 2014.[464]

Increase in number of features and services bundled with paid consumer cloud storage services

Apple's iCloud+, Google One, and Microsoft 365 Basic are the base paid offerings which include paid consumer cloud storage. iCloud+ and Google One bundle paid cloud storage with several features which are not available from Apple and Google separately. For example, both services include VPNs. iCloud+ includes email privacy features and HomeKit secure video, and Google One includes Dark Web reports and additional Google Photos editing tools. Similarly, Microsoft 365 Basic, which replaced 'OneDrive Standalone' as of January 2023, bundles paid cloud storage with web and mobile versions of Microsoft Office and removes ads from the Outlook.com web version. Microsoft's pricing for its Office 365 Personal subscription increased from AUD89.00/year to AUD99.00/year in 2017 for the first time since the launch in 2013, and is now AUD109.00/year.[465] These subscriptions now include additional services, for example, privacy protection app, Microsoft Defender, video cutting app, Clipchamp, and proofing tool, Microsoft Editor.[466] Including additional non-storage features may represent a further (indirect) lowering of the price of consumer cloud storage services to the extent that consumers use these additional features or would otherwise have paid for them elsewhere.

Another implication is that bundling within an ecosystem could enable the digital platform service provider to price discriminate, which may enable it to extract more consumer surplus.[467] This could be detrimental for some consumers as well as potentially beneficial for others.

Impact of data combination on prices

As noted in section 5.2.1 above, the creation of detailed consumer profiles through the combination of consumer data can have implications for the prices charged to consumers. The data acquired in the provision of one service can be used to improve (third-degree) price

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463 During the period 7 June to 14 July 2023, the ACCC accessed Wayback Machine (http://web.archive.org/) copies of Apple's website on which they either currently display or historically displayed their plans and pricing, from the earliest to latest dates for which these pages are available. We created a dataset recording details of the plans and their pricing over time, allowing us to see how these plans and prices have changed during the recorded period.

464 During the period 7 June to 14 July 2023, the ACCC accessed Wayback Machine (http://web.archive.org/) copies of Google websites on which they either currently display or historically displayed their plans and pricing, from the earliest to latest dates for which these pages are available. We created a dataset recording details of the plans and their pricing over time, allowing us to see how these plans and prices have changed during the recorded period. In some instances where historic pricing information is not available for Australian plans, references are made to US plans in USD. See also Google, Save more with Google Drive, *Google Drive Blog,* 13 March 2014, accessed 14 September 2023; A Romero, Is Google One actually worth it? What you need to know about the benefits, *9to5google.com*, 13 March 2023, accessed 14 September 2023.

465 R Crozier, Microsoft Australia to hike some Office 365 prices, *IT News,* 28 September 2017, accessed 14 September 2023. See also Microsoft, Compare cloud storage pricing and Plans, accessed 14 September 2023.

466 L Ben-Zue, 10 years of Microsoft 365: More benefits at even better prices, Microsoft, 11 January 2023, accessed 14 September 2023.

467 D Condorelli and J Padilla, Harnessing platform envelopment in the digital world, *Journal of Competition Law & Economics*, 16:2 (2020), p 155.

discrimination in another market.[468] The collection and combination of additional data can enable more precise estimates of the willingness to pay of different consumer groups, which can then be used to charge prices which extract a larger share of the product's value.[469] This could be detrimental for some consumers as well as potentially beneficial for others. For example, if a detailed user profile indicates a low willingness to pay, a consumer may be offered a discount.[470]

5.2.3. Impacts relevant to choice and variety

Seamless interconnection, nested decisions and increasing switching costs

While seamless interconnection between products and services can bring convenience, it may also impact future purchase decisions or increase switching costs for consumers if interoperability is not as seamless with third-party products.

Some products purchased by consumers act as a gateway for further products as consumers make a series of 'nested decisions'.[471] Purchasing one product from within an ecosystem that seamlessly integrates with other products within the ecosystem, but not products outside the ecosystem, may lead consumers to deepen their engagement with an ecosystems over time as they purchase new products. This issue is considered further in the context of smart home devices in box 5.6 below.

Box 5.6 Nested decisions associated with smart home devices

A consumer can seamlessly stream video footage from their Google Nest Cam or Doorbell to their Google Nest Hub. By comparison, an Amazon Ring (doorbell) user that wishes to stream video to their Google Nest Hub must undertake additional technical steps for compatibility.[472] Therefore, they may not have the same seamless experience as when connecting with the Amazon Show Echo display hub. A seamless experience could be a factor influencing consumer purchasing preferences.

Similarly, a consumer that intends to use their display hub to display photos which they have stored on Google Photos may prefer to use a Google Nest Hub. This is because a product outside of the ecosystem, such as an Amazon Echo Show, has Amazon Photos as a feature and not Google Photos.

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468 D Condorelli and J Padilla, Harnessing platform envelopment in the digital world, *Journal of Competition Law & Economics*, 16:2 (2020), pp 166-168. Third-degree price discrimination refers to offering different prices to different consumer groups. See also OECD, Consumer policy and the smart home, OECD Digital Economy Papers No. 268, 5 April 2018, p 19.

469 D Condorelli and J Padilla, Harnessing platform envelopment in the digital world, *of Competition Law & Economics*, 16:2 (2020), pp 166-168; See also OECD, Consumer policy and the smart home, OECD Digital Economy Papers No. 268, 5 April 2018, p 19.

470 CMA, Algorithms: How they can reduce competition and harm consumers, 19 January 2021, accessed 14 September 2023; D Condorelli and J Padilla, Harnessing platform envelopment in the digital world, *Journal of Competition Law & Economics*, 16:2 (2020), pp 163-168.

471 A Fletcher, Digital Competition Policy: Are ecosystems different?, Hearing on Competition Economics of Digital Ecosystems, OECD, 3 December 2020, p 6. Fletcher describes the concept of 'nested decisions' using an example. Suppose a consumer chooses to purchase an Android smartphone. Having done so, the consumers' follow-on choices are then nested within this initial choice. For example, the consumer may be highly likely to use the Google Play store even though other options are theoretically available.

472 Google, Google Nest Help - connect third-party smart home devices in the Google Home app, accessed 14 September 2023.

Limited interoperability with third-party products can also make switching more challenging for consumers. This means that barriers to switching in one part of an ecosystem can potentially limit switching more widely.[473] When considering switching, users may fear losing access to the benefits of being part of the ecosystem, such as shared functionality. For example, an Apple Watch cannot be used in conjunction with Android and some functionalities of other products are limited when used with Android (e.g., AirPods).[474]

Survey evidence from the CMA's Mobile ecosystems market study found that 'having other devices linked to my phone' is the most mentioned reason for not switching by Apple users.[475] This shows that Apple's wider ecosystem of devices is important to users' choice of mobile device. The CMA's Mobile ecosystems market study found that this barrier is likely to affect significant numbers of users.[476] The CMA noted the high proportion of iOS users owning multiple Apple devices and the potential replacement cost of multiple devices.[477] Notably, this issue arises particularly in contexts where consumers 'single-home' (use a single supplier for a type of service) rather than 'multi-home' (use more than one supplier of the same type of service) using digital platform services.

Factors inhibiting optimal consumer decision-making

It is commonly observed that consumers tend to stick with the offered default option.[478] This may reflect a consumer's brand loyalty, search costs, the 'learning costs' involved with using new services, or a behavioural bias.[479] Status quo biases, default biases, or the 'free effect' (where consumers favour zero-priced products even if much better quality alternatives are available at low prices) are examples of behavioural biases that may impact consumer decision-making.[480] As a result, where interconnections are made through defaults or pre-installation, consumers may not end up with the product that best suits their needs.

Moreover, digital platform service providers can use their control or influence within their ecosystems to limit switching.[481] Examples of this could include a lack of transparency that inhibits consumers from comparing different products or services, the use of choice architecture that makes it difficult for consumers to switch, or restrictions that prevent consumers from accessing alternative providers.[482] An implication is that consumers may continue to use a product even where an alternative would better suit their needs. For example, there are limited options provided to consumers by cloud storage service providers to directly transfer files to another service provider. This may increase switching costs, as they may be required to either use third-party cloud transfer services or manually download

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473 A Fletcher, Digital Competition Policy: Are ecosystems different?, Hearing on Competition Economics of Digital Ecosystems, OECD, 3 December 2020, p 6.

474 CMA, Mobile Ecosystems study – Final report, Appendix D: Barriers to switching between mobile operating systems [PDF 282KB], 10 June 2022, p 17.

475 CMA, Mobile Ecosystems study – Final report, Appendix D: Barriers to switching between mobile operating systems [PDF 282KB], 10 June 2022, p D21.

476 CMA, Mobile Ecosystems study – Final report, Appendix D: Barriers to switching between mobile operating systems [PDF 282KB], 10 June 2022, p D21.

477 CMA, Mobile Ecosystems study – Final report, Appendix D: Barriers to switching between mobile operating systems [PDF 282KB], 10 June 2022, p D21.

478 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 35.

479 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 35.

480 OECD, Data Portability, Interoperability and Digital Platform Competition, OECD Competition Committee Discussion Paper, 2021 p 24.

481 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 35.

482 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 35.

data from one provider and upload it to another.[483] The issue of consumer lock-in is discussed in greater detail in section 7.3 below.

Relatedly, in the digital environment, there are concerns that detailed individual profiles could potentially be used to facilitate so-called 'hypernudging'. Hypernudging uses a system of dynamically personalised data-driven nudges to shape user preferences and purchasing decisions.[484] Through hypernudging, the designer of the online choice environment aims to target the right user, with the right message, by the right means, at the right time, as many times as needed to influence their behaviour in a predictable manner.[485] For example, where a voice assistant assists a consumer with purchasing products, it could be used for self-preferencing. However, it has been argued that 'hypernudging' could enable more subtle means of suggestion to be used in conjunction with recommendations that steer consumers to a particular decision. For example, framing the product in a manner which meets consumer requirements, adjusting recommendations according to the consumer's mood, or, in time, recognising an appropriate moment to steer a consumer towards recurring purchase decisions.[486]

Lower transaction and learning costs may inhibit discovery of alternatives

Interconnections such as convenient access, or defaults and pre-installation may reduce transaction and learning costs for consumers. However, as described above in the discussion of *quality*, this could also reduce the likelihood of consumers investing time to discover and choose preferable alternative products and services, due to higher learning or transactions costs.

Trust in the digital platform brand and openness to new products

Trust in the brand of a digital platform service provider could reduce barriers to users taking up innovative new products or services offered within an ecosystem. With interconnected products offered under the same 'umbrella brand', consumers may make inferences from the characteristics observed in one product to the characteristics of others.[487] That is, consumers who have trust in a brand may adopt innovative products to a greater extent because they are offered within their ecosystem of choice as opposed to being offered by another competitor which is not trusted.

5.2.4. Impacts relevant to innovation and competition

Consumer access to innovative interconnected products

Digital platform service providers argue that they are significant drivers of innovation. For example, in its submission, Google notes that its parent Alphabet, and other technology

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483 Australian Communications Consumer Action Network, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 273KB], May 2023, p 5.

484 V Morozovaite, Hypernudging in the changing European regulatory landscape for digital markets, *Policy & Internet*, 15:1 (2023), pp 78-99.

485 V Morozovaite, Hypernudging in the changing European regulatory landscape for digital markets, *Policy & Internet*, 15:1 (2023), pp 78-99.

486 V Morozovaite, Hypernudging in the changing European regulatory landscape for digital markets, *Policy & Internet*, 15:1 (2023), pp 78-99.

487 H Hakenes and M Peitz, Umbrella branding and the provision of quality, *International Journal of Industrial Organization*, 26:2 (2008), pp 546-556.

companies, have been ranked by Boston Consulting Group as some of the most innovative companies in the world.[488]

High levels of investment can enable digital platforms to create new and innovative products and services that interconnect with their ecosystem to the benefit of consumers. For example, R&D by Google has played an important role in enabling it to develop a range of generative AI services which are interconnected with its ecosystem of services (such as the incorporation of Bard into Google Search).[489]

The strategic drive to acquire new data on consumers to improve the services offered to advertisers could drive digital platform service providers, particularly those with a core advertising-based platform service, to innovate and develop new products and services in related markets.[490]

Google's submission argues that digital platform ecosystems also encourage innovation from other sectors, such as advancements in streaming, connectivity and operating system technologies leading to smart TVs from Sony, LG, Samsung and others.[491]

Inhibiting consumer access to disruptive rivals

At the same time, when expanding and innovating, a digital platform service provider may inhibit consumer access to the innovative products of rivals by inhibiting interconnections outside of their ecosystems. Digital platform service providers have strong incentives to stimulate complementary innovation but also to prevent complements from developing into substitutes for the platforms' core services.[492] Digital platform service providers may have the ability and incentive to inhibit innovation to protect their core markets from being disrupted, for example, through limiting interoperability with rivals or potential rivals.[493] This issue is explored in detail section 6.1.2 below.

Interconnections increasing barriers to entry and expansion

Interconnections across a digital platform ecosystem can bring a range of benefits for consumers but may also contribute to increasing barriers to entry and expansion, which may diminish the level of competition or innovation that consumers benefit from in a market. While some impacts to competition are briefly introduced here, relevant issues are discussed in detail in chapter 6.

As described in section 5.2.2 above, economies of scope can bring efficiencies for digital platform service providers, which could be used to offer lower prices to consumers. Where these economies of scope are significant, the competitive constraint imposed by providers of standalone services may be limited. That is, smaller and potential rivals may have to provide a similar range of services as the incumbent to be able to take advantage of economies of scope and offer comparable prices to consumers, which raises barriers to entry and expansion.[494]

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488 Google, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 325KB], 16 May 2023, p 3.

489 Google, Bard for Search Engines, accessed 14 September 2023.

490 M Bourreau and A de Streel, Digital Conglomerates and EU Competition Policy [PDF 628KB], March 2019, p 11.

491 Google, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 325KB], 16 May 2023, p 3.

492 A Gawer, Theories of Harm for Digital Mergers: Digital Platforms & Ecosystems' Competition & Innovation, Presentation for OECD, 140th Meeting of the Competition Committee, Roundtable on Theories of Harm for Digital Mergers, 16 June 2023, accessed 14 September 2023, slide 8.

493 A Ezrachi and M Stucke, The Darker Sides of Digital Platform Innovation, *Network Law Review*, 18 August 2022, accessed 14 September 2023.

494 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, pp 33-35.

Similarly, section 5.2.2 above noted the potential for interconnections to lead to innovative pricing structures. However, an implication of these pricing structures could be that competitors may need to offer a competing bundle to compete effectively. This could be challenging if a product/service in the bundle has high barriers to entry. This issue is explored in detail in section 6.1.1.

Digital platform service providers may similarly be able to limit the competition they face by interconnecting first-party services in a manner which gives their own service preferential treatment over competing third parties. Self-preferencing is considered in further detailed in section 6.1.2.

While data may be used to improve quality of service, as described in section 5.2.1 above, another implication of this interconnection is that competitors who do not have access to the same volume or scope of consumer data may find themselves at a competitive disadvantage relative to the digital platform ecosystem. For example, data on consumer behaviour allows Amazon to predict the demand for new products on its marketplace in a way that potential competitors may find hard to match.[495] As a platform, Amazon could potentially have an incentive to share this data with sellers on the platform to increase the activity taking place on its platform or it may prefer to solely use this data itself. This issue is explored in detail in section 6.2.

As described above in section 5.2.1, digital platform service providers may be able to make use of network effects when launching interconnected services. However, as with digital platform services more generally, these network effects could become self-reinforcing. A platform with a larger user base may be more attractive to new users, which in turn will attract more users, and so on.[496] This is particularly the case for matching platforms and software platforms where positive cross-side network effects are present on both sides of the market. The presence of strong network effects, in particular when coupled with single-homing and high costs of switching, can raise barriers to entry and expansion.[497]

Concluding comments on interconnections

Interconnections between a digital platform service providers products and services can bring a range of benefits for consumers. These benefits can include enabling consumers to enjoy a seamless experience across products and services or providing greater personalisation. However, an increasingly interconnected web of products and services can increase switching costs for consumers. Interconnections can simultaneously enable digital platform service providers to protect their core offerings and facilitate expansion into new areas.

While interconnections throughout a digital platform ecosystem can bring many immediate benefits to consumers, this could also come with potential negative implications in the longer term. This is owing to increasing barriers to entry and expansion for rivals and the potential for 'locked-in' consumers to be subject to more onerous terms or prices. While many of the immediate benefits may be clear to consumers, longer term potential negative impacts on competition or innovation may be more challenging to grasp and harder for regulators to quantify. Risks of competitive and consumer harm from expanding ecosystems are considered in detail in chapter 6 and chapter 7, respectively.

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495 OECD, The Evolving Concept of Market Power in the Digital Economy, OECD Competition Policy Roundtable Background Note, 2022, p 19.

496 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 33.

497 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 33.

6. Risks to competition from expanding digital platform ecosystems

This chapter outlines the ACCC's views on the types of potential competitive harm that may be at a heightened risk of arising from digital platform service providers' expanding ecosystems. Competitive harm may arise where firms behave in a way to either protect or extend their market power by engaging in anti-competitive conduct.[498] Australian law does not prohibit a firm from possessing a substantial degree of market power or from 'outcompeting' its rivals by using superior skills and efficiency to win customers. However, it is contrary to the *Competition and Consumer Act 2010* for a firm with substantial market power to damage the competitive process by preventing or deterring rivals, or potential rivals, from competing on their merits.[499]

As discussed in chapter 3, digital platform service providers operate distinct business models, and their incentives are firmly driven by how they generate and capture value. These different business models can lead firms to offer a broad range of high-quality and innovative products. However, where a platform has market power, there is also the potential for anti-competitive conduct. This conduct can increase barriers to entry and expansion in core or related markets, impact rivals' ability to effectively compete, or deter new entry or expansion.

This chapter does not present competition findings but instead identifies 2 broad categories of conduct that may pose a greater risk of harming competition:

- As digital platforms extend their reach into related markets, there is greater opportunity to leverage positions of market power into these markets or to enhance a position in a core market. The ACCC has previously considered different types of conduct that digital platform service providers can engage in that may damage the competitive process.[500] These types of conduct include bundling and tying, self-preferencing strategies (such as steering, pre-installation arrangements and default settings), and limiting interoperability.[501] These can harm competition by raising rivals' costs. For example, by reducing rivals' ability to achieve economies of scale, increasing the risk involved in entry by foreclosing the opportunity to enter incrementally, or increasing input costs. Self-preferencing can also be harmful where it forecloses or limits rivals' low-cost means of accessing the market or reduces rivals' revenues. Each of these strategies are considered in the context of digital platform service providers' expanding ecosystems in section 6.1.
- The ACCC also considers that digital platform service providers with business models that are particularly data-driven, including advertising-based content platforms or software platforms, may have an increased ability and incentive from their expanding ecosystems to engage in exclusionary data practices. The ACCC has previously considered a lack of access to relevant data as a substantial barrier to entry and

498 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 36.

499 ACCC, Guidelines on misuse of market power, 31 August 2018, p 3.

500 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, pp 40-44.

501 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, pp 124-131,132-137, 139-144, 156-159.

expansion in some digital platform services, including search and ad tech.[502] Exclusionary data practices in the context of digital platform service providers' expanding ecosystems is considered at section 6.2.

This chapter also considers the role of strategic mergers and acquisitions by these large digital platform service providers and how it may raise competition concerns in section 6.3.

This chapter includes examples of consumer cloud storage and smart home devices to illustrate how specific practices used in an expanding ecosystem may increase barriers to entry and expansion in core and related markets, which may impact rivals' ability to effectively compete.

6.1. Leveraging positions of market power

This section considers how there may be a greater risk of digital platforms engaging in anti-competitive leveraging strategies as they expand their ecosystems. As noted above at section 3.1.2, a digital platform service provider's incentives to engage in such conduct may depend on the type of platform it has as its core service and the various business models it uses.

This section considers:

- bunding and tying (section 6.1.1)
- self-preferencing (section 6.1.2), including steering practices, pre-installation arrangements and default settings, and limiting interoperability.

In some circumstances, digital platform service providers may have the ability and incentive to leverage their market power from one market into another. This can harm competition where it prevents or inhibits rivals from competing effectively.[503]

This behaviour can damage competition in downstream or related markets. For example, by preventing competing firms from providing innovative services or increasing rivals' business costs. Such costs could be raised by hampering rivals' ability to effectively market to or otherwise reach buyers. A digital platform may also hinder interoperability with its platform or otherwise increase the costs to consumers switching between platforms or multi-homing across platforms.[504] These strategies, and others, can make it more difficult for rivals to achieve the economies of scale necessary to effectively compete.

In the extreme, this may substantially reduce the incentives of potential competitors to challenge the digital platform service provider in the first place and, thus, create 'kill zones' around the digital platform service provider's offerings.[505] In addition to leveraging such positions, as digital platform service providers expand into new markets, there are further opportunities to promote first-party services over rival services. This may enhance a position in a core market or harm competition in downstream or related markets.

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502 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 165.

503 See, for example, ACCC, Digital Advertising Services Inquiry Final Report, 28 September 2021, p 15; ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 41.

504 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, pp 42, 151.

505 F Scott Morton et al, Market Structure and Antitrust Subcommittee Report, Committee for the Study of Digital Platforms [PDF 1,078KB], Stigler Center for the Study of the Economy and the State, 15 May 2019, accessed 14 September 2023, pp 53-54. See also M Motta and S Shelegia, 'The "kill zone": copying, acquisition and start-ups' direction of innovation', CEPR Discussion Paper 16151, 13 May 2021, accessed 14 September 2023.

6.1.1. Bundling and tying

The expansion of digital platform service providers into related markets may increase the risk of platforms engaging in bundling and tying that may have anti-competitive effects, including hindering actual or potential rivals' ability to effectively compete.

Bundling occurs when a supplier only offers 2 or more products as a package or offers a lower price if the products are purchased together.[506] Digital platform service providers may also engage in 'virtual bundling' where offerings may be supplied as part of a single subscription.[507] Tying occurs when a supplier sells (or offers a discount on) one good or service on the condition that the purchaser buys another good or service from the supplier.[508] Bundling and tying can also occur in a technical sense. For example, where a product or service combines several features or components.[509]

Bundling and tying practices may have anti-competitive effects where a firm has substantial market power in one market and, by way of the bundle or tie, raises the costs or reduces the revenues of rivals, rendering them less competitively effective. Through these means, the firm extends or leverages its market power. For example, bundling and tying can be used by a monopolist in a primary market to prevent future entry or further expansion by a rival into the primary or other market, as well as to leverage their monopoly power from the primary market to a newly emerging market.[510] Such an extension of market power can take place by:

- limiting rivals' access to users, including by increasing barriers to switching or locking consumers into a particular set of products[511]
- reducing the ability of rivals to access enough consumers to gain sufficient scale to compete in that market profitably or effectively[512]
- requiring a rival to successfully enter multiple product markets to be able to offer a comparable bundle to that of the incumbent.[513]

Bundling and tying are common commercial arrangements in many markets, and they do not typically harm competition. As discussed in section 5.2, there may be benefits for consumers from the integration of different products and services, for example where it enables products to seamlessly interact. The risk of an anti-competitive outcome may be reduced if a firm offers consumers the option to purchase bundled products separately. Since technical tying is more difficult to undo, the European Commission's Guidelines on exclusionary abuses notes that the risk of anti-competitive foreclosure is greater from

506 ACCC, Guidelines on misuse of market power, August 2018, p 14.

507 See, for example, Apple's "Apple One" bundle which offers up to 6 Apple subscriptions for one price –Apple, Apple One, accessed 14 September 2023.

508 ACCC, Guidelines on misuse of market power, August 2018, p 14.

509 I Colomo, Product design and business models in EU antitrust law, available at SSRN, September 2021, pp 5, 8.

510 D Carlton and M Waldman, The strategic use of tying to preserve and create market power in evolving industries, *RAND Journal of Economics*, 33:2 (2002), p 194.

511 OECD, Abuse of Dominance in Digital Markets, 2020, p 45.

512 P Akman, The theory of abuse in Google Search: a positive and normative assessment under EU competition law, *Journal of Law, Technology and Policy* 2 (2017) pp 352-353.

513 D Carlton and M Waldman, The strategic use of tying to preserve and create market power in evolving industries, *RAND Journal of Economics*, 33:2 (2002), p 196. See also JP Choi and C Stefanadis, Tying, Investment, and the Dynamic Leverage Theory, *RAND Journal of Economics,* 32:1 (2001).

technical tying.[514] Technical tying may also be more concerning as it signals a stronger commitment than other forms of tying.[515]

In the context of expansion by digital platform service providers, conduct linking products or services may differ in the degree it interferes with customer choice, from nudging to technical tying or bundling.[516] For example, a firm may strongly encourage, but not require, the use of one product or service to access another. In this case, the availability of technical alternatives to accessing the product (even if they are inferior) is likely to mean that digital platform conduct falls short of exclusionary tying. While this conduct imposes incremental costs on customers that choose to use rivals' products, rivals may still be able to overcome such a competitive disadvantage. This is discussed further below under section 6.1.2 (under 'Pre-installation arrangements and default settings').

Whether bundling or tying raises competition concerns is likely to depend on multiple factors including:

- the market power of the firm engaging in the tying or bundling conduct
- whether the conduct involves products or services that are complements or substitutes and whether there are multi-sided markets involved
- whether users of the tied or bundled products or services are the same or different
- whether the conduct limits the ability of consumers to multi-home (whether technically or in practice)[517]
- the impact of market characteristics such as economies of scale and scope, and network effects, on the benefits from the conduct, as compared to the potential for the conduct to result in competitive harm.[518]

Internationally, there have been several investigations into anti-competitive tying and bundling by digital platforms. In 2018, the European Commission fined Google €4.34bn[519] (reduced to €4.125bn on appeal in 2022)[520] for a range of conduct including bundling its search and browser apps with the Android operating system, on the grounds this conduct was stifling competition for general search services. In an ongoing investigation, the European Commission has reached a preliminary view that Meta has engaged in anti-competitive behaviour by tying its online classified advertising service, Marketplace, with its dominant social network, Facebook.[521] More recently in July 2023, the European Commission opened an investigation into possible anti-competitive practices by Microsoft tying or bundling Teams to Office 365 and Microsoft 365.[522] In August, apparently in response to this scrutiny, Microsoft unbundled Teams from Office 365.[523] The UK Financial

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514 European Commission, Communication - Guidance on the Commission's enforcement priorities in applying Article 82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings, OJ C45, p 15.

515 I Colomo, Product design and business models in EU antitrust law, available at SSRN, September 2021, p 16.

516 D Mandrescu, Tying and bundling by online platforms – distinguishing between lawful expansion strategies and anti-competitive practices, *Computer Law and Security Review*, 40 (2021), pp 9-10.

517 M Bourreau and A de Streel, Digital Conglomerates and EU Competition Policy [PDF 628KB], March 2019, p 20.

518 OECD, Abuse of Dominance in Digital Markets, 2020, pp 45-46.

519 European Commission, Antitrust: Commission fines Google 4.34 billion for illegal practices regarding Android mobile devices to strengthen dominance of Google's search engine, Press release, 18 July 2018, accessed 14 September 2023.

520 Court of Justice of the European Union, Judgment of the General Court in Case T-604/18, Google and Alphabet v Commission (Google Android) [PDF 160KB], Press release no 147/22, 14 September 2022, accessed 14 September 2023.

521 European Commission, Antitrust: Commission sends Statement of Objections to Meta over abusive practices benefiting Facebook Marketplace, Press release, 19 December 2022, accessed 14 September 2023.

522 European Commission, Antitrust: Commission opens investigation into possible anticompetitive practices by Microsoft regarding Teams, Press release, 27 July 2023, accessed 14 September 2023.

523 Francesca McClimont, Microsoft unbundles Teams from Office amid EU scrutiny, *Global Competition Review,* 31 August 2023, accessed 14 September 2023.

Conduct Authority has also identified bundling and tying as a potential competition risk associated with digital platform entry into financial services.[524]

As digital platform service providers expand into new markets, there may be further opportunities for them to utilise a bundling or tying strategy to enhance existing positions of market power or leverage these positions into other markets. Examples of bundling and tying strategies in the context of consumer cloud storage services and smart home devices are provided in box 6.1 and box 6.2 below.

Box 6.1 Digital platforms service providers' use of bundling in relation to consumer cloud storage services

Consumer cloud storage services offered by Apple, Google, and Microsoft are offered using a range of bundling strategies.

Technical (technology) bundling

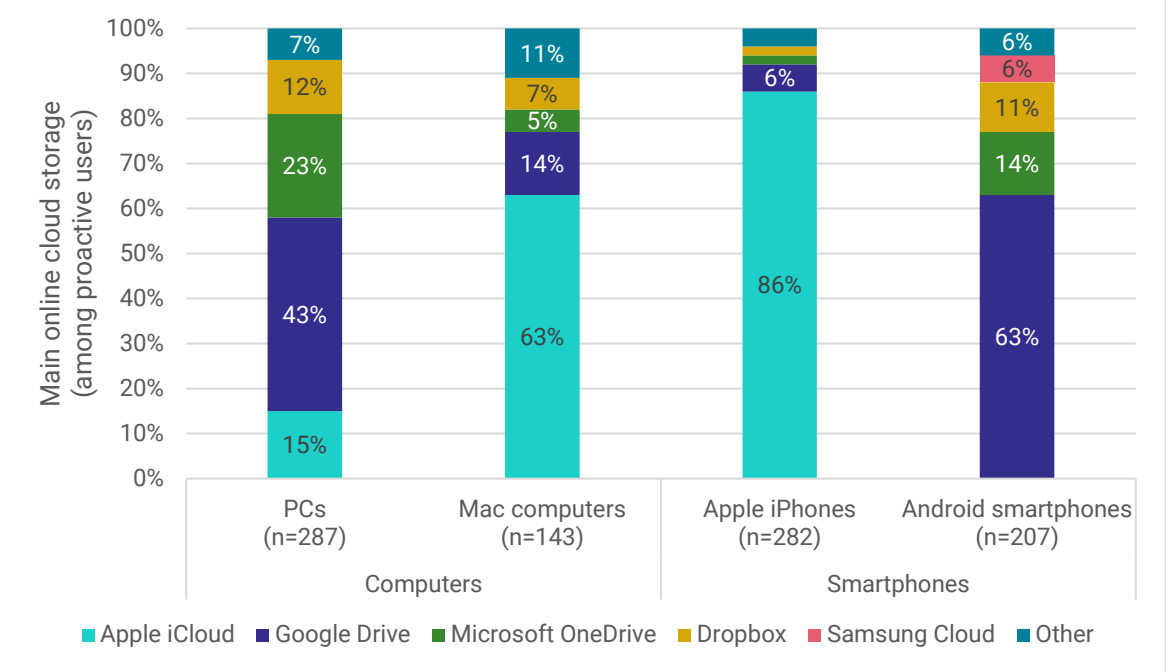
Firstly, consumer cloud storage services are closely interconnected to other hardware and software offerings of digital platform service providers. Various devices including iPhones, Android phones, and Windows laptops integrate consumer cloud storage functionality from iCloud, Google Drive, and OneDrive respectively. Apple, Google, and Microsoft have broader hardware and software offerings that they can bundle with their free and paid consumer cloud storage services. Smaller providers that lack this broader hardware and software ecosystem and/or market power in related markets can attempt to replicate this through arrangements with third-party providers. However, these providers are unable to directly leverage an existing user base in phones or operating systems and are therefore generally disadvantaged.

Data from Telsyte in figure 6.1 below indicates that, for many consumers, their main consumer cloud storage service is also provided by the provider of the underlying operating system used by their device. 63% of Mac users and 86% of iPhone users identify iCloud as their main consumer cloud storage service.[525] Similarly, a majority of Android phone users (63%) report using Google Drive as their main service. However, for Windows PC users, OneDrive was not the major consumer cloud storage service, with 43% of users identifying Google Drive as their main service.

[524] UK Financial Conduct Authority, The potential competition impacts of big tech entry and expansion in retail financial services: Discussion Paper, October 2022, p 15.

[525] Similarly, the UK Competition and Markets Authority similarly found in 2016 that consumers appear to be device-led in their choice of cloud storage provider, with 72% of consumers making reference to their choice in cloud storage provider being some kind of device-led choice. See CMA, Cloud storage: consumer compliance review findings report, 27 May 2016, p 23.

Figure 6.1: Main consumer cloud storage service by device type[526]



Zero-cost bundled products and free-trials

Secondly, consumers may be introduced to consumer cloud storage services through a 'free' offering integrated on their device. These free products provide a base level of functionality often with a storage cap (see section 4.1.2). Consumers generate content on their device (e.g., photos, documents) which may be stored to the free included consumer cloud storage. As consumers continue to use their devices, they may reach the storage limit for their free bundled consumer cloud storage service. Consumers may then be prompted to pay to upgrade their storage quota. This 'encouragement' may be marketing a convenient feature to consumers, including frequent pop-up alerts. However, as further discussed in section 6.1.2, in some cases there is a risk of self-preferential prompting, deceptive design, or biases related to default settings. There are also potential lock-in effects, as consumers have stored data through their bundled device. This may be exacerbated by the lack of multi-homing behaviour by consumer cloud storage service users, as noted in box 5.2.

Further, large digital platform services may encourage bundling by offering free-trials or promotional bundling activity integrated with a device. For example, Google currently offers new Chromebook owners 12 months of Google One paid storage.[527] Windows laptops from third-party manufactures also sometimes bundle a 12-month Microsoft 365 Personal subscription at no additional cost, which includes 1TB of paid OneDrive storage.[528] Similar to offering a free base product, these promotions encourage consumers to develop device usage behaviours which may capitalise on status-quo bias and contribute to long-term lock-in effects. These effects may exist because of the effort involved for consumers to move their content between services or to other storage formats.

Commercial bundling of popular products

Thirdly, platforms may use commercial bundling strategies to capitalise on the user base of a more popular product. Popular products have achieved a large user base and/or market share, often over a significant period of time. Popular products can include platforms' core services (such as Apple's iPhone bundle of products and services or

Microsoft's Windows, as discussed in section 3.1.1) and other products and services that they offer which are popular with users (such as Google's Gmail or Apple's Photos app). Microsoft uses bundling strategies across its personal and family, business, enterprise, and education Microsoft 365 offerings. Microsoft's popular desktop Office suite is now primarily offered as Microsoft 365, which includes 1TB of bundled OneDrive storage. Similarly, Apple, Google, and Microsoft each pool an account's cloud storage quota between several services, including cloud drives, email, and photos.[529]

Smaller competitors have attempted to take similar strategies of building an ecosystem of popular products to minimal success. Lacking the key popular products that large digital platforms have can greatly diminish the capacity of smaller consumer cloud storage service providers to compete with Apple, Google, and Microsoft for customers. For example, Dropbox's CEO Drew Houston has publicly noted Dropbox's attempts to develop a suite of consumer products (including through acquisition of Mailbox in 2013 and Carousel in 2014) were unsuccessful and these apps were shut down in 2015.[530]

There may be cost savings for consumers through including consumer cloud storage in a bundle. However, the consequence of the bundling of popular products may be that consumers use these services even where there are more innovative or higher quality alternatives. This may also be exacerbated by coordination issues, where a consumer would prefer to share a bundled consumer cloud storage service with their family to share files or photo libraries, but where switching services may require all members of the family to switch as well. Over time, lock-in effects associated with the cost and inconvenience of moving considerable amounts of data may further deter consumers moving to competitor alternatives.

526 Telsyte Australian Consumer Cloud Insights 2023; base: those who proactively used online cloud storage/backup on the devices. Telsyte defines proactive users as 'users that are actively aware and using cloud storage/back up services to store their digital assets'.

527 Google, Chromebooks come with Perks – Google Chromebook, accessed 14 September 2023.

528 G Phillips, '6 Ways You Can Get a Microsoft Office License for Free', *Make Use Of*, 29 April 2022, accessed 14 September 2023.

529 Microsoft maintains separate free storage quotas for its free OneDrive and Outlook.com products, however as of 1 February 2023 attachments in Outlook.com count towards OneDrive's free 5GB storage: Microsoft, Changes to Microsoft 365 email features and storage, *Microsoft Support* accessed 14 September 2023.

530 NPR, Dropbox: Drew Houston, 9 November 2020, accessed 14 September 2023; Dropbox, Saying goodbye to Carousel and Mailbox, 7 December 2015, accessed 14 September 2023.

Box 6.2 Digital platform service providers' use of bundling in relation to smart home devices

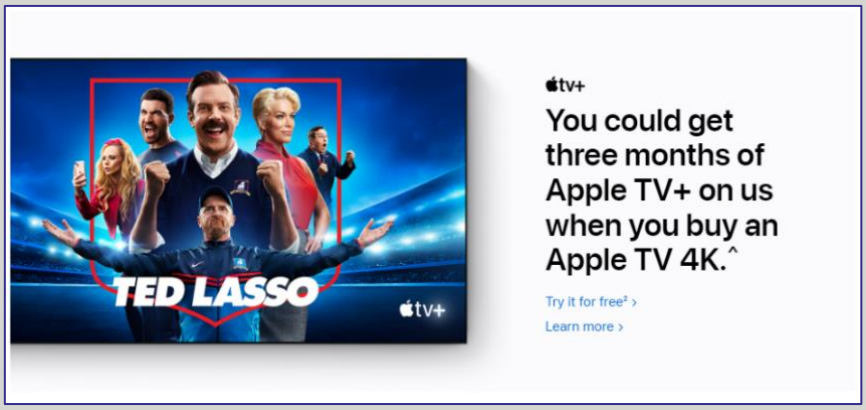
Some digital platform service providers offer smart home devices and first-party services as a bundle, which could have implications for rivals' ability to offer comparable competitive offerings.

For example, in March 2023, Amazon offered its Echo Dot smart speaker for AUD19 when bundled with any new subscription to the Amazon Prime membership.[531] Amazon appears to offer such deals on a periodic basis (for example, Echo Dot speakers were offered for AUD10 to new Prime subscribers in 2021).[532]

Where a smart home device manufacturer with an expansive ecosystem has the ability to offer bundles with several related products and services, this may raise barriers to entry and expansion for standalone smart home device manufacturers which cannot offer equivalent bundles, particularly where those products and services are often consumed together. This kind of bundle may also increase Amazon's Prime userbase, making its marketplace more attractive to vendors (via cross-side network effects) and providing Amazon with increased revenues both from Prime membership fees and increased sales on its marketplace. This may strengthen Amazon's position in online retail marketplace services compared to standalone marketplace operators.

Similarly, Apple currently offers a free three-month trial of its streaming service Apple TV+ for consumers that purchase an Apple TV 4K device (figure 6.2 below).[533] This may have the effect of raising barriers to entry and expansion for standalone streaming service providers than cannot subsidise free trials from hardware sales revenues. In addition, Apple TV 4K device users that commence using the device with an Apple TV+ subscription may be more likely to stay subscribed due to cognitive biases such as consumer inertia and loss aversion.[534] This may in turn raise barriers to entry and expansion for rival streaming service providers.

Figure 6.2: Advertisement for Apple TV+ streaming service bundled with Apple TV 4K smart TV device as of August 2023.



[531] I Noyes, 'Here's how you can nab an Echo Dot for just $19', *Gizmodo*, 2 March 2023, accessed 14 September 2023.

[532] Amazon, Get an Echo Dot (3rd Gen) for $10 when you join Prime, accessed via Wayback Machine 14 September 2023.

[533] This offer is available for new and qualified returning subscribers. Apple, Apple TV 4K, accessed 14 September 2023.

[534] C Sunstein, Deciding by Default, *University of Pennsylvania Law Review*, 162:1 (2023), pp 17-23.

The ACCC considers that as digital platform services providers continue to extend their reach into related markets, the risk of anti-competitive bunding and tying may increase. The ACCC continues to support mandatory service-specific codes of conduct with targeted measures to address anti-competitive tying and bundling by designated digital platforms with the ability and incentive to engage in anti-competitive conduct, as recommended in the ACCC's Regulatory Reform Report.[535]

6.1.2. Self-preferencing strategies

The expansion of digital platform service providers may also increase the risk of such providers engaging in self-preferencing, with anti-competitive consequences which could impact actual and potential rivals' ability to effectively compete. Self-preferencing occurs when a platform gives preferential treatment to its own products and services when they are in competition with products and services provided by third parties.[536]

Self-preferencing raises competition concerns when it raises rivals' costs or reduces rivals' revenues and so reduces their ability to compete. This is particularly the case where digital platform service providers hold a 'gatekeeper' position between users and businesses in an online environment (see section 3.1.2) and benefit from market power. This occurs when a platform can control third-party access to consumers, or users' access to the products and services of third parties. The ACCC acknowledges that that not all forms of self-preferencing by digital platforms are problematic, and some may be benign or even pro-competitive.[537]

On several occasions, the ACCC has considered various means of potentially harmful self-preferencing by digital platforms.[538] For example, the ability for a general online retail marketplace provider to preference its own products and services over those of third-party sellers in relation to discoverability on its platform; or the ability of an app store provider to hold third-party apps to standards that are not applied to first-party apps, or provide first-party apps with greater discoverability.[539]

There are several ways in which digital platform service providers can self-preference first-party products and services. This section considers strategies **including steering, pre-installation and default settings** and **limits on interoperability**.

Self-preferencing strategies and incentives may differ depending on the business model of the digital platform service provider. For example, as noted above in section 3.1.2, vertically-integrated providers of matching platforms (particularly online retail marketplaces) may have the incentive and opportunity to preference first-party products over competitors' products (unlike an online retail marketplace that is not vertically integrated and therefore does not supply products on its platform). The ability for a digital platform service provider to profitably self-preference will depend on its ability to steer users towards first-party products or services without losing consumers or suppliers. Where a firm may have more market power (and third parties have fewer options for reaching consumers), the firm may have a greater ability and incentive to self-preference its own products or services.

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535 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 132.

536 ACCC, Digital Platform Services Inquiry Sixth Interim Report, 28 April 2023, p 21.

537 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 125.

538 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 124.

539 The ACCC has also previously noted that there are greater discovery opportunities for Apple Arcade gaming apps. See ACCC, Digital Platform Services Inquiry Second Interim Report, 28 April 2021, p 100.

Incentives to self-preference may also be driven by the extent to which third parties provide a service that is complementary or a potential substitute for a platform's core service.[540]

A complement can drive users to the platform without cannibalising or threatening the digital platform's own products or services. It may also stimulate sales of the platform's own products and services. In contrast, a third-party substitute (or potential substitute) may threaten the digital platform service provider's revenues and therefore it may be at greater risk of being subject to self-preferencing behaviour by the platform.

In the case of operating systems, the ability for operating system providers to self-preference in favour of their own software and apps may extend across many industries that rely on software and apps to reach consumers.[541] For example, the Italian Competition Authority (Autorità Garante della Concorrenza, AGCM) fined Google for abusing its dominant position with regard to app stores when it refused to allow an electric vehicle charging application to interoperate with Android Auto (in favour of its Google Maps service)[542] [543] In this case, Google's expansion into services for electric vehicles raised competition concerns regarding the downstream supply of apps relating to the charging and use of electric vehicles.

The ACCC has observed self-preferencing that can harm competition in relation to search services, app store services, and ad tech services.[544] The ACCC has previously noted Google's expansion from general search into specialised search services, such as Google Flights. In particular, that Google may be able to use its substantial market power in search to restrict the amount of referral traffic that a competitor specialised search service receives, or to redirect traffic to its own competing services.[545] This has potential impacts for specialised search services across a range of sectors in the economy, especially those in which Google has already expanded into, such as shopping and travel.

The prioritisation of first-party apps over third-party apps in the app stores of digital platform service providers may also be used as a self-preferencing strategy. For example, Spotify filed a complaint with the European Commission, accusing Apple of imposing unfair conditions that put Spotify at a disadvantage compared to Apple's own music streaming service, Apple Music. The European Commission expressed its preliminary view that Apple distorted competition in the music streaming market as it abused its dominant position for the distribution of music streaming apps through its App Store.[546]

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540 A Gawer, Theories of Harm for Digital Mergers: Digital Platforms & Ecosystems' Competition & Innovation, Presentation for OECD, 140th Meeting of the Competition Committee, Roundtable on Theories of Harm for Digital Mergers, 16 June 2023, accessed 14 September 2023, slide 8.

541 For more information about the range of concerns raised by developers in relation to Google and Apple's app stores, see ACCC, Digital Platform Services Inquiry Second Interim Report, 28 April 2021, p 6.

542 The Google Maps app runs on Android Auto and enables functional services for electric vehicle charging. At the time of the AGCM's action it was limited to finding and getting directions to reach charging points, but which the AGCM noted in the future could include other functionalities such as reservation and payment. At the time of the AGCM's action the electric vehicle charging application (JuicePass) enabled a wide range of services for recharging electric vehicles, ranging from finding a charging station to managing the charging session and reserving a place at the station.

543 AGCM, A529 - ICA: Google fined over 100 million for abuse of dominant position, Press release, 13 May 2021, accessed 14 September 2023. See also OECD, Environmental Considerations in Competition Enforcement - Note By Italy [PDF 382KB], 2021, p 8.

544 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, pp 127-131.

545 ACCC, Digital Platforms Inquiry Final Report, 26 July 2019, p 529. Additionally, in 2017, the European Commission found that Google effectively leveraged its market power in general search services into the market for comparison shopping services, providing itself with an unfair competitive advantage; European Commission, Antitrust: Commission fines Google €2.42 billion for abusing dominance as search engine by giving illegal advantage to own comparison shopping service - Factsheet, Press release, 27 June 2017, accessed 14 September 2023.

546 European Commission, Antitrust: Commission sends Statement of Objections to Apple clarifying concerns over App Store rules for music streaming providers, Press release, 28 February 2023.

In Europe, there have been several investigations focussed on self-preferencing following the European Commission's decision in 2017, which imposed a fine of €2.42bn on Google for favouring its comparison shopping service in search results.[547] One notable investigation is the European Commission's antitrust proceeding against Amazon, initiated in November 2020, regarding self-preferencing in the assignment of its 'Buy Box' (a box positioned at a highly visible place on Amazon's product search results page). The European Commission expressed concerns that Amazon may prioritise its own products or sellers using its 'Fulfilment by Amazon' service.[548] Likewise, after investigating Amazon's alleged self-preferencing of its ecommerce logistics services, the AGCM imposed a €1.13bn fine on Amazon on the basis that its algorithm for selecting featured offers that appear in the 'Buy Box' discriminates against merchants not using Amazon's Fulfilment by Amazon.[549] The Netherlands' competition and consumer protection authority (Autoriteit Consument & Markt (ACM)) also indicated in its market study on mobile app stores that Apple and Google might favour their own apps over apps from competing app providers.[550]

Boxes 6.3 and 6.4 below provide examples of how the expansion practices may have created new opportunities and increased incentives for self-preferencing behaviours in the context of smart home devices.

The ACCC considers that as digital platform service providers continue to extend their reach into related markets, the potential for anti-competitive self-preferencing may increase. The ACCC continues to support mandatory service-specific codes of conduct with targeted measures to address anti-competitive self-preferencing by designated digital platforms with the ability and incentive to engage in anti-competitive conduct, as recommended in the Regulatory Reform Report.[551]

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547 M Hunt, S Burak Darbaz and R Scherf, 'Self-Preferencing in Digital Markets', *GCR*, 25 November 2022, accessed 14 September 2023.

548 European Commission, Antitrust: Commission sends Statement of Objections to Amazon for the use of non-public independent seller data and opens second investigation into its e-commerce business practices, Press release, 10 November 2020, accessed 14 September 2023. Since providing this Statement of Objections, the European Commission has accepted commitments from Amazon in this case: see Antitrust: Commission accepts commitments by Amazon barring it from using marketplace seller data, and ensuring equal access to Buy Box and Prime, Press release, 20 December 2022, accessed 14 September 2023.

549 Italian Competition Authority, Italian Competition Authority: Amazon fined over € 1,128 billion for abusing its dominant position, Press release, 9 December 2021, accessed 14 September 2023. This fine was upheld against Amazon's appeal by an Italian administrative court in October 2022; Julie Masson, Italian court stays Amazon's appeal against €1.13 billion abuse fine, Global Competition Review, 31 October 2022, accessed 14 September 2023. See also, M Hunt, S Burak Darbaz and R Scherf, 'Self-Preferencing in Digital Markets', *GCR*, 25 November 2022, accessed 14 September 2023.

550 ACM, Report: Market study into mobile app stores [PDF 2.5MB], 11 April 2019, accessed 14 September 2023.

551 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 124.

Box 6.3 Self-preferencing on smart home devices through the promotion of first-party services

As explained in section 5.1.3, many smart home devices (such as smart speakers, smart displays and smart TVs) enable users to access other services through the device.[552]

Each of Google, Amazon and Apple's ecosystems are vertically integrated. They provide both smart home devices or device operating systems, and first-party services accessible through these devices (such as video and music streaming services, podcast and news apps, audiobooks, and ecommerce services). This structure, in addition to certain positions of market power, may provide each firm with the ability and incentive to preference their own first-party services over third-party services, limiting rival service providers' ability to access consumers through these devices.

Vertically integrated providers of smart home devices and services can self-preference first-party services through a broad variety of methods. These methods include (but are not limited to):

- Programming first-party voice assistants to preferentially opt for first-party services where available. For example, as shown in figure 6.3 below, Google advertises that on a Google Nest Hub device (which uses Google Assistant), the voice prompt "how to poach salmon" will open Google's first-party video streaming service YouTube for an instructional video.[553] This type of strategy is discussed further below under 'Steering through gatekeeper positions'.

Figure 6.3: Snapshot of Google Nest Hub displaying YouTube as of September 2023

- Incorporating advertisements for first-party services into the user interface of a smart home device, such as banners, pop-ups or recommendations on a device display or in a companion app. This may have the effect of raising barriers to entry and expansion for standalone smart home device providers that may not have equivalent access to advertising capabilities. For example, figure 6.4 below shows an advertisement of Amazon's Prime Video subscription service as displayed on Amazon Echo Show devices.[554]

552 'Digital content gateways' are discussed at Ofcom, Digital markets in the communications sector: Ofcom's approach to competition and consumer issues in internet-based communications markets, 2022, p 8.

553 Example of generalised voice prompts opening first-party service: Google, Smart Displays with the Google Assistant, accessed 14 September 2023.

554 Example display advertisement on Amazon Echo Show device: Amazon Ads, Alexa Home Screen, accessed 14 September 2023.

Figure 6.4: Snapshot of Amazon Echo Show range promoting Prime Video as of August 2023

- Providing first-party services with more prominent positioning, visibility or accessibility than third-party services. For example, figure 6.5 below shows a Google TV advertisement depicting the home screen of a TCL smart TV (which runs on the Google TV operating system), with a YouTube recommendation occupying half the home screen space.[555]

Figure 6.5: Snapshot of Google TV operating on a TCL smart TV as of August 2023

555 Example advertisement of a TCL smart TV (running Google TV operating system) with YouTube recommendation occupying half of the television home screen space: Google TV, Smart TV, accessed 14 September 2023.

Box 6.4 Self-preferencing of video streaming services on smart TVs

Each of Amazon, Apple and Google provide smart TV dongles and operating systems, and various services accessible through smart TV platforms, for example, video streaming services. A 2019 report commissioned by the UK Office of Communications (Ofcom) noted that TV platform providers generally control the layout of their user interfaces, content availability, search results and recommendations.[556] In their submission, Associate Professor Ramon Lobato, Dr Alexa Scarlata and Dr Bruno Schivinski argue this provides TV platform providers with various opportunities to self-preference their first-party services. They cite their 2023 research which found that Sony and TCL TVs (which run on Google's Android TV operating system) position YouTube and Google Play Movies and TV above other services in search results.[557]

SBS also raised concerns regarding the presence and prominence of free-to-air television services and the control TV manufacturers and operating system providers have, including the Android/Google TV operating system.[558] We note that the Australian Government Department of Infrastructure, Transport, Regional Development, Communications and the Arts is currently considering proposals for a legislated prominence framework.[559] Such a framework would aim to ensure local TV services are easy for Australian audiences to find on connected TV devices,[560] and may therefore affect the degree to which smart TV providers can preference first-party services over Australian services. However, given the focus of the proposed framework, it is unlikely to completely prohibit self-preferencing of first-party services against Australian services, or to affect smart TV providers' ability to self-preference against rivals more broadly.

Steering through gatekeeper positions

Digital platform service providers that hold a gatekeeper position may have an increased ability and incentive to engage in steering practices that direct user's attention to particular first-party or third-party services that generate higher profits for the platform.[561] Sometimes this can offer a seamless user experience but such conduct may harm competition when a digital platform service provider is using a position of market power as a gatekeeper to steer users. This can impede rivals from sufficient exposure to the user base on the platform. Steering may occur, for example, through ranking options and offering prominence on the platform.[562] The potential for this conduct may increase as digital platform service providers expand into new and related markets where they may have increased access to new users that they can steer to benefit their platform at the expense of rivals.

The ACCC has previously found that Google and Meta have the ability and incentive to favour a business where doing so will allow them to earn additional revenue. For example,

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556 MTM, Review of TV user interfaces in the UK market [PDF 1,048KB], Ofcom commissioned research, Final report, May 2019, p 11.

557 Associate Professor Ramon Lobato, Dr Alexa Scarlata and Dr Bruno Schivinski, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 635KB], May 2023, p 17. For additional discussion of similar concerns, see Free TV, Submission to the ACCC Digital Platform Services Inquiry Fifth Interim Report [PDF 756KB], April 2022.

558 SBS, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 415KB], May 2023, p 2.

559 Department of Infrastructure, Transport, Regional Development, Communications and the Arts, Prominence Framework for Connected Television Devices – Proposals paper, accessed 14 September 2023.

560 Department of Infrastructure, Transport, Regional Development, Communications and the Arts, Prominence Framework for Connected Television Devices – Proposals paper, accessed 14 September 2023, p 5.

561 M Bourreau and A de Streel, Digital Conglomerates and EU Competition Policy [PDF 628KB], March 2019, p 20.

562 A Fletcher, Digital Competition Policy: Are ecosystems different?, Hearing on Competition Economics of Digital Ecosystems, OECD, 9 November 2020, p 4.

they may favour websites that are members of their display or audience network or use their ad tech services.[563]

As mentioned above regarding self-preferencing strategies, similar concerns were raised by the European Commission and the AGCM in relation to Amazon's favouring of sellers that use its logistics and delivery services.[564] In 2022, Germany's competition authority (Bundeskartellamt) extended 2 ongoing proceedings against Amazon, with one of the 2 proceedings focusing on possible disadvantages for marketplace sellers caused by various requirements imposed by Amazon, including agreements with brands on whether individual sellers can or cannot sell their products on the Amazon marketplace.[565]

As discussed above at section 4.1.3, certain digital platforms have expanded into new gatekeeper roles including voice assistant technology, particularly Google (Google Assistant), Apple (Siri) and Amazon (Alexa). Voice assistants provide a further opportunity for digital platforms to steer users in favour of first-party products and services. Box 6.5 below provides an example in the context of smart home devices, but this conduct could occur on other devices in other expansion areas.

Box 6.5 Steering via first-party voice assistants as a gatekeeper on smart home devices

The risk of self-preferential steering may be amplified by the integration of voice assistants in smart home devices where a voice assistant is provided by a firm that also provides a large ecosystem of products and services.

Voice assistants may enable firms to more effectively steer consumers towards particular services, as compared to other computing interfaces which involve clicking a mouse or browsing a screen.[566] For example, browsing products by voice tends to provide consumers with fewer options and less information than visually scanning a website, particularly when using smart speakers.[567] Where a smart home device and voice assistant provider also provides ecommerce services, a firm may use this comparative lack of information to steer users towards first-party products or third-party products that generate higher profits for the firm.

For example, Amazon advertises that the voice prompt "Alexa, what are my deals" on an Amazon Echo smart speaker will cause the speaker to read out a list of discounted products or services (curated by Amazon).[568] In July 2022, one source reported that this prompt led to the Alexa voice assistant reading out Amazon marketplace discounts on several first-party Amazon smart home devices, including the Ring Doorbell, the Fire TV

563 ACCC, Digital Platforms Inquiry Final Report, 26 July 2019, p 12.

564 European Commission, Antitrust: Commission accepts commitments by Amazon barring it from using marketplace seller data, and ensuring equal access to Buy Box and Prime, Press release, 20 December 2022, accessed 14 September 2023; P Lombardi and G Leali, 'Italy fines Amazon €1.13B for abusing market dominance', *Politico EU*, 9 December 2021, accessed 14 September 2023.

565 Bundeskartellamt, Extension of ongoing proceedings against Amazon to also include an examination pursuant to Section 19a of the German Competition Act (GWB), 14 November 2022.

566 A Ezrachi and M Stucke, Virtual Competition: The Promise and Perils of the Algorithm-Driven Economy, Harvard University Press, 2016, pp 194-7. See also, V Morozovaite, The future of anticompetitive self-preferencing: analysis of hypernudging by voice assistants under article 102 TFEU, *European Competition Journal*, 19:3 (2023), 17 March 2023, accessed 14 September 2023.

567 A Graham, 'Voice Commerce: Definition, benefits, and future of this trend', *WebsiteBuilderExpert*, 27 April 2023, accessed 14 September 2023.

568 D Smith, 'Find secret Alexa-only discounts when you order through Amazon Echo: here's how', *CNET*, 11 September 2021, accessed 14 September 2023.

and Eero Wi-Fi router.[569] Steering in this fashion could impact competition in markets for online retail marketplaces and smart home devices, for example by reducing rivals' discoverability. This is likely to be especially the case where a firm has market power in one of these markets.

Pre-installation arrangements and default settings

The expansion of digital platform service providers into new technologies in related markets, such as smart home devices, gaming consoles, virtual reality headsets and smart watches, provides platforms with further opportunities to engage in pre-installation and default setting practices.

Pre-installation and default settings can have positive benefits for consumers as mentioned in section 5.2. However, such conduct can raise competition concerns when it is used to enhance a position of market power in a core market or is used to leverage a position of market power into related markets. This can harm competition by limiting rivals' ability to reach users and by reducing discoverability.

The ACCC has previously found that several of Apple and Google's first-party apps benefit from being pre-installed or set as defaults on devices.[570] The ACCC has raised concerns regarding the effects on competition and consumer choice of exclusive pre-installation and default settings.[571] Digital platform service providers that have their apps and software pre-installed on their device have a competitive advantage compared to their rivals. As explained in sections 5.2.1 and 5.2.3 while search costs can be reduced, consumers may not be exposed to alternatives which may be preferable to the default first-party option.

Default bias is the tendency for consumers to remain with a default option, service, or setting. The ACCC has previously noted that default bias may affect competition where digital platform service providers set defaults on devices or operating systems.[572] For example, according to ACCC commissioned research in 2021, a survey of 2,467 Australians found that only around one in 3 consumers had ever changed the default search engine on their smartphone.[573] Additionally, a firm may prevent the uninstallation of pre-installed default apps, which may create an additional cost for a user seeking to change a default app whereby the pre-installed app continues to use storage space on the device.

International regulators have also raised concerns about the effects of digital platforms' pre-installation arrangements and default settings. For instance, the Norwegian Consumer Council found that digital platforms design user interfaces that nudge users towards selecting or accepting privacy-intrusive options.[574] In particular, the Norwegian Consumer Council observed that Google and Facebook both had privacy intrusive defaults and require users who want greater privacy to go through a significantly longer series of menus, some of which appear to be deliberately obscure.[575] The AGCM found that default settings play a

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569 C Cawley, 'How to find secret Alexa-only deals with your Amazon Echo', *Android Police*, 2 July 2022, accessed 14 September 2023.

570 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 144.

571 ACCC, Digital Platform Services Inquiry Second Interim Report, 28 April 2021, p 6; ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 139.

572 ACCC, Digital Platform Services Inquiry Third Interim Report, September 2021, p 44. See W Samuleson and R Zeckauser, Status Quo Bias in Decision Making, *Journal of Risk and Uncertainty*, 1:1 (1988), pp 7-59; D Kahneman, JL Knetsch, and RH Thaler, Anomalies: The Endowment Effect, Loss Aversion, and Status Quo Bias, *Journal of Economic Perspectives*, 5:1 (1991), pp 193–206; C Sunstein, Deciding by Default, *University of Pennsylvania Law Review,* 162:1 (2013), pp 1–24.

573 Roy Morgan, Australian Competition & Consumer Commission: Consumer Views and Use of Web Browsers and Search Engines - Final Report [PDF 3.2MB], September 2021, accessed 14 September 2023, p 71.

574 Norwegian Consumer Council, Deceived by Design [PDF 3.1MB], June 2018, pp 4-5.

575 Norwegian Consumer Council, Deceived by Design [PDF 3.1MB], June 2018, pp 15-18.

significant role in inducing WhatsApp users to consent to the sharing of their user data with Facebook.[576] Furthermore, the European Commission imposed a €4.125bn fine on Google for conduct including the pre-installation of Google Chrome and Google Search and default arrangements for Google Search on Android devices, due to the anti-competitive effect on the market for general search services.[577]

Boxes 6.6, 6.7 and 6.8 below provide examples of the use of pre-installation and default settings on smart home devices and in relation to consumer cloud storage services, which the ACCC is concerned could be happening elsewhere in ecosystems.

The ACCC considers that as digital platform services providers continue to extend their reach into related markets, the risk of anti-competitive pre-installation and default settings may increase. The ACCC continues to support mandatory service-specific codes of conduct with targeted measures to address anti-competitive pre-installation and default settings by designated digital platforms with the ability and incentive to engage in anti-competitive conduct, as recommended in the Regulatory Reform Report.[578]

Box 6.6 Pre-installation of apps on smart speakers and display hubs

Some smart home devices, particularly smart speakers, display hubs and smart TVs, typically include various services pre-installed on the device as apps.

For example, Google's Nest Hub display comes with Google's video streaming service, YouTube, pre-installed on the device. Amazon's Echo Show display comes with its photo cloud storage service, Amazon Photos, pre-installed. Apple's HomePod smart speaker comes with Apple's video and audio call service, FaceTime, pre-installed.

Apple online gen that pre-installed services are important to provide a high-quality user experience "right out of the box".[579] However, as noted by the European Commission, pre-installation and default-settings on smart home devices also tend to provide a competitive advantage to first-party services provided by vertically-integrated device providers such as Google, Amazon and Apple.[580]

Providers of such devices may also pre-install third-party apps. For example, Amazon's Echo Show comes with the Zoom videoconferencing app pre-installed.[581] A vertically-integrated device provider's decision to pre-install a third-party app is likely to be influenced by strategic considerations including user demand, commercial arrangements with the third-party provider, and competitive implications for first-party offerings.

The potential competitive advantages for an ecosystem provider resulting from pre-installing first-party apps on devices will vary depending on the app and device. For example, Google pre-installing YouTube on Nest Hub displays is likely to increase YouTube viewership leading to increased advertising revenues, greater access to user data, and increased attractiveness to advertisers and content creators due to cross-side network effects. This may also serve to protect YouTube's market position against potential competitors. In addition, if smart home display devices become a significant tool

576 AGCM, Facebook fined 10 million Euros by the ICA for unfair commercial practices for using its subscribers' data for commercial purposes, Press release, 7 December 2018, accessed 14 September 2023.

577 Court of Justice of the European Union, Judgment of the General Court in Case T-604/18, Google and Alphabet v Commission (Google Android) [PDF 160KB], Press release no 147/22, 14 September 2022, accessed 14 September 2023.

578 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 139.

579 Apple, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 552KB], p 5.

580 European Commission, Final report of sector inquiry into Consumer IoT, 20 January 2022, p 11.

581 Zoom, Getting started with Zoom on Echo Show, 11 January 2022, accessed 14 September 2023.

for consumers to access video streaming services, this could conceivably raise barriers to entry for rival providers of video streaming services.

Box 6.7 Default settings for services accessed via voice assistants on smart home devices

Vertically integrated firms which provide smart home devices, a voice assistant and first-party services (such as Google, Amazon and Apple) may program their voice assistants to offer users first-party services by default where possible. Alternatively, firms may program their voice assistants to offer users third-party services which the firms earn revenue from, for example, due to a commercial relationship with the third-party firm.

For example, Apple advertises various general commands users can make to its Siri voice assistant via the HomePod Mini smart speaker which will, by default, choose a first-party Apple service to respond to the command. "Hey Siri, play pop hits in the bedroom" will open Apple Music (rather than an alternative music streaming service) and "Hey Siri, how long would it take me to get to the airport" will open Apple Maps (rather than an alternative maps service).[582]

Similarly, as noted by the European Commission,[583] Amazon positions Audible (ebooks) and Amazon.com.au (marketplace) services as features of its Alexa voice assistant. For example, the voice command "Alexa, read The Hobbit" will open the relevant title via Audible.[584]

This kind of default setting does not preclude voice assistant users from accessing third-party services. For example, as of this year, Siri users can select to navigate using Google Maps by adding the phrase "Google Maps" to the end of a navigation voice command.[585] However, where voice assistant default settings mean that consumers must issue a longer or more specific command to access a third-party service, this could affect competition in markets for those services, especially where there is a lack of consumer awareness about such issues.

582 Apple, HomePod Mini, accessed 14 September 2023.

583 European Commission, Sector Inquiry into Consumer Internet of Things, Commission staff working document, 20 January 2022, accessed 14 September 2023, para 444.

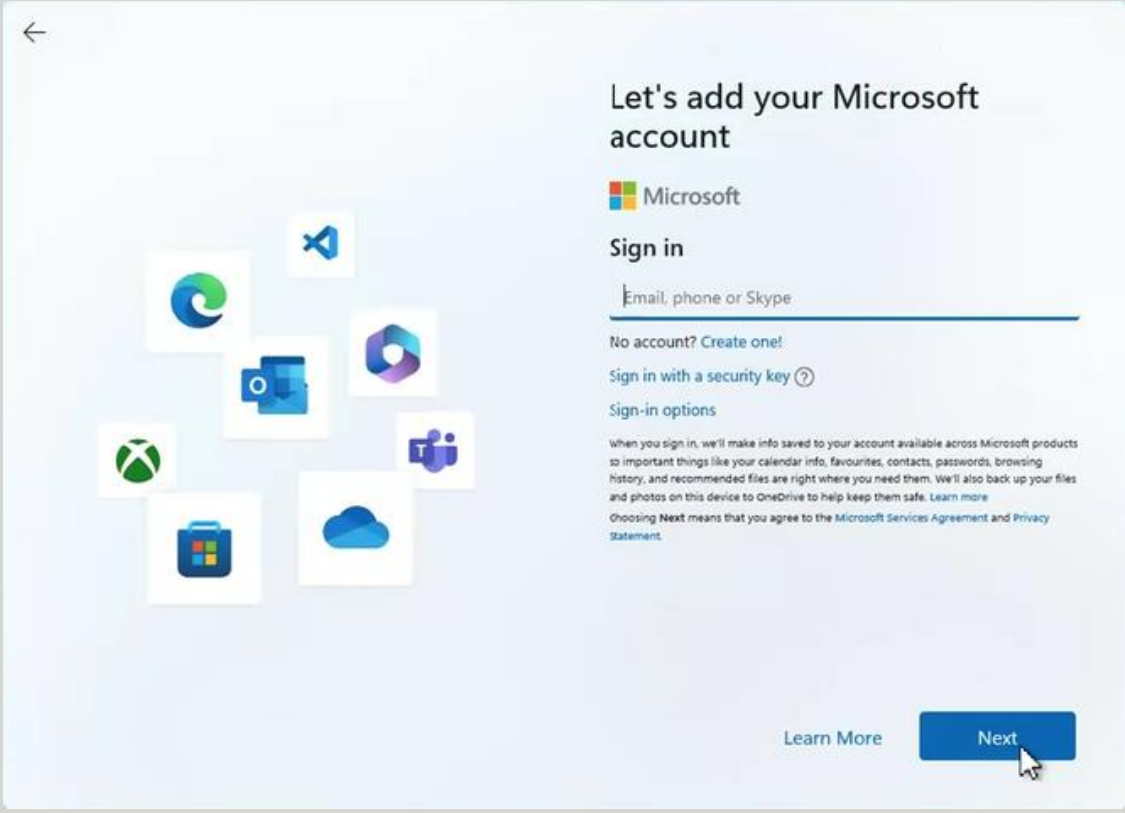
584 Amazon, Books on Alexa, accessed 14 September 2023.

585 Siri User Guide, How to use Siri and Google Maps, 1 May 2023, accessed 14 September 2023.

Box 6.8 Pre-installation and default settings for consumer cloud storage services

Consumer cloud storage services are accessed through integrations in operating systems on smartphones and personal computers, through applications installed through app stores or other avenues, and through web browsers. Apple, Google, and Microsoft each have significant positions as gatekeepers of the hardware and software used by consumers to access these services. These platforms can use pre-installation arrangements and default settings to push consumers towards their first-party consumer cloud storage services.

Figure 6.6: Windows 11 Home Set Up Screen without any options for the user to avoid signing in or creating a Microsoft Account[586]



Manufacturers may choose to automatically enable consumer cloud storage functionality when consumers are setting up their device, or when consumers create or sign in with a first-party account such as a Microsoft Account or an Apple ID. For example, as shown in figure 6.6, Windows 11 Home requires consumers who are setting up their device for the first time to link their device with a Microsoft Account, which then enables OneDrive backup and syncing functionality by default. Consumers are only advised of this by smaller text below the sign-in prompt which states that that by signing in, 'We'll also back up your files and photos on this device to help keep them safe'. As a result of this, consumers who do not wish to have the OneDrive service enabled on their Windows 11 Home PC would need to proactively unlink or hide OneDrive following the set up process.[587]

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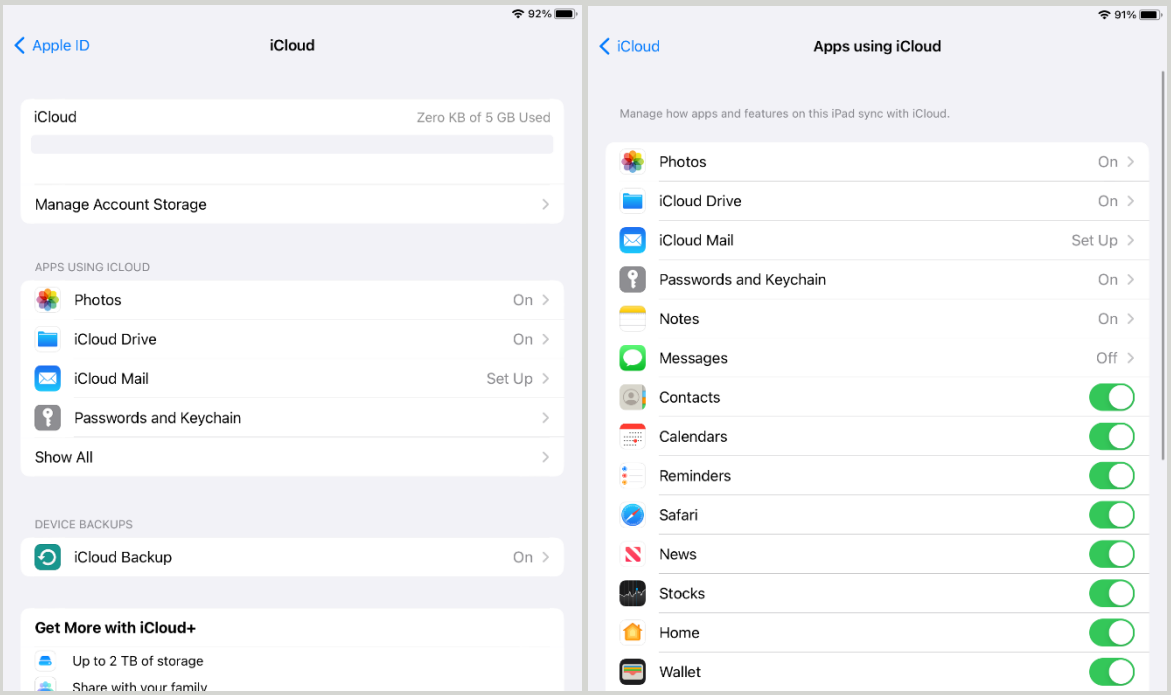
586 The ACCC conducted device testing on 5 July 2023 on Windows 11 Home version 22H2 to understand the set-up process that users experience when setting up a new Windows 11 Home device.

587 Microsoft, Turn Off, disable, or Uninstall OneDrive, *Microsoft Support*, accessed 14 September 2023.

Similarly, iPadOS encourages users to sign in with an Apple ID during the device setup process,[588] and ties key functionality of the device to this account, including downloading apps from the Apple App Store and using iMessage. Apple's submission states that "In relation to the use of default settings, iCloud is not a 'default' setting on Apple products. The choice to use iCloud is entirely the user's. To set up iCloud, users simply sign in to their device with an Apple ID, then choose which apps they want to use with iCloud and which iCloud features they want to turn on or off".[589]

The ACCC has tested the process of setting up an iPad while creating a new Apple ID.[590] The ACCC observed that following this process many iCloud-related options in the Settings app were automatically enabled including iCloud Backup, iCloud Photos, and iCloud Drive (as shown below in figure 6.7). These options were not shown to the user as part of the process and only became apparent after proactively entering the iCloud and Apple ID settings section of the Settings app. This process may mean a number of users continue to link these apps to their iCloud without actively choosing to do so.

Figure 6.7: iCloud settings preselection when setting up a new iPad and new Apple ID[591]



Digital platform service providers may also use other methods to push users towards first-party consumer cloud storage services. As operating system operators, some digital platform service providers have an ability to restrict the pre-installation of other third-party

588 During the setup process, users view a screen prompting them to log in with their Apple ID and password. Users are provided a prompt in small blue text below the text input field for their Apple ID's email which states 'Forgot password or don't have an Apple ID?'. Users must select this to navigate to another screen and then select 'Set Up Later in Settings' to avoid signing in with an Apple ID. See Apple, Set up your iPhone or iPad and How to create a new Apple ID, *Apple Support*, accessed 14 September 2023. Although the ACCC has not undertaken device testing on an iPhone running iOS, the ACCC notes the significant similarities between iPadOS and iOS, and expects this behaviour to be consistent across these systems.

589 Apple, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 552KB], May 2023, p 10.

590 The ACCC conducted device testing on 16 – 17 August 2023 on an iPad (6th Generation) running iPadOS 16.6 to understand the set-up process that users experience when setting up a new iPad and new Apple ID without a backup.

591 The following images are screenshots from the ACCC's device testing on an iPad (described in the below footnote) which represent the iCloud settings that are pre-selected after the ACCC created a new Apple ID during the iPadOS device setup process. The apps Game Centre, Siri, Freeform, Books and Shortcuts (out of frame in the right image) were also observed as pre-selected.

applications onto their first-party devices before they are sold to consumers. Consumers who wish to use third-party consumer cloud storage services on these devices must choose to seek out these competing services and install them after setup. Similarly, control over an ecosystem enables platforms to use choice architecture to encourage users to choose first-party consumer cloud storage services, even where they may not be enabled as a default setting. Users may encounter prompts that encourage them to enable or use consumer cloud storage functionality. This may be during the device setup process or while using the device or other software, and may encourage the user to choose the platform's first-party service when saving or accessing files.

OneDrive, iCloud, and Google Drive are pre-installed and integrated across the Windows, iOS/macOS, and Android operating systems respectively, and provide consumer cloud storage to consumers in a convenient format out of the box. This means that these platforms are able to provide a complete solution to consumers from setup, and steer consumers towards using these services early in the consumer's usage of a device. This provides these platforms with a significant early advantage in driving consumer adoption of their respective consumer cloud storage offerings over those of other consumer cloud storage service providers.

Limiting interoperability for third parties

New technologies may rely on integration with existing software and devices. Where a provider of digital platform services has market power in supplying the necessary software or devices, the availability of integration or interoperability for third parties will be a material factor affecting their ability to enter or expand in the market. Third parties may also be impacted by digital platform service providers offering first-party products and services with superior interoperability. This may particularly be a concern if digital ecosystems are based around a core software platform (such as an operating system) in which the platform has market power.

As digital platform service providers expand, rivals are at risk of having their interoperability limited by digital platforms who are in direct competition with the third-party or who consider their core service is under threat. The digital platform service provider may also be incentivised to provide first-party products and services with superior levels of interoperability.

Competition concerns may arise where digital platform service providers that play a gatekeeper role limit interoperability with third-party products or services, particularly when the platform offers a competing product or service. This may occur through practices such as anti-competitive tying conduct or a constructive refusal to deal, as explained above in section 6.1.1. [592]

Software platforms can affect other businesses' capacity to reach consumers by the provision (or withholding) of APIs and SDKs that allow businesses to connect and interoperate with key digital platform services. For instance, when Microsoft acquired LinkedIn, it sought to increase LinkedIn's usership by building LinkedIn into Outlook, creating technical integration between LinkedIn Sales Navigator and Microsoft's Dynamics 365, and moving LinkedIn to Microsoft's Azure cloud.[593]

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592 JP Choi and C Stefanadis, Tying, Investment, and the Dynamic Leverage Theory [PDF 117KB], *RAND Journal of Economics*, 32 (2001), pp 2-3; OECD, Data Portability, Interoperability and Digital Platform Competition, OECD Competition Committee Discussion Paper, 2021, p 30.

593 J Erlichman, 'Three years after Microsoft acquisition, LinkedIn keeps quietly climbing', LinkedIn, 24 October 2019, accessed 14 September 2023.

In 2020, the US Federal Trade Commission filed a lawsuit against Facebook (Meta) alleging that Facebook, over many years, imposed anti-competitive conditions on third-party software developers' access to valuable interconnections to its platform, such as the APIs that allow the developers' apps to interface with Facebook. In particular, the US Federal Trade Commission alleged that Facebook made key APIs available to third-party applications only on the condition that they refrain from developing competing functionalities, and from connecting with or promoting other social networking services.[594]

Digital platform service providers, particularly those providing operating system or software platforms, may have an incentive to prevent competitors from providing innovative services or competing effectively by limiting, delaying or denying interoperability or integration.[595] As discussed in section 5.2, this may especially be the case where the platform sees the third-party as a substitute or potential substitute for its core services. Limited interoperability can act as a barrier to entry, including by reducing multi-homing by users and increasing switching costs.[596] For example, Tile, an app that allows users to find lost items using a tracker product, testified to US Congress in 2021 that Apple degraded the user experience on Tile's app by enforcing a complex and confusing process for users to grant Tile the necessary permissions, while simultaneously introducing its own 'Find My' app and AirTags (with functionality similar to Tile's app and product).[597] This may also be considered as a form of mimicking as discussed below in section 6.2.

Box 6.10 below discusses an example of this in the context of cloud storage services. However, digital platforms may have stronger incentives to interoperate with rivals in relation to complementary services if this increases the use of the digital platform's services, as explained above in sections 5.2 and 6.1.2.

Improved interoperability can mitigate the importance of firm-specific network effects. For example, because consumers can email one another using different email service providers, selecting the same service provider as one's contacts may be relatively unimportant. Because of this, digital platform service providers may seek to restrict or deny interoperability to third parties to protect their market power or other advantages they get from strong network effects.[598] For example, Meta's messaging app, WhatsApp, benefits from strong network effects. Because it is not interoperable with other standalone messaging services, the more a user's friends, family, colleagues and acquaintances use the service, the more attractive it is to the user. The significant size of the user base of WhatsApp, and the presence of these network effects (arising from lack of interoperability), gives Meta a significant competitive advantage over smaller suppliers of standalone services in Australia.[599] To address advantages of this kind in Europe, the European Union's Digital Markets Act will require interoperability between popular messaging apps.[600]

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594 US Federal Trade Commission, FTC Sues Facebook for Illegal Monopolization, Press release, 9 December 2020, accessed 14 September 2023.

595 See OECD, Data Portability, Interoperability and Digital Platform Competition, OECD Competition Committee Discussion Paper, 2021, p 20.

596 OECD, Data Portability, Interoperability and Digital Platform Competition, OECD Competition Committee Discussion Paper, 2021, pp 20, 30.

597 Testimony of Kirsten Daru, Chief Privacy Officer and General Counsel for Tile, Inc [PDF 270KB], *before the Senate Committee on the Judiciary Subcommittee on Competition Policy, Antitrust, and Consumer Rights, Washington DC*, 21 April 2021, accessed 14 September 2023, p 5-8.

598 A Fletcher, Digital Competition Policy: Are ecosystems different?, Hearing on Competition Economics of Digital Ecosystems, OECD, 9 November 2020, p 8.

599 ACCC, Digital Platform Services Inquiry First Interim Report, 23 October 2020, p 2.

600 EU Digital Markets Act, Article 7 of Regulation (EU) 2022/1925; M Bourreau, DMA Horizontal and Vertical Interoperability Obligations [PDF 1,751KB], Issue Paper, November 2022, accessed 14 September 2023, p 6.

Concerns have also previously been raised with Google's terms of access to its API for Google Maps. In 2018, Google implemented price increases for API 'calls', or discrete requests of information. These did not apply to developers using Google's native mobile APIs, which hence favoured Android developers.[601]

The ACCC has also previously raised concerns regarding Apple's control of its mobile OS, iOS, to prevent third parties accessing the Near Field Communication (NFC) components in Apple mobile devices to facilitate contactless payments.[602] The ACCCC considered the restriction on access to the NFC components in Apple mobile devices means that any contactless payments on Apple-branded mobile devices must be made using Apple's own mobile wallet products, namely 'Apple Wallet' and 'Apple Pay'. The ACCC expressed concern that this conduct may reduce competition in the supply of alternative payment apps and services, including preventing third parties from providing mobile wallet services that effectively compete with Apple's on its devices.[603] Separately, the US Federal Trade Commission is investigating alleged self-preferencing by Meta, which makes it harder for competing virtual reality apps to function with Meta's virtual reality headsets.[604]

Additionally, due to the restrictive nature of API access, digital platform service providers may be able to restrict the feature set of competing services. This behaviour may limit competitors' ability to develop additional feature sets, dampening innovation over the longer term and reducing dynamic competition (for example, see the discussion of Apple's changes to its File Provider API in box 6.10 below).

The European Commission's 2019 report on 'Competition policy for the digital era' also notes that new entrants may be dissuaded from building complementary services to those offered by a digital platform if their service relies on APIs that can be changed at any time.[605]

When a supplier of a complementary product to that of a digital platform service provider is faced with the potential threat of entry by a platform, they may be more likely to shift innovation efforts into different products. Or, when the supplier has already entered with an established and popular product, they may increase efforts to improve those products to potentially deter the digital platform from entering. [606] Alternatively, the supplier may increase prices to capture as much of the value of the innovation in the short term before the digital platform service provider enters. In the long-term, suppliers of complimentary products may develop multiple product offerings to mitigate such risks, or they may focus on 'non-blockbuster' products that are less likely to face threats from digital platform service providers.[607] This could potentially stifle innovation. The harm from this is exacerbated where the relevant platform operator has market power or a gatekeeper position which the complementor relies on for access.

It is important that third parties that may rely heavily on certain devices and software provided by digital platform service providers can access adequate levels of interoperability

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601 C Sharma, Concentrated Digital Markets, Restrictive APIs, and the Fight for Internet Interoperability (2019) [PDF 667KB], p 459.

602 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 158.

603 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 159.

604 N Nix and M Gurman, Meta's Oculus Unit Faces FTC-Led Probe of Competition Practices, *Bloomerg*,15 January 2022, accessed 14 September 2023. See also ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 132.

605 JJ Cremer, Y de Motjoye and H Schweitzer, Competition policy for the digital era [PDF 1,257], European Commission Directorate-General for Competition, 20 May 2019, p 34.

606 W Wen and F Zhu, Threat of Platform-Owner Entry and Complementor Responses: Evidence from the Mobile App Market, *Strategic Management Journal*, 40:9 (2019) pp 6-8.

607 W Wen and F Zhu, Threat of Platform-Owner Entry and Complementor Responses: Evidence from the Mobile App Market, Strategic Management Journal, 40:9 (2019) pp 6-8.

to create valuable products and services. Boxes 6.9 and 6.10 below provide examples of limited interoperability in the context of smart home devices and consumer cloud storage services.

The ACCC considers that as digital platform service providers continue to extend their reach into related markets, the risk of conduct limiting interoperability may increase, with anti-competitive effects. The ACCC continues to support mandatory service-specific codes of conduct with targeted measures to address such conduct by designated digital platforms with the ability and incentive to engage in anti-competitive conduct, as recommended in the Regulatory Reform Report.[608]

Box 6.9 Digital platforms' ability to restrict third parties' access to and interoperability with voice assistant technology

Google, Amazon and Apple are the 3 leading providers of voice assistants in Australia. As explained at section 4.2.4 above, each firm's position in voice assistants likely benefited from strategic acquisitions, economies of scope, and superior data access arising from their ecosystems of products and services; barriers to entry in developing a competitive voice assistant may be high.[609] In addition, voice assistant technology appears to be an important input for certain smart home devices such as smart speakers.

Apple, Google and Amazon each provide access to Siri, Google Assistant and Alexa to other device manufacturers.[610] As the 3 primary providers of voice assistant technology, these firms may deny other smart home device manufacturers access to their voice assistants, or unilaterally vary conditions for access. In addition, third-party device manufacturers face uncertainty regarding future licensing terms for follow-up generations of devices. This is likely to raise barriers to entry in the markets for those devices if rival manufacturers cannot compete effectively without an in-built voice assistant.

For example, earlier in 2023, Google announced it would stop providing updates to third-party smart display hubs provided by Lenovo, LG, and JBL which incorporate Google Assistant.[611] One source notes that a likely result of this decision is that these hubs' functionality may be limited in certain contexts such as video calling, and will not improve.[612]

In the smart speaker context, Sonos (a speaker manufacturer) previously provided smart speakers incorporating both Amazon Alexa and Google Assistant. This meant that consumers could access either assistant by using the appropriate wake-word (i.e., "Alexa", or "Hey Google"). In 2023, the most recent Sonos range (the Sonos Era) was released without Google Assistant. A Sonos spokesperson stated this was due to Google changing the technical requirements for Google Assistant such that it was impractical for Sonos to

608 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 158.

609 For example, this article outlines the acquisitions of technology and human capital, and substantial research and development expenditure invested by Amazon while developing Alexa: B Stone, The secret origins of Amazon's Alexa, *Wired*, 11 May 2021, accessed 14 September 2023.

610 Apple, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 552KB], May 2023, p 2; Google, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 325KB], May 2023, p 17; Amazon Australia, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 330KB], May 2023, p 6.

611 M Kan, 'Google to end software updates for older smart displays from Lenovo, LG, JBL', *PC Mag*, 11 April 2023, accessed 14 September 2023; A Li, 'Google ends updates and effectively kills 3rd-party Assistant smart displays', *9to5 Google*, 7 April 2023, accessed 14 September 2023.

612 A Li, 'Google ends updates and effectively kills 3rd-party Assistant smart displays', *9to5 Google*, 7 April 2023, accessed 14 September 2023.

include the technology.[613] As such, Sonos' Era range of speakers now only includes Amazon Alexa, reducing Sonos consumers' choice of voice assistant services.

More broadly relevant to smart home device interoperability, the ACCC is also aware of the recently developed 'Matter' standard. The matter standard is maintained by the Connectively Standards Alliance – which includes as members Amazon, Apple and Google.[614] Matter is a new smart home standard that aims to increase interoperability between different smart devices and simplify the way users control their smart homes. Submissions from Amazon, Apple, Custom Electronics Design and Installation Association, Google and TP-Link Australia expressed support for the new standard.[615] While Matter improves interoperability of smart home devices, there are some limitations. In particular, the standard does not yet apply to all smart home devices and certification may differ between manufacturers, leading differing levels of functionality across different combinations of devices and manufacturers.

Box 6.10 Interoperability of competing consumer cloud storage services on mobile devices and personal computers

One function of consumer cloud storage services is for backups of a complete device as described in section 4.1.2. For example, Apple's iCloud Backup provides a comprehensive device (iPhone or iPad) backup in conjunction with Apple's other iCloud services.[616] It enables users of iPhones and iPads to restore complete copies of the user data onto new devices.

Apple's iOS allows third-party developers to access some user content and preferences for the purposes of backing up user information. However, the ACCC understands that iCloud Backup offers greater functionality than is available to users and developers of competing third-party apps.[617] During the iOS setup process, users are limited to restoring from backups made to iCloud or a computer.[618] Users may use third-party providers to backup and restore some information, however these services are unable to provide complete backups of a user's device. For example, Google One offers limited backup functionality on iOS for photos, contacts and calendar information, however it is unable to backup other information such as iMessages and other SMS/MMS messages, app data, and device settings.[619]

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613 T Biggs, 'Sonos reinvents its speakers for the future, with some limitations', *Sydney Morning Herald,* 29 March 2023, accessed 14 September 2023.

614 Connectivity Standards Alliance, Connectivity Standards Alliance: Matter, accessed 14 September 2023.

615 Amazon Australia, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 330KB], May 2023, p 8; Apple, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 552KB], May 2023, p 4; Custom Electronics Design & Installation Association, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 71KB], May 2023, p 1; Google, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 325KB], May 2023, p 16; TP-Link Australia, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 110KB], May 2023, p 3.

616 iCloud Backup operates in conjunction with other iCloud services which, although not saved as part of the distinct backup, operate in tandem to provide a full device backup for users. These services operate separate to iCloud Backup as they offer synchronisation functionality between other Apple devices. Apple, What does iCloud back up?, *Apple Support*, accessed 14 September 2023.

617 For example, Zachariah Kelley notes that "There are a lot of online services that offer cloud backups and storage similar to iCloud, such as Google Photos and Dropbox, but keep in mind that iCloud is uniquely tailored to the Apple experience. That means, for backing up an entire iPhone to transfer to a new one, you need to use iCloud". Z Kelly, 'Out of Free iCloud Data? Try These Free Cloud Storage Alternatives', *Gizmodo Australia*, 3 October 2022, accessed 14 September 2023.

618 Apple, Restore your iPhone, iPad or iPod touch from a backup, accessed 14 September 2023.

619 Google, Back up your device, *Google One Help,* accessed 14 September 2023.

Competing consumer cloud storage services must rely on APIs provided by Apple which facilitate access only to specific user data, such as some Photos app data and contacts.[620] However, a significant portion of what a consumer would expect to be included in a full device backup cannot be accessed by third-party developers. This includes, for example, iMessages and SMS messages, call history, and device settings. This restricts the ability of competing providers to offer a functionality similar to Apple. This is significant because users may be deterred from switching between ecosystems if they are not able to transfer a full device backup (for example, if users are unable to access all past text messages when switching from Apple to Android). Although Apple and Google both offer tools to help users migrate their data to iPhone and Android respectively,[621] users have expressed concerns about the effectiveness of these systems to transfer data.[622] Journalist Austin Carr recently detailed his attempts to migrate from Apple's ecosystem to Android and Windows devices, and noted that the friction from being unable to transfer his iMessages to his new devices or download his photos and videos from iCloud led him to return to the Apple ecosystem.[623]

iCloud Backups only enable backups to be restored to Apple devices. This encourages users to continue to purchase Apple devices and purchase additional iCloud storage capacity. Although consumers retain other methods for transferring some user data to competing platforms, these restrictions reduce the quality of these alternative products and ecosystems. This may impact consumer switching between ecosystems which means that, in turn, demand for these competing products is diminished.

Managed access to APIs by platforms also represents another potential risk for interoperability restrictions. As operating system providers develop the APIs that third-party developers use to interact with a device, those providers have a significant role in determining what functionality a developer may or may not offer consumers.

A recent example of this is a change to Apple's File Provider API on macOS Ventura in early 2023. The change restricted the locations which third-party consumer cloud storage services (such as Dropbox) can concurrently save files. This change impacted pre-existing functionality of Dropbox, which due to this change updated its macOS app to disable syncing cloud files on external hard drives.[624] As a result, users that may wish to have a backup of their larger files stored with their cloud storage provider on an external hard drive, rather than the device's internal storage, would now be unable to do so using Dropbox. This could remove a key reason for these consumers choosing to use Dropbox over the pre-installed iCloud Drive. This highlights the concern that even where interoperability is available to third parties, limits on features supported by APIs may inhibit dynamic competition between first-party and third-party products or services.

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620 Apple, PhotoKit | Apple Developer Documentation, *Apple Developer*, accessed 14 September 2023; Apple, Contacts | Apple Developer Documentation, *Apple Developer*, accessed 14 September 2023.

621 Google, Move to iOS, *Google Play*, accessed 14 September 2023; T Warren, 'Google's Switch to Android iPhone app now works with any Android 12 phone', *The Verge*, 30 June 2022, accessed 14 September 2023; Apple, Switch to Android, *App Store,* accessed 14 September 2023.

622 A Kingsley-Hughes, Why is Apple's 'Move to iOS' Android app so awful?, *ZDNET*, 2 August 2022, accessed 14 September 2023.

623 A Carr, iQuit: my hellish attempt to leave Apple's walled garden, *Australian Financial Review,* 12 July 2023, accessed 14 September 2023.

624 W Hilliard, 'Dropbox won't be able to sync to external drives on macOS', *Apple Insider*, 15 February 2023, accessed 14 September 2023.

6.2. Exclusionary data practices

The expansion of digital platform service providers into related markets may increase the risk of platforms using exclusionary data practices to leverage market power from one market to another, or to enhance a position of market power.

Where a digital platform service provider occupies a gatekeeper position (as discussed above at section 3.1.2), it may gain access to valuable, unique and non-publicly available user data. Digital platforms are gaining access to more data as they expand their ecosystems and are reaching a greater number and variety of users. For example, the expansion into voice assistant technology allows Google, Amazon and Apple access to further data points on several first-party and third-party devices.

Access to non-public data through a gatekeeper position can provide opportunities for digital platform service providers to engage in conduct that may be harmful to rivals and reduce innovation. The ACCC has also previously expressed concern that rivals' lack of access to relevant data is a substantial barrier to entry and expansion in the supply of some digital platform services, including search and ad tech services.[625]

This section considers 2 key impacts of digital platform service providers' increasing access to data in the context of expanding ecosystems, including:

- the impact on innovation
- the impact on core services, including where a platform may have market power.

This section uses various examples to illustrate how digital platform service providers expanding their ecosystems may increase the risk of exclusionary data practices (including in the context of smart home devices, in box 6.11 below).

Impact on innovation from gatekeeper access to non-publicly available data

The gatekeeper positions of certain digital platform service providers give platforms unique access to the data of third-party providers and rivals. A particular area of concern is where this position is used to 'free-ride' on the innovation efforts of rivals, for example by mimicking rival services.

The ACCC has previously cited examples of these practices by software platforms, such as app store providers where they have successfully copied third-party apps on their app stores.[626] For example, Apple's launch of Memoji and integration within iMessage that was in competition with popular app, Bitmoji.[627] The CMA Mobile Ecosystems market study also found that, through the operation of their app stores, Apple and Google have access to confidential information about rival apps, which has the potential to give rise to competition concerns.[628]

As previously noted above under section 6.1.2 ('Limiting interoperability for third parties'), Tile's concerns regarding Apple's competing app and product is another example highlighting the potential for app store operators to monitor, mimic, and subsequently

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625 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 165.

626 ACCC, Digital Platform Services Inquiry Second Interim Report, 28 April 2021, pp 132, 134.

627 ACCC, Digital Platform Services Inquiry Second Interim Report, 28 April 2021, p 133.

628 CMA, Mobile Ecosystems Market Study Final Report, 10 June 2022, p 214.

reduce functionality for, successful rivals.[629] Apple has also been subject to claims of mimicking others' products in its efforts to develop health products. This has resulted in disputes strongly contested by Apple. For example, AliveCor has alleged Apple watches featuring an electrocardiogram function mimic AliveCor's own products resulting in a patent battle.[630] Similarly, medical technology company Masimo has alleged Apple copied its pulse oximeter.[631]

The potential for mimicry may be increased by the app store operator's access to non-publicly available data, including usage trends. For example, it has been reported that Apple incorporated the ability to track menstrual cycles as a feature in its pre-installed Health app following the rise of Clue, a popular app used to track menstrual cycles, to the top of Apple's Health and Fitness category.[632]

Similar concerns have also arisen in relation to cloud services. For example, a US government antitrust committee report noted concerns that Amazon had created proprietary versions of products that third parties had developed under open-source licences using data obtained via its AWS open-source marketplace.[633]

A digital platform service provider's ability to access sensitive non-public data and then develop competing products is greater in markets where the digital platform service provider competes directly with downstream rivals. For example, matching platforms which are vertically integrated and also sell first-party goods in competition with sellers on the platform.

Examples of this have arisen in relation to Amazon's online retail marketplace, where Amazon has introduced new products and services that compete directly with third-party sellers, and which have been selected or developed based on data obtained in its intermediary position. For example, Zhu and Liu found that Amazon entered 3% of competitors' product spaces over a 10-month period and was more likely to enter the spaces of products with higher sales and better reviews and with suppliers that did not use Amazon's fulfillment service.[634]

Digital platform service providers may be able to quickly develop and launch competing products and use their positions in related markets to create interconnections which promote and steer users to those products (for example, through self-preferencing). On one hand, this is likely to result in benefits to competition as users will have easy access to new services. However, such expansion practices may hamper innovation where potential rivals are unwilling to invest in new, innovative services that could be easily mimicked by large digital platforms. Further, in instances where product innovation is data-driven, digital platform ecosystems may also be protected from potential competitors that do not have the same level of access to data.[635] The ACCC also notes commentary regarding 'kill zones', where venture capitalists may be reluctant to fund businesses in sectors that compete

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629 CMA, Mobile Ecosystems Market Study Final Report, 10 June 2022, p 263.

630 S Bakan, "What a US Ban of the Apple watch Could Mean for Australia", *The New Daily,* Feb 27 2023; W Betten, "Apple vs AliveCor and the Evolution of Wearable Medical Devices", *MddiOnline*, 23 May 2023

631 D Richards, "Apple Watch a Health Device Dud, then they saw Masimo's Technology Court Hears", *Channel News*, 21 April 2023; B Lovejoy, Apple vs Masimo court battle ends in mistrial; jury 6-1 in favour of Apple, *9to5Mac,* 2 May 2023.

632 R Albergotti, 'How Apple uses its App Store to copy the best ideas', *The Washington Post*, 19 September 2019.

633 Subcommittee on Antitrust, Commercial and Administrative Law of the Committee of the Judiciary, Investigation of Competition in Digital Markets: Majority Staff Report and Recommendations, 6 October 2020, p 325-328.

634 F Zhu and Q Liu, Competing with complementors: An empirical look at Amazon.com, *Strategic Management Journal*, 39:10 (2018), p 2620 (also available via Harvard Business School).

635 M Bourreau, Some Economics of Digital Ecosystems, Hearing on Competition Economics of Digital Ecosystems, OECD, 3 December 2020, p 7

directly or have the potential to compete with digital platforms, which may also play a role in hampering investment and innovation.[636]

Impact on core markets, including positions of market power

As digital platform service providers gain further access to non-public user data through expansion practices, there may be an increased risk that this data is leveraged to other areas of a digital platform ecosystem. For example, data accessed in a new sector could be used to consolidate the firm's market position in an established product or service or otherwise enhance a position of market power.

As discussed above in section 5.2, firms' increasing access to data can lead to consumer benefits, including the development of new and improved products. However, it can also raise competition concerns where the data is used to entrench a position of market power through raising already high barriers to entry and expansion. Greater access to data may also enhance an already strong market position and increase the risk of particular markets tipping in favour of one firm.

As mentioned above, the ACCC has previously considered data as a competitive advantage and barrier to entry and expansion in markets for digital platform services, including ad tech services. As certain digital platforms expand into data rich areas, including gaming, education and health and fitness, they gain greater access to non-public data. This is particularly the case where the platform is integrating the expanded offering into its ecosystem, for example, through interconnections such as user accounts (see section 5.1.1). For example, Microsoft's acquisition of LinkedIn enabled the company to access the data of a massive number of professional users, thereby enabling it to enhance its professional offerings.[637] By leveraging the data and insights from LinkedIn, Microsoft could provide more targeted and tailored services to its users, further expanding its presence in the professional market. Another example of Microsoft leveraging data-rich areas is its acquisition of Mojang, the developer of the popular game Minecraft. The potential benefits for Microsoft arising from the transaction include access to Minecraft user data, which could be utilised in future software releases.[638]

Beyond the digital platforms' core services, the ACCC remains concerned that data-related barriers to entry and expansion are likely to arise in the supply of other digital platform services.[639]

Box 6.11 below considers digital platform service providers' increased access to data from providing smart home devices, and how that data may be used within an ecosystem in a manner that raises the risk of competitive harm.

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636 Stigler Committee on Digital Platforms, Final Report [PDF 3.5MB], September 2019, p 9; M Bourreau and A de Streel, Digital Conglomerates and EU Competition Policy [PDF 628], 2019, pp 21-22. See also S K Kamepalli, R Rajan and L Zingales, Kill Zone, National Bureau of Economic Research, Working Paper 27146, May 2020 (revised June 2022).

637 J Erlichman, 'Three years after Microsoft acquisition, LinkedIn keeps quietly climbing', *LinkedIn,* 24 October 2019, accessed 14 September 2023.

638 K Noonan, 'I still can't believe Microsoft spent $2.5 billion to acquire Minecraft', *Motley Fool*, 2 April 2018, accessed 14 September 2023.

639 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 166.

Box 6.11 Data collected from smart home devices may affect competition in core services or entrench positions of market power

Smart home device data used across digital platform ecosystems could raise already high barriers to entry and expansion and increase the risk of competition issues. This is particularly the case where the data may be used to entrench or extend a position of market power, like Google's position in search and ad tech services.[640]

For example, Google combines data from its services and devices (including smart home devices) for targeted advertising,[641] which enhances Google's capabilities in a market where it already has market power and benefits from high barriers to entry. Google also uses smart home device data for search queries activated by Google Assistant, which Google submits forms a small proportion of queries.[642]

However, Google submits that it separates device sensor data for privacy purposes and such data is not used for advertising, whereas text from user interactions with Google Assistant can be used for personalised advertisements (if the user has not opted out of ad personalisation, which users can do).[643]

Google's presence in smart home devices is just one example of how Google can access non-public data that can be used to provide high-quality ad targeting, and potentially grants it further advantages in providing advertising services.[644]

The ACCC understands that Amazon uses smart home device data for targeted advertisements and within Amazon's online retail marketplace.[645] For example, Amazon can use data about which Amazon devices a customer has when marketing devices, accessories or services to customers. As outlined in Amazon's privacy policy, users can provide Amazon with voice recordings when speaking to Alexa, including on smart home devices, and device metrics such as when a device is in use, application usage, connectivity data, and any errors or event failures.[646] Much of this data is relevant to Amazon's advertising business and may benefit its online retail marketplace.

Apple submits that it does not collect or use user data in relation to smart home devices other than for the purpose of fulfilling user requests or improving or personalising services provided to the user. Apple submits it stores Home app data (used to control first- and third-party smart home devices) in a way that Apple cannot read and that it does not use data (including from Siri) to build a marketing profile. Apple submits the use of smart home device data is limited to what is necessary for functionality. For example, if users have Location Services turned on, the location of their device at the time they make a request will be sent to Apple to help Siri improve the accuracy of its response to their requests.[647]

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640 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 7.

641 Google states "We may combine the information we collect among our services and across your devices for the purposes described above" (see Google, Privacy Policy, *Google Privacy & Terms,* accessed 14 September 2023).

642 Google, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 325KB], May 2023, p 19.

643 Google, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 325KB], May 2023, p 19; Google Supplementary Submission, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 216KB], August 2023, p 3.

644 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 34.

645 Amazon, Amazon Privacy Policy, accessed 14 September 2023. While the ACCC's Report on General Online Retail Marketplaces noted that no single marketplace held a dominant position in Australia, the report also noted the potential for the market to tip (particularly in certain product categories) in favour of Amazon based on overseas experience.

646 Amazon, Amazon Privacy Policy, accessed 14 September 2023.

647 Apple, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report, May 2023, pp 5-6.

6.3. Strategic mergers and acquisitions

As noted in section 4.2.1, acquisitions are a common strategy adopted by digital platform service providers to expand their product and service offerings. In this context, the merger and acquisition activities of large digital platform service providers have been previously considered by the ACCC on numerous occasions.[648]

The ACCC recognises that there may be efficiency or pro-competitive drivers behind a particular acquisition or series of acquisitions. However, the continued expansion of digital platform service providers through either a single acquisition or a strategy of acquisitions may give rise to potential competition harms that require careful examination. This harm is particularly heightened where large global digital platform service providers have access to significant financial resources, data and visibility over adjacent markets; providing them with the ability to identify and acquire nascent or potential competitors, to reinforce and/or protect their strong market positions.

First, acquisitions that enable digital platform service providers to expand into markets that give them access to additional key inputs — such as data and data sources and users — may have the effect of strengthening existing economies of scale and scope, and/or network effects. This has the potential to raise barriers to entry and expansion, and/or strengthen certain competitive advantages held by digital platform service providers. As a result, it may increase their market power in certain core markets.

The strengthening of data advantages and network effects has been considered by international regulators in the context of several mergers and acquisitions involving large digital platform service providers:

- *Data advantages:* The European Commission is currently considering whether the acquisition of iRobot by Amazon will have the effect of strengthening Amazon's position in online retail marketplace services and/or other data related markets through its access to iRobot's user data.[649] Similar issues were considered by the ACCC and the European Commission in relation to Google's acquisition of Fitbit, and by the ACCC and the CMA in relation to Meta's acquisition of Kustomer.[650] While such issues have been raised in relation to acquisitions that involve large datasets, the ACCC notes that such advantages can also arise through a series of smaller acquisitions over a period of time. The OECD notes that even where the incremental acquisition of ubiquitous, non-rivalrous data through a merger is unlikely to lead to absolute foreclosure, it may be difficult for competitors to overcome the relative gap between their ability to exploit that data, and the acquirer's ability to exploit that data (including by combining it with existing

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[648] ACCC, Digital Platforms Inquiry Final Report, 26 July 2019, pp 74-76, 80-84; ACCC, Digital Advertising Services Inquiry Final Report, 28 September 2021, Appendix E, pp 15-16; ACCC, Digital Platform Services Inquiry First Interim Report, 23 October 2020, pp 75-85; ACCC, Digital Platform Services Inquiry Fifth Interim Report - Discussion Paper [PDF 1,808KB], 28 February 2022, pp 21-23; ACCC, Digital Platform Services Inquiry Sixth Interim Report, 28 April 2023, pp 71-72.

[649] European Commission, Mergers: Commission opens in-depth investigation into the proposed acquisition of iRobot by Amazon, Press release, 6 July 2023, accessed 14 September 2023.

[650] ACCC, Statement of Issues: Google LLC – proposed acquisition of Fitbit Inc., 18 June 2020, p 4 (the ACCC noted that the acquisition would likely increase data advantages that underpinned its market power in certain ad tech services). The European Commission accepted behavioural commitments from Google to address these concerns. European Commission, Mergers: Commission clears acquisition of Fitbit by Google, subject to conditions, Press release, 17 December 2020, accessed 14 September 2023; ACCC, Meta Platforms, Inc. – Kustomer, Inc, accessed 14 September 2023 (the ACCC considered whether Meta could use or restrict access to data through its ownership of Kustomer but ultimately concluded that any benefit from customer transaction data was unlikely to give Meta a significant competitive advantage); CMA, Facebook, Inc. / Kustomer, Inc., 9 November 2021, accessed 14 September 2023 (the CMA ultimately found that the additional data gained would not raise barriers). See also ACCC, Digital Platform Services Inquiry Third Interim Report, 28 October 2021, p 129 (Google / Fitbit).

datasets), due to factors such as network effects and economies of scale and scope favouring the larger firm.[651]

- *Network effects:* In relation to Facebook's acquisition of WhatsApp, the European Commission considered whether the larger combined user base would strengthen existing network effects. Two key factors considered in that case were the degree of single- or multi-homing and whether the services could be integrated to combine the separate networks into one larger combined network. [652]

Second, an acquisition may raise concerns if the acquired firm operates in a market that has the potential to be used as a launch pad for competitor entry into the platform's core markets, in addition to the usual concerns about reducing competition in the target market. The OECD notes that the loss of potential competition is most often the focus in digital platform-related mergers.[653]

In the past, significant attention has been given to so-called 'killer acquisitions', where incumbent firms acquire smaller innovative companies (often active in closely connected markets), and then discontinue the target's innovative projects and eliminate potential future rivals.[654] Killer acquisition strategies are often considered in relation to digital platform acquisitions involving either direct competitors or companies that are likely to threaten the digital platforms' core business model.

As noted in section 4.2.1, start-ups are often acquired by digital platform service providers in order to obtain access to certain assets (for example. technology, intellectual property, talent), which are then incorporated into the existing products of digital platform service providers. This can also prevent competitors from gaining access to these assets.

Feldman and Lemley argue that acquisitions of complementary products and services by digital platform service providers may reduce innovation and dynamic competition by pre-empting and terminating potentially disruptive alternatives.[655] However, in rapidly changing digital markets, whether a product is unrelated, complementary or a potential substitute is particularly hard to predict, especially for those outside the market (including competition authorities). Feldman and Lemley also note that "incumbents are in perhaps the best position among investors to identify firms that could threaten them before those firms mature".[656] In relation to determining direct competitors to ecosystems, the OECD found that "companies strategic decisions are likely not being made at the level of individual product

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651 OECD, Theories of harm for digital mergers - Background note, 2023, pp 23-24. See also J Hoffman and G Johannsen, EU-Merger Control & Big Data On Data-specific Theories of Harm and Remedies, SSRN (2019).

652 This deal was ultimately cleared by the European Commission. See European Commission, Mergers: Commission approves acquisition of WhatsApp by Facebook, Press release, 3 October 2014, accessed 14 September 2023. However, Facebook was later fined for providing misleading information regarding the ability for Facebook/WhatsApp to match user accounts (it did not affect the overall decision) – see European Commission, Mergers: Commission fines Facebook €110 million for providing misleading information about WhatsApp takeover, Press release, 18 May 2017, accessed 14 September 2023.

653 OECD, Theories of harm for digital mergers - Background note, 2023, p 12. For example, the ACCC's concerns in the Google-Fitbit merger concerned the loss of potential competition between Fitbit and Google (ACCC, Statement of Issues: Google LLC – proposed acquisition of Fitbit Inc., 18 June 2020, p 3).

654 ACCC, Digital Platforms Inquiry Final Report, 26 July 2019, p 75.

655 R Feldman and M Lemley, Atomistic Antitrust, *William & Mary Law Review*, 63:6 (2022), p 1927. See also C Cunningham, F Ederer and S Ma, Killer acquisitions, *Journal of Political Economy*, 129:3 (2021), p 2. Cunningham, Ederer and Ma argue that an incumbent has weaker incentives to continue development than an entrant if the new product or service are substitutes for a product or service in the incumbent's portfolio, and that this disincentive to innovate can be so strong that an incumbent firm may acquire a disruptive entrant simply to shut down its projects.

656 R Feldman and M Lemley, Atomistic Antitrust, *William & Mary Law Review*, 63:6 (2022), p 1895.

markets, but rather take into account a constellation of markets".[657] Regulators therefore face significant information disadvantages in assessing such acquisitions.

Increasingly, consideration is also being given to situations where digital platform service providers acquire a product or service instead of choosing to develop the product in-house. This has been referred to as a 'reverse killer acquisition'.[658] The US Federal Trade Commission used a similar theory to try to block Meta's acquisition of Within (a software company that develops fitness apps for VR devices). In particular, it argued that Meta was seeking to buy potential competition in VR rather than competing on the merit through investing in its own offerings. While this theory of harm was accepted by the Court, it did not accept that Meta would have otherwise entered the market for fitness apps.[659] The CMA is also considered this theory of harm in relation to the Amazon/iRobot merger, in particular noting concerns regarding loss of future competition if Amazon would have entered the relevant market absent the merger.[660]

Third, expansion through acquisitions may give rise to vertical and conglomerate concerns where the acquisition provides the digital platform service provider with the ability and incentive to misuse its existing dominant position in a market to harm rivals (for example, by way of vertical foreclosure, anti-competitive bundling/tying practices, or self-preferencing). This was considered by the European Commission, for example, in relation to Apple's acquisition of Beats Electronics (particularly whether Apple could use its mobile operating system to discriminate against competing music streaming services).[661] Commercial and technical bundling concerns were considered by various regulators in relation to Microsoft's acquisition of Nuance Communications, LinkedIn and Activision.[662]

Vertical input foreclosure theories are also increasingly being considered in relation to data-related digital platform mergers. In particular, such concerns will arise where an acquisition may provide a digital platform service provider with access to commercially valuable data which subsequently allows them to engage in exclusionary data practices (see section 6.2.3 above).[663] Big data may be an essential input to expansion of digital platforms and the potential for foreclosure has been considered in various merger reviews in Australia and overseas, including Meta's acquisition of Kustomer, Apple's acquisition of Shazam,

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657 OECD, Theories of harm for digital mergers - Background note, 2023, p 9. The OECD also notes that this is further complicated by the fact that many platforms operate in multi-sided markets, so authorities may have to assess the scope for future competition across multiple markets, not just in relation to the products/services being provided on the consumer side.

658 C Caffarra, 'How tech rolls': Potential competition and 'reverse' killer acquisitions', *OECD,* 27 November 2020, accessed 14 September 2023.

659 MLex, Meta-Within order denying US FTC challenge published by judge, 4 February 2023, accessed 14 September 2023. See also M Acton, 'Comment: Meta-Within deal challenge from US FTC failed on evidence, not theory', *MLex*, 6 February 2023, accessed 14 September 2023.

660 CMA, Anticipated acquisition by Amazon.com, Inc of iRobot Corporation Decision on relevant merger situation and substantial lessening of competition [PDF], 24 July 2023. Note, the CMA ultimately cleared the merger after finding that even if Amazon would have entered the market absent the merger, there would be sufficient remaining constraints in the UK market to ensure the merger does not give rice to competition concerns.

661 European Commission, Case M.7290 – Apple/Beats, Commission Decision [PDF 373], 25 July 2014, p 10.

662 CMA, Acquisition by Microsoft Corporation of Nuance Communications, Inc Decision on relevant merger situation and substantial lessening of competition, 2 March 2022; European Commission, Case M.8124 – Microsoft/LinkedIn, Commission Decision, 16 December 2016; European Commission, Case M.10646 – Microsoft/Activision Blizzard, Commission Decision, 15 May 2023 (note, the CMA has blocked this acquisition in the UK due to concerns regarding its effect on cloud gaming and is currently considering a new restructured deal where Microsoft agrees not to acquire Activision cloud streaming rights for the next 15 years: see, CMA, Microsoft submits new deal for review after CMA confirms original deal is blocked, Press Release, 22 August 2023).

663 OECD, Theories of harm for digital mergers - Background note, 2023, p 21-22. Generally, such theories focus on the acquisition of data that is specific and unique, or where the acquirer has the ability to combine the data with existing data in order to extract valuable information.

Facebook's acquisition of WhatsApp, Microsoft's acquisition of LinkedIn, Google's acquisition of DoubleClick and Microsoft's proposed acquisition of Yahoo! Search.[664]

There has been significant discussion in Australia and internationally in recent years about whether existing merger laws should be updated to respond to the concerns raised by the strategic acquisition of smaller or potential competitors by large digital platform service providers. This issue has been considered by regulators in the United States,[665] European Union and the United Kingdom, and discussed in previous ACCC reports under the DPSI.[666]

In the recent Regulatory Reform Report, the ACCC noted that while such challenges are not unique to acquisitions by digital platforms, they are particularly acute in markets for digital platform services due to their fast-paced and dynamic nature, significant market concentration, network effects, high barriers to entry and expanding ecosystems.[667]

While the report did not make any specific merger reform recommendations, the ACCC continues to support an economy-wide review of Australia's merger laws, including by improving the tools available to address adverse competition effects from serial strategic acquisitions. This is discussed further in chapter 8 below.

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664 ACCC, Meta Platforms, Inc. – Kustomer, Inc, accessed 14 September 2023; E Argentesi et al, Ex-post assessment of merger control decisions in digital markets: final report [PDF 3.8MB], document prepared by Lear for the Competition and Markets Authority, 9 May 2019, pp 22, 39-43.

665 The US Department of Justice and Federal Trade Commission recently jointly released the 2023 Draft Merger Guidelines for comment. These draft guidelines recognise the growing importance of competition in platform markets, and that there are distinctive characteristics and considerations in digital platform transactions. See US Department of Justice, 2023 Draft Merger Guidelines, 19 July 2023.

666 US Federal Trade Commission, Non-HSR Reported Acquisitions by Select Technology Platforms, 2010-2019: An FTC Study [PDF 971KB], 15 September 2021; E Argentesi et al, Ex-post assessment of merger control decisions in digital markets: final report [3.8MB], document prepared by Lear for the Competition and Markets Authority, 9 May 2019, accessed 14 September 2023; Furman et al, Report of the Digital Competition Expert Panel, Unlocking digital competition, 13 March 2019, accessed 14 September 2023; J Cremer, Y-A Montjoye and H Schweitzer, Competition policy for the digital era [PDF 1,257KB], European Commission, 2019, accessed 14 September 2023.

667 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 59.

7. Consumer harm risks from expanding digital platform ecosystems

This chapter builds on the discussion in chapter 2 by considering how consumers interact with the products and services in these expanding ecosystems. It explores 2 specific areas of potential consumer harm: the personal data collection practices of digital platforms across their ecosystems of products and services, and the impacts of consumer lock-in practices. This chapter draws on a Consumer Issues Discussion held by the ACCC, a summary of which is on the ACCC's website.[668]

7.1. Consumer interactions with expanding ecosystems

As described in chapter 2, consumers now interact with particular digital platform service providers in multiple ways. Some of these products and services are offered at no or low monetary cost, or as a free trial, which is attractive to consumers and allows a broader range of users to access them.[669] However, as noted in previous ACCC reports, while digital platform services may be offered to consumers at no or low monetary cost, consumers effectively 'pay' to use these services by providing digital platforms with their user data and attention when they view or engage with advertising.[670]

As consumers come to use more products and services within a digital platform's ecosystem, they increasingly come to rely on those platforms to carry out daily and important activities. At the Consumer Issues Discussion held by the ACCC, a stakeholder noted that it is now difficult for consumers to navigate the digital economy without using the services offered by digital platform service providers.[671]

As discussed in section 5.2, interconnected products and services can benefit consumers by offering convenience, and reducing search, transaction and learning costs. However, it also enables digital platform service providers to build a more detailed user profile of consumers and increases switching costs faced by consumers. Moreover, the products and services in a digital platform's ecosystem are complex. For example, as devices in the home become increasingly 'smart', the set-up processes for these devices can be more complex, and often require consumers to provide personal information and data.

Research suggests there are limits to the amount of information consumers can take in about complex products and services.[672] A participant at the Consumer Issues Discussion

668 On 14 June 2023, the ACCC held a discussion on consumer issues in relation to Report 7 of the Digital Platform Services Inquiry. The discussion was chaired by ACCC Deputy Chair Catriona Lowe and included consumer representative groups and researchers. See ACCC, Consumer Issues Discussion Summary [PDF 123KB], 25 July 2023.

669 ACCC, Consumer Issues Discussion Summary [PDF 123KB], 25 July 2023, p 1.

670 ACCC, Digital Platforms Inquiry Final Report, 26 July 2019, pp 66–73, 115.

671 ACCC, Consumer Issues Discussion Summary [PDF 123KB], 25 July 2023, p 1.

672 See, for example, P Lunn et al, Price Lab: An Investigation of Consumers' Capabilities with Complex Products, *Economic and Social Research Institute,* 13 May 2016, pp x, 88, 90.

noted this specifically in relation to products and services offered by digital platforms.[673] In particular, consumers may not even be aware that they may be interacting or using services within a digital platforms' ecosystem. For example, Associate Professor Ramon Lobato, Dr Alexa Scarlata and Dr Bruno Schivinski of RMIT submitted that 'consumer understanding of platform ecosystems is very limited'.[674] Box 7.1 further outlines how consumers may not know they are using cloud services when they are tied to other popular products and services.

This knowledge gap may make consumers more susceptible to the potential consumer harms explored in this chapter. For example, box 7.2 highlights how paid cloud subscription requirements for smart home devices might not be obvious to consumers. Other practices that digital platform service providers use, such as bundled billing, may also reduce consumer awareness of the specific services they are subscribed to and the combined impacts of using those services.[675]

Box 7.1 Consumer awareness of consumer cloud storage services being tied to other products

As consumer cloud storage services may be bundled with other, more prominent or popular, digital platform services, consumers may not always be aware that they have access to, or are using, cloud storage services. In the Consumer Issues Discussion, a participant noted that there are limited instances where consumers have the awareness or choice to compare cloud storage services, and that the ability for consumers to integrate their chosen service into their chosen device is very limited.[676]

A smartphone typically comes with storage built in on the device itself. In addition, Apple and Google provide an allotment of cloud storage available to users of devices with their operating system pre-installed with a zero cost for subscription. For example, when a user who does not have an Apple ID sets up a new Apple device, they are presented with the option to 'Create a Free Apple ID', as shown in figure 7.1 below.[677] As the account is advertised as free, a user might not expect that they will have to pay for cloud storage which is linked to their Apple ID once they reach the storage limit of 5GB. Depending on a consumer's settings and use of services linked to the cloud storage service, the allotment can be filled up quickly.[678]

673 ACCC, Consumer Issues Discussion Summary [PDF 123KB], 25 July 2023, p 3.

674 Associate Professor Ramon Lobato, Dr Alexa Scarlata and Dr Bruno Schivinski, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 635KB], May 2023, p 10.

675 ACCC, Consumer Issues Discussion Summary [PDF 123KB], 25 July 2023, p 4.

676 ACCC, Consumer Issues Discussion Summary [PDF 123KB], 25 July 2023, p 2.

677 Apple, How to create a new Apple ID, *Apple Support,* accessed 14 September 2023. This is also based on the device testing conducted by the ACCC on 16-17 August 2023 on an iPad (6th Generation) running iPadOS 16.6. This was undertaken to understand the set-up process that users experience when setting up a new iPad and new Apple ID without a backup.

678 L Gil and S Velasquez, 'Which iCloud storage plan should you get?', *iMore,* 29 December 2022, accessed 14 September 2023; S Duncombe, 'How to find the best cloud storage and backup service', *CHOICE*, accessed 14 September 2023. Further, Business Insider estimates that it takes about 500 typical photos taken with the iPhone's main camera to use 1GB while Lifewire estimates that 1 hour of video at the lowest-quality setting can take up 2.4GB. See W Antonelli, 'How to decide how much iPhone storage you need', *Business Insider,* 30 September 2022, accessed 14 September 2023; C Baker, 'How Much Video Can You Record on an iPhone?', *Lifewire,* 18 August 2022, accessed 14 September 2023.

Figure 7.1: Creating an Apple ID when setting up a new device[679]

Further, email accounts such as Google Gmail,[680] Apple iCloud[681] and Microsoft Outlook.com[682] also have an allotment of cloud storage that may need to be upgraded to a paid service once the storage cap is exceeded. However, this is not always advertised upfront. For example, a user hoping to create a Gmail account is not advised on the 'Create a Gmail account' page that their account has a cap of 15GB of storage.[683] Microsoft also does not advertise that on its Microsoft Outlook.com page that there is a cap of 15 GB on storage of emails and a separate 5GB of cloud storage, unless a user clicks the 'Try Premium' link or scrolls to a description at the bottom of the page that a Microsoft 365 subscription includes 1TB of cloud storage.[684] A user may not realise that they are using a cloud storage service in conjunction with another service until they have reached the maximum storage capacity. They may then need to consider paying an additional amount for extra storage to continue to use the related service or delete (valuable) personal data such as emails or photos.

679 Apple, How to create a new Apple ID, *Apple Support,* accessed 14 September 2023.

680 Messages and attachments in Gmail, including items in spam and trash folders are counted towards Google's storage allotment of 15GB. This allotment is shared across Google Drive, Gmail and Google Photos. Google, Questions about Google One? We've got answers, *Google One,* accessed 14 September 2023.

681 Users of iCloud email receive 5GB of free storage with their iCloud account which is used across backups, Mail, iCloud Photos, iCloud Drive and more. If users need more space, they can upgrade to iCloud+, paid subscription service. See Apple, Mailbox size and message sending limits in iCloud, *Apple Support,* 24 November 2021, accessed 14 September 2023.

682 Users of Microsoft Outlook.com email service receive 15GB of free storage which is separate to the Microsoft cloud storage. Users can increase storage limits by upgrading their Outlook.com account with a Microsoft 365 subscription, where they receive 50GB of storage space. See Microsoft, Storage limits in Outlook.com, *Microsoft Support,* accessed 14 September 2023.

683 For example, on the Create a Gmail account, there is no mention of emails contributing to the cap on storage except under the heading of 'Use Gmail for your business', see Google, Gmail Help - Create a Gmail account, *Google Support,* accessed 14 September 2023.

684 Microsoft, Microsoft Outlook Personal Email and Calendar, accessed 14 September 2023.

Box 7.2 First-party consumer cloud storage services for smart home devices

Smart home security devices, such as smart doorbells, cameras and display hubs, allow video recordings to be stored and accessed by users via cloud storage services. This integration with first-party cloud services may not always be clear to consumers at the time they purchase the device, even though it is often the only solution available to store and access recordings. For example, Apple's HomeKit Secure Video-enabled security systems use iCloud+ to store security footage.[685]

In addition to being necessary to store recordings, a Google Nest Aware subscription is also needed for accessing certain features on Google Nest devices. This subscription comes at an additional cost starting at AUD9 a month.[686] Features that are unlocked with this additional subscription include familiar face alerts and longer video history.[687] The need for an additional subscription to access these capabilities may not be obvious to consumers when they purchase a smart home device, and additional requirements are often only included in the fine print. For example, the reference to a Nest Aware subscription requirement for familiar face alerts currently sits as a footnote at the bottom of the Nest Doorbell product page.[688]

7.1.1. Young consumers interacting with digital platform service providers' ecosystems

As more consumers come to use a greater range of products and services across digital platforms' ecosystems, there is a risk that platforms' strategies may exacerbate a vulnerability in a particular consumer cohort.

Young consumers are increasingly interacting with digital platform services.[689] While the example of a day in the life of an 11-year-old boy, Thomas, in section 2.1.1 above is hypothetical, it is informed by recent statistics and provides an indication of how reliant young consumers can be on digital platform services.

Polling by the Royal Children Hospital Melbourne published in February 2023 found that 57% of 5-12 year olds play inside on a digital device most days.[690] Two-thirds (65%) of children aged 2 to 17 have access to a laptop, tablet or PC whether it be their own device (47%), their own login to a shared device (19%) or access to someone else's device when needed (20%). More than a third (36%) of children aged 2 to 5 have access to a laptop, tablet or PC.[691] Research from the Office of the eSafety Commissioner conducted in September 2020 found that teens spend on average 14.4 hours a week online and that Google's YouTube and Meta's Instagram and Facebook remain the most popular type of social media services used by teens in Australia.[692] Given trends of increasing digital activity over time, it is possible that

685 Apple, iCloud User Guide – Store encrypted security camera footage in iCloud with HomeKit Secure Video, *Apple Support,* accessed 14 September 2023.

686 Google, Nest Aware – Unlock more video history with Nest Aware, *Google Store,* accessed 14 September 2023.

687 Google, Nest Aware – Two types of video history to fit your needs, *Google Store,* accessed 14 September 2023.

688 Google, Nest Doorbell (battery) – Overview, *Google Store,* footnote 2, accessed 14 September 2023.

689 In this context, the ACCC defines young consumers as consumers below the age of 18 years old.

690 A Rhodes, RCH National Child Health Poll - Australian families: How we play [PDF 565KB], Royal Children's Hospital Melbourne, February 2023, accessed 14 September 2023, pp 2-3.

691 OAIC, Australian Community Attitudes to Privacy Survey, 8 August 2023, accessed 14 September 2023, p 85.

692 eSafety, The digital lives of Aussie teens, February 2021, accessed 14 September 2023, p 9.

intensity of usage of digital platform services by young consumers has increased further in the intervening period.

Many of the products and online services that young people spend time on are provided by large digital platform service providers. For example, as discussed above in section 3.1.1, Apple, Google and Meta's core services include operating systems on mobile devices, search and social media respectively. These products and services are popular with young consumers. The business models of large digital platform service providers, such as advertising and matching business models, may mean that platforms have an incentive to encourage younger consumers to stay on these services for longer.

A range of health, safety, and societal impacts may arise from young people's engagement with digital platforms. Family Zone submits that the objectives of the tech companies to drive end-user engagement is akin to driving compulsion or addiction.[693] The ACCC has no formal remit on these potential impacts. However, there may be particular competition and consumer risks also arising from how young people engage with ecosystems of products and services.

Young people may also be particularly vulnerable to long-term effects from consumer lock-in and consumer inertia if they often commit to a particular ecosystem. As described in chapters 4 and 5, digital platform service providers are expanding into the education sector by offering services or devices to schools, and these are often linked to other services within that digital platforms' ecosystem. For example, cloud storage services are linked to a number of educational services. Box 7.3 demonstrates that expansion into the education sector could mean that consumers are exposed to an ecosystems' services at a young age. This may give rise to greater long-term risks of consumer lock-in and consumer inertia as young consumers become familiar and accustomed to particular ecosystems.

Box 7.3 Consumer cloud storage services in education in Australia

Online learning during COVID-19 accelerated an existing trend towards the use of online digital tools in the classroom. In Australian primary and secondary school classrooms Microsoft and Google products and services are both widely used, noting different school systems may have individual arrangements in place.[694]

Google in particular has focussed its efforts on increasing its in classroom presence worldwide. In 2020 Google claimed to have doubled its Google Classroom user base worldwide during the early stages of the pandemic.[695] Google offers both a device[696] and software/services,[697] which include consumer cloud storage.

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693 Family Zone, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 214KB], May 2023, p 3.

694 See Google, Google has also announced that 1.2 million NSW school students move to Google Apps for Education [PDF 242KB], accessed 14 September 2023; Google, Canberra Public Schools empower students to 'Learn, Anywhere' with Google Workspace for Education and Chromebooks, accessed 14 September 2023; The Government of Western Australia, Supply of Microsoft product licences and licensing solutions CUAMS2019, 16 May 2023; Microsoft, Category: Tasmania Department of Education, 10 December 2019, accessed 14 September 2023; Queensland Department of Education, The internet at school, 16 February 2023, accessed 14 September 2023; Northern Territory Government, Technology in schools, 18 April 2023, accessed 14 September 2023.

695 G De Vynck and M Bergen, 'Google Classroom Users Doubled as Quarantines Spread', *Yahoo Finance*, 10 April 2020, accessed 14 September 2023.

696 The Google Chromebook is a competitor to the Windows PC. Chromebooks run on the Chrome OS operating system rather than Windows and offer an 'app' interface. Google Drive is accessed on a Chromebook as an 'app'. Google Chromebooks are now the 'best-selling device in K12 education' globally, according to Google.

697 Google Workspace for Education (previously G-Suite for Education) includes the use of Google Classroom (teachers classroom management), Gmail for each student (an alternative to 'hosted' email, an email service with integrated chat functions), Google Docs Editors (including spreadsheet, presentation, and word processing programs) and Google One Drive for each student (consumer cloud storage).

Arrangements for the supply of devices and software/services into Australian schools varies. In some schools and state education systems, Chromebooks may be recommended or required, as part of a bring-your-own-device (BYOD) scheme, and are often attractive due to their lower price point. Alternatively, schools may supply Chromebooks. For example, the ACT Government has funded every secondary student to have a Chromebook under its Future of education – digital access and equity program.[698]

Google Workspace for Education is provided free to educational institutions in Australia, with premium features available for a fee.[699] This may offer benefits to schools in the form of cost savings compared to traditional hosted email, file storage, and productivity software. The use of digital resources in Australian schools may also help support Australian students' digital literacy. The bundling and tying of Chromebooks with the Google Workspace for Education suite may offer an attractive package with benefits to consumers due to the close integration between the Chromebook and the associated apps, including Google Drive.

Where a particular digital platform is used exclusively in schools, this builds Australian school children's familiarity with that digital platform's ecosystem including with consumer cloud products. When students leave the school environment that familiarity with the ecosystem and its services may persist. The impact of digital platforms' integration in the school environment on children and their parents has not been extensively studied and the long-term trade-offs are not clear.

Some researchers have noted that "Google's platform logic in education is subsumed under 2 strategic goals: to create an app ecosystem with Google at its centre, and to mould teachers, students, and guardians into future Google users".[700] Microsoft also maintains a retaining some presence in the education space.

The use of particular commercial products and services in schools is not exclusive to digital platforms. The Commonwealth Bank of Australia's 'Dollarmites' account ran for more than 90 years until an ASIC review of school banking programs[701] and a campaign by CHOICE led Victoria, the ACT, and Queensland to impose a ban on school banking programs. CHOICE's research found that 46% of Australians had opened their first bank account with the Commonwealth Bank of Australia and 34% still had their first account.[702] There may be a similar level of consumer inertia after school-aged children commence using services offered by digital platform service providers which mean they continue to use those services as an adult.

Secondly, the use of these types of classroom tools by children may give rise to potentially harmful data practices. With digital platform service providers entering the market for classroom products and services, they are in a position where they gain increased access to children's data. Research conducted for the ACCC's Report on App Marketplaces[703] identified Google Classroom as the most popular app for kids which requests dangerous permissions.[704] A review undertaken by Human Rights Watch found that 89% of education

698 ACT Government, Future of Education – Digital Access and Equity Program, accessed 14 September 2023.

699 Google, Elevate education with simple, flexible, and secure tools with Google Workspace for Education, *Google for Education,* accessed 14 September 2023. See also Arc, Google Workspace for Education, accessed 14 September 2023.

700 C Perrotta, K N Gulson, B Williamson and K Witzenberger, Automation, APIs and the distributed labour of platform pedagogies in Google Classroom. *Critical Studies in Education*, 62:1 (2021), pp 97-113.

701 Australian Securities and Investments Commission, REP 676 Review of school banking programs, December 2020.

702 A Kollmorgen, 'Queensland bans school banking programs', *Choice,* April 2021, accessed 14 September 2023.

703 AppCensus, 1,000 Mobile Apps in Australia, Appendix C: Kids Apps [PDF 1,182KB], 24 September 2020, accessed 14 September 2023, p C-17.

704 Dangerous permissions include situations where the app wants data or resources that involve the user's private information, or could potentially affect the user's stored data or the operation of other apps. To use a dangerous

technology providers engage in data practices that put children at risk, in many cases without consent of the children or their parents.[705]

As described in section 4.2.1, digital platform service providers may use insights gleaned from data from existing services to inform expansion. These strategies could result in unwanted data collection, which will be explored further in section 7.2. For example, the US Federal Trade Commission charged Amazon for collecting and retaining children's data to help improve Alexa's speech recognition and processing capabilities.[706] Unwanted data collection is especially problematic for children's data collection.

The OAIC, in a commissioned report, has considered the risks and harms that children face online.[707] The commissioned report noted these risks arise primarily from the monetisation of children's personal information, from the social impacts of sharing personal information on children's reputations and life opportunities, and from e-safety risks. These risks culminate in both immediate and potentially long-term harm. In its submission to the Privacy Act Review Discussion Paper, the ACCC recommended that the OAIC develop guidance material to elaborate on any additional obligations on digital platforms in relation to the collection of children's personal information.[708]

7.2. Data practices impacting consumers

7.2.1. Privacy policies of digital platforms on use of data across services

As digital platform service providers expand their ecosystem into new products, sectors or technologies, they have an increased opportunity to accumulate more user information from consumer services. The Australian Human Rights Committee submits that to "use these staples of modern living, consumers are required to relinquish vast amounts of personal information and data".[709] As described in section 5.2.1, this data is valuable to digital platform service providers in its volume and scope.

The data collection and use policies of the large digital platform services providers vary. However, they each allow, to different degrees, for the collection and sharing of user data across an ecosystem of products and services. For example:

- Amazon's Privacy Notice states: "We automatically collect and store certain types of information about your use of Amazon Services, including information about your

permission, the app must prompt the user to grant permission at runtime. See AppCensus, 1,000 Mobile Apps in Australia, Appendix C: Kids Apps [PDF 1,182KB], 24 September 2020, accessed 14 September 2023, p C-17.

705 Human Rights Watch, "How Dare They Peep Into My Private Life?" Children's Rights Violations by Governments that Endorsed Online Learning During the Covid-19 Pandemic, 25 May 2022, accessed 14 September 2023; T Apps, K Beckman and S Howard, 'Edtech is treating students like products. Here's how we can protect children's digital rights', *The Conversation,* 10 June 2022, accessed 14 September 2023.

706 US Federal Trade Commission, FTC and DOJ Charge Amazon with Violating Children's Privacy Law by Keeping Kids' Alexa Voice Recordings Forever and Undermining Parents' Deletion Requests, Press release, 31 May 2023, accessed 14 September 2023.

707 N Witzleb et al, Privacy risks and harms for children and other vulnerable groups in the online environment, Research paper commissioned by the Office of the Australian Information Commissioner [PDF 1,488KB], 18 December 2020, accessed 14 September 2023.

708 ACCC, Response to the Privacy Act Review Discussion Paper, December 2021, p 3.

709 Australian Human Rights Commission, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 231KB], May 2023, p 6.

interaction with content and services available through Amazon Services [defined as websites, devices, products, services, online and physical stores and applications]".[710]

- Apple's Privacy Policy states: "When you create an Apple ID, apply for commercial credit, purchase and/or activate a product or device, download a software update, register for a class at an Apple Store, connect to our services, contact us (including by social media), participate in an online survey, or otherwise interact with Apple, we may collect a variety of information including [account, device, contact, payment, transaction, fraud prevention, location, health, fitness, financial and usage information and data and government ID]".[711]
- Google's Privacy terms and conditions state that: "We may combine the information we collect among our services and across your devices for the purposes [described in its Privacy Policy]".[712]
- Meta's Privacy Policy states: "We use information we collect to provide a personalised experience to you, including ads, along with the other purposes that we explain in detail below… For some of these purposes, we use information across our products and across your devices".[713]
- Microsoft's Privacy Statement states: "…we combine data we collect from different contexts (for example, from your use of 2 Microsoft products) or obtain from third parties to give you a more seamless, consistent and personalised experience, to make informed business decisions, and for other legitimate purposes".[714]

These privacy policies are not exhaustive and there can also be supplementary notices on privacy, or other sources of information on privacy and data use across different services and products within a digital platforms' ecosystem.[715] This may also make it difficult for consumers to find a single source of information about how the digital platform service provider collects and uses their data.

7.2.2. Consumer attitudes towards collection of data across services

Consumers are generally concerned about how companies are collecting and using their data and expect that companies take steps to keep their personal information safe.[716] This may be particularly the case when a company is able to collect and use data across a range of products and services. A recent study conducted by the Consumer Policy Research Centre found that 79% of Australian consumers agree companies should only collect

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710 Amazon, Amazon.com.au Privacy Notice, 31 August 2022, accessed 14 September 2023.

711 Apple, Apple Privacy Policy, *Privacy,* 22 December 2022, accessed 14 September 2023.

712 Google, Google privacy policy [PDF 563KB], accessed 14 September 2023.

713 Meta, Privacy Centre Privacy Policy, 15 June 2023, accessed 14 September 2023.

714 Microsoft's Privacy Overview states that Microsoft will use customer data only to provide the services we have agreed upon, and for purposes that are compatible with providing those services. It also states that it does not share consumer data with its advertiser-supported services, nor does it mine it for marketing or advertising; see Microsoft, Data management at Microsoft, *Microsoft Trust Center,* accessed 14 September 2023. However, its Privacy Statement says that it uses data to provide products and support, improve and develop products, personalise its products and make recommendations and advertise and market to consumers, which includes promotional communications, targeting advertising and presenting consumers with relevant offers; see Microsoft, Microsoft Privacy Statement, *Microsoft Privacy Statement,* August 2023, accessed 14 September 2023.

715 For example, Google provides information about data use in its Help Centre and on the Google Home app, and Amazon also has supplementary privacy notices for certain devices. See Google Supplementary Submission, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 216KB], August 2023, p 3; Amazon, Alexa and Alexa Device FAQs, *Amazon Help and customer service,* accessed 14 September 2023.

716 84% of Australian consumers agreed that a company should be responsible for keeping data safe. Consumer Policy Research Centre, Not a fair trade, Consumer views on how businesses use their data, March 2023, p 18.

information about them that they need to provide a product or service and 60% felt uncomfortable with personal information being used to create a personal profile. Further, less than 10% of Australian consumers are comfortable with the current approach to targeted advertising, with tracking of online behaviour or personal characteristics without giving expressed permission.[717]

The ACCC has previously identified that the extent of collection, use and disclosure of data by platforms often does not align with consumer preferences.[718] A recent survey conducted by the OAIC found that social media companies are least trusted, as they are the least likely to collect only the information they need, use and share information as they claim, and/or to delete information when it is no longer needed.[719] It also found that half of Australians surveyed believe that if they want to use a service they have no choice but to accept what the service does with their data and 84% want more control and choice over the collection and use of their personal use of their information.[720]

Further, box 7.4 demonstrates how the collection of data on smart home devices is increasing and the opacity around the need for this information to be collected.

Box 7.4 Excessive collection of personal data on smart home devices

As discussed in chapters 4 and 5, Amazon, Apple and Google collect a large amount of user data via smart home devices. This includes at the time of setting up an account, while using the device, as well as other automatic and background data collection. These smart devices, such as smart TVs, actively collect data while their predecessors were 'passive'. Accordingly, consumer awareness about the data being collected may be particularly low in the context of smart home devices. As more households adopt smart home devices, the amount of data collected and stored by these devices is also increasing. This data can include email addresses, date of birth, phone number and sometimes credit card information. As submitted by TP Link, consumer understanding of data collection practices varies widely, indicating a need for greater transparency and education around data collection.[721]

It is not always clear, under the relevant privacy policies of Amazon, Apple and Google, or in practice, whether the data collected by the digital platform service providers exceeds the level of data required for device functionality, product improvement, targeted advertising or other use cases.

In their submission, Associate Professor Ramon Lobato, Dr Alexa Scarlata and Dr Bruno Schivinski state that their research indicates that the Google TV operating system on third-party smart TVs collects large amounts of user data.[722] For example, Sony and TCL's implementation of Google TV requires a user to set up or log in to an existing Google Account that can provide access to a profile photo, home and work addresses, education and employment histories and permission to share location data and information about contacts from any other signed in devices. They also note data is collected while using

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717 Consumer Policy Research Centre, Not a fair trade, Consumer views on how businesses use their data, March 2023, p 6.

718 ACCC, Digital Platforms Inquiry Final Report, 26 July 2019, pp 382–385, 389–390; ACCC, Digital Platform Services Inquiry First Interim Report, 23 October 2020, p 52; ACCC, Digital Platform Services Inquiry Second Interim Report, 28 April 2021, pp 11, 136–138; ACCC, Digital Platform Services Inquiry Fourth Interim Report, 28 April 2022, pp 32–40. ACCC, Digital Platform Services Inquiry Sixth Interim Report, 28 April 2023, p 143.

719 OAIC, Australian Community Attitudes to Privacy Survey, 8 August 2023, accessed 14 September 2023, p 48.

720 OAIC, Australian Community Attitudes to Privacy Survey, 8 August 2023, accessed 14 September 2023, p 8.

721 TP-Link Australia, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 110KB], May 2023, p 3.

722 Associate Professor Ramon Lobato, Dr Alexa Scarlata and Dr Bruno Schivinski, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 635KB], May 2023, p 12.

smart TVs, such as app downloads, app usage, and viewing times.[723] Google submits that where a Google smart home device is used to access a third-party application, Google's ability to collect data is limited by the user's settings and permissions, the third-party service's terms of use and privacy policy, and by any contractual arrangements in place between Google and the third party.[724]

Similarly, the German Competition Authority (Bundeskartellamt) conducted a sector inquiry into smart TVs which found that besides offering convenient benefits for users, smart TV devices can also be used to collect large amounts of data on consumers and their usage behaviour. Providers of smart TVs could use these for advertising purposes, even if they are not yet exploiting their full potential for data collection.[725]

Oracle also notes that Google's privacy policy allows it to use the information gathered by voice commands, including in the case of some device recordings that commence "a few seconds before the activation to catch the complete request", though potentially such voice information may not relate to the request.[726] Google submits that such snippets are deleted where "Hey Google" is not activated.[727]

7.2.3. Use of consumer data across services

As digital platform service providers create new products and services across different sectors, consumers risk losing control over their information. Terms of use and other privacy policies that outline digital platform data collection and use practices are often complex, opaque and not user friendly.[728] As noted above in section 7.2.1, it is not always intuitive for users of digital platform services to find information about use of data by the platforms when there are multiple privacy policies and statements and terms of use. As a result, consumers may face difficulties with controlling how their data is collected and used across services which may be heightened as digital ecosystems continue to expand.

Some digital platform service providers now offer users the option for certain data not to be used for targeted advertising purposes. This is, however, often offered on an 'opt out' basis, creating an additional hurdle for users to control their data. Additionally, consumers may not fully appreciate the range of products and services offered by a digital platform, or the ways in which their data may be collected and used across an ecosystem of services.

Further, it can be difficult to anticipate all the ways that data may be re-used in the future, as further uses may be unlocked through the creation of new services. This is particularly the case where data collected can potentially be combined with many different sources to derive insights, and given the expanding array of services offered by platforms.[729] This can make it more challenging for consumers to understand how their data may be used in future. A recent update to Google's privacy policy also clarified that publicly available information is

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723 Associate Professor Ramon Lobato, Dr Alexa Scarlata and Dr Bruno Schivinski, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 635KB], May 2023, p 13.

724 Google Supplementary Submission, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 216KB], August 2023, p 3.

725 Bundeskartellamt, Sector inquiry smart TVs - Conclusion and recommendations for action, July 2020, p 17.

726 Oracle, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 247KB], May 2023, p 3.

727 Google, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 325KB], May 2023, p 18.

728 In some instances, websites can be designed to encourage consumers to give up more of their personal data than they would like. The UK's Information Commissioner's Office and CMA have found that practices such as overly complicated privacy controls, default setting that give less control over personal information and bundling privacy choices together can harm consumers. ICO, ICO and CMA: Harmful online design encourages consumers to hand over personal information, Media Release, 9 August 2023.

729 N Petit and D Teece, Taking Ecosystems Competition Seriously in the Digital Economy [PDF], OECD Hearing on Competition Economics of Digital Ecosystems, 2 December 2020, accessed 14 September 2023, p 7.

used to train its AI models and build products and features like Google Translate, Bard, and Cloud AI capabilities.[730]

As described in box 7.5, some overseas regulators recognise the risk of digital platforms using data across services.

Box 7.5 Observations on data collection and use practices across services by overseas regulators

Bundeskartellamt's proceedings against Meta

In 2019, the German Competition Authority Bundeskartellamt found that the extent to which (then called) Facebook collects, merges and uses data in user accounts constituted an abuse of a dominant position. It prohibited Facebook from combining user data from different sources, including Facebook-owned services like WhatsApp and Instagram, or from third-party websites, without the users' voluntary consent.[731] Facebook appealed this decision to the Higher Regional Court of Dusseldorf, which subsequently sought clarification from the Court of Justice of the European Union regarding whether the Bundeskartellamt may take into consideration the EU's General Data Protection Regulation (GDPR) norms when weighing interests in decisions under competition.[732] On 4 July 2023, the Court of Justice of the European Union issued a judgement in support of national antitrust authorities considering breaches of the GDPR as part of their market abuse investigations.[733] While the proceeding is still before the Dusseldorf Higher Regional Court, the findings of the Court of Justice of the European Union potentially allows for more competition authorities in Europe to take cases related to data processing terms and conditions.

Bundeskartellamt's Statement of Objections issued to Google

On 23 December 2022, the Bundeskartellamt issued Alphabet Inc and Google Germany a statement of objections regarding their data processing terms. This includes how Google's data collection policies allow it to combine a variety of data from various services and use them to create very detailed user profiles. The Bundeskartellamt highlighted the risk that this enables Google to potentially exploit these user profiles for advertising and other purposes, or to train functions used in other products or services. It reached the preliminary conclusion that users are not given sufficient choice as to whether, and to what extent, they agree to this far-reaching processing of their data across services. As such, the Bundeskartellamt considered Google needed to change its data processing terms and its associated practices.[734]

Autorità Garante Della Concorrenza e del Mercato's investigations

In November 2021, the Italian Competition and Consumer authority (Autorità Garante Della Concorrenza e del Mercato, the AGCM), concluded 2 investigations into Google and Apple, fining them approximately €10m each, for practices around their collection and use of user data in breach of the national consumer law. In particular, the firms were fined for

730 Google, Google privacy policy [PDF 563KB], accessed 14 September 2023.

731 Bundeskartellamt, Bundeskartellamt prohibits Facebook from combining user data from different sources, 7 February 2019, accessed 14 September 2023.

732 Bundeskartellamt, CJEU decision in Facebook proceeding: Bundeskartellamt may take data protection rules into consideration, 4 July 2023, accessed 14 September 2023.

733 Court of Justice of the European Union, Press Release No 113/23 [PDF 124KB], Luxembourg, 4 July 2023, accessed 14 September 2023.

734 Bundeskartellamt, Statement of objections issued against Google's data processing terms, 11 January 2023, accessed 14 September 2023.

failing to provide clear and immediate information on data collection and use, and failing to seek consent prior to use of personal data for "aggressive practices related to the acquisition and use of consumer data for commercial purposes". Both Apple and Google appealed the fines, and on 18 November 2022, an Italian administrative court rejected Google's appeal but accepted Apple's appeal.[735]

Consumers do not always read all the terms and conditions (including privacy policies) associated with a digital platform service. Even those that do may agree to unfavourable terms and conditions due to a lack of effective competitive alternatives or because of the perceived importance of maintaining access to digital platform services.[736] For example, Apple's privacy policy states "You are not required to provide the personal data that we have requested. However, if you choose not to do so, in many cases we will not be able to provide you with our products or services or respond to requests you may have".[737] Terms like this can lead to the unwanted collection and use of data or greater exposure to unsolicited targeted advertising.[738] It may also heighten the risk of consumers losing control over their personal data if, in agreeing to use one service, the consumer must consent to the information being used to provide a broad range of other products and services.

Consumers can benefit from privacy policies providing further and specific useful information specifying how and for which purpose particular data points are used. For example, specifying that the collection of data on content viewed by the user can inform content recommendations. Such information could allow consumers to make informed decisions about the uses of their data for which they should provide consent.

Using a product or signing up to a service offered by any of the large digital platform service providers typically requires the creation of a user account. This process can involve standard-form click-wrap agreements[739] with bundled consents, which limit the ability of consumers to provide well-informed and freely given consent to digital platforms' collection, use and disclosure of their valuable data.[740] For example, box 7.6 describes how users may find it difficult to understand how data is collected from smart home devices.

Box 7.6 Understanding and control of data collected on smart home devices

To understand the type of data collected on smart home devices and how it is used by Google, Apple and Amazon, users must navigate complicated privacy policies. As submitted by TP Link, privacy policies and terms of service documents outlining data collection practices are often lengthy and complex, and consumers must read and comprehend them before using a smart home device.[741] Privacy policies also do not always adequately outline the types of data collected, and for each data point how it may be used by the digital platform. For example, the Australian Privacy Notice for Ring,

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735 AGCM, PS11147-PS11150 - ICA: $20 million sanctions against Google and Apple for commercial use of user data, Press release, 26 November 2021, accessed 14 September 2023.

736 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 43.

737 Apple, Apple Privacy Policy, *Apple Privacy,* 22 December 2022, accessed 14 September 2023.

738 ACCC, Digital Platforms Inquiry Final Report, 26 July 2019, pp 393–394; ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 43.

739 Clickwrap consents are online agreements using digital prompts that request users to provide their consent to online terms and conditions without requiring them to fully engage with the terms and policies of use. See ACCC, Digital Platforms Inquiry Final Report, 26 July 2019, p 395.

740 ACCC, Digital Platforms Inquiry Final Report, 26 July 2019, p 23.

741 TP-Link Australia, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 110KB], May 2023, p 3.

Amazon's smart doorbell, provides some detail of the types of data collected, such as a users' postal address, but also provides unclear categories including 'data about your interactions with our websites and mobile apps'.[742]

Managing and controlling user data on smart home devices is not always simple, and can involve multiple steps that are not always intuitive to consumers. For example, users of Google smart home devices manage their data in several ways. This includes via the My Activity page and multiple sub-settings, downloading personal data on the Google Dashboard and accessing other settings through My Account, Privacy Controls and their Google Account. These avenues for data control are not always located in a centralised place, and can require a good understanding of the different functionalities for full control.

At the ACCC's Consumer Issues Discussion, a stakeholder identified that consumers risk losing control of their personal data through digital platforms nudging or requiring users to share more data than they are aware of or more than they would otherwise be prepared to share to access services within a digital platform's ecosystem.[743] The ACCC has taken court action against digital platform service providers regarding the disclosure of their use of data, including:

- An April 2021 Federal Court finding that Google misled consumers about personal location data collected through Android mobile devices. When consumers created a new Google Account during the initial set-up process of their Android device, Google misrepresented that the 'Location History' setting was the only Google Account setting that affected whether Google collected, kept or used personally identifiable data about their location. In fact, another Google Account setting titled 'Web & App Activity' also enabled Google to collect, store and use personally identifiable location data when it was turned on, and that setting was turned on by default.[744]
- A 26 July 2023 Federal Court finding that subsidiaries of Meta, Facebook Israel and Onavo, misled the public about the collection and use of data collected from the Onavo Protect mobile VPN app.[745] Onavo Protect was promoted as a product that would keep users' data protected and safe. However, Onvao and Facebook Israel shared the personal activity data from users collected by the app in anonymised and aggregated form with Meta for commercial benefit. For example, data such as users' internet and app activity, was sent to Meta and used to support Meta's market research activities. The Court ordered the 2 subsidiaries of Meta to each pay AUD10m for misleading the public, in breach of the Australian Consumer Law.[746]

As previously identified, the ACCC considers that consumers should be given both sufficient information and adequate control to allow them to make informed choices about what data is collected and used by the digital platform.[747] This may be especially necessary as digital platforms are in a position to collect and use consumer data from an increasing range of services. It is also important that information provided to consumers should be easy to understand and useful, and avoid long and complex terms and conditions. Providers must

742 Ring, Australia Privacy Notice, accessed 14 September 2023.

743 ACCC, Consumer Issues Discussion Summary [PDF 123KB], 25 July 2023.

744 ACCC, Google misled consumers about the collection and use of location data, 16 April 2021.

745 Onavo Protect was a free downloadable software application providing a virtual private network service. ACCC, $20m penalty for Meta companies for conduct liable to mislead consumers about use of their data, 26 July 2023.

746 ACCC, $20m penalty for Meta companies for conduct liable to mislead consumers about use of their data, 26 July 2023.

747 ACCC, Digital Platform Services Inquiry Fourth Interim Report, 28 April 2022, p 5.

recognise there are limits to the amount of information consumers can take in about complex products and services.[748]

7.2.4. Harms to consumers' privacy and security

With consumers interacting even more frequently with a variety of connected services, the risks of privacy and security concerns may be heightened. For example, as shown in box 7.7, digital platforms are invited directly into homes through the supply of smart home devices.

Box 7.7 Privacy, surveillance, and security issues in smart home devices

The ACCC received submissions from stakeholders raising privacy-related concerns regarding the use of smart home devices. For example, TP Link submitted that companies may use data collected from smart home devices for other purposes, such as targeted advertising, without users' consent, which can raise privacy concerns and result in a loss of consumer trust.[749] Further, Custom Electronic Design and Installation Association submitted that while turning on a light creates a data point that may be useful, recording sensitive data like conversations in private homes raises significant privacy concerns.[750]

International regulators have recently considered issues regarding privacy, surveillance and security in the context of smart home devices. The US Federal Trade Commission recently took action against home security camera company Ring (owned by Amazon) for compromising its customers' privacy by allowing any employee or contractor to access consumers' private videos and by failing to implement basic privacy and security protections, enabling hackers to take control of consumers' accounts, cameras and videos.[751] The Federal Trade Commission and the US Department of Justice also charged Amazon with violating children's privacy law by failing to delete children's voice recordings collected by Alexa, despite requests from parents to remove the data.[752]

Google has also previously admitted that contractors were able to access recordings made by Google Assistant following a breach in the software.[753]

Academic literature raises the potential privacy, surveillance and security risks posed by smart home devices, including those related to confidentiality, authentication and access.[754] Buil-Gil et al found in their literature review that majority of existing studies focus on privacy intrusions as a prevalent form of harm with smart homes.[755]

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748 See, for example, P Lunn et al, Price Lab: An Investigation of Consumers' Capabilities with Complex Products [PDF 1,985KB], Economic and Social Research Institute, 13 May 2016, pp x, 88, 90.

749 TP-Link Australia, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 110KB], May 2023, p 4.

750 Custom Electronics Design & Installation Association, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report, May 2023, p 1.

751 US Federal Trade Commission, FTC Says Ring Employees Illegally Surveilled Customers, Failed to Stop Hackers from Taking Control of Users' Cameras, Press release, 31 May 2023, accessed 14 September 2023.

752 US Federal Trade Commission, FTC and DOJ Charge Amazon with Violating Children's Privacy Law by Keeping Kids' Alexa Voice Recordings Forever and Undermining Parents' Deletion Requests, Press release, 31 May 2023, accessed 14 September 2023.

753 K Paul, 'Google workers can listen to what people say to its AI home devices', *The Guardian*, 12 July 2019, accessed 14 September 2023.

754 H Lin and N Bergmann, IoT Privacy and Security Challenges for Smart Home Environments, *Information* 7(3):44 (2016), pp 1-15; Z Shouran, A Ashari and T K Priyambodo, Internet of Things (IoT) of Smart Home: Privacy and Security, *International Journal of Computer Applications* 182(39) (2019), p 4.

755 D Buil-Gil et al, The digital harms of smart home devices: A systematic literature review, *Computers in Human Behavior* 145 (2023), p 7.

Another potential issue relates to information externalities. When an individual shares their personal information, this reduces not only their own privacy, but also the privacy of other users whose information is correlated with their own.[756]

Where some consumers use multiple interconnected products or services from the ecosystem and choose to share their personal information, the digital platform will not only be able to use this information to build a more detailed profile of that user, but may also be used to infer information about other users who chose not to share their personal information.[757] As the Australian Human Rights Commission submits, "expanding ecosystems will only exacerbate potential harms in conjunction with the 'mosaic effect' – when organisations gather seemingly small and innocuous pieces of personal information which, on their own, provide no great insights about a consumer…however, these small pieces of data, accumulated, provide detailed profiles about consumers".[758]

In a recent survey, the OAIC found that almost all Australians think they should have additional rights under the Australian Privacy Act, these include the right to object to certain data practices while still being able to access and use the service (90% of surveyed Australians believe they should have this right) and the right to ask a business to delete their personal information (93%).[759] The obligations provided for under the Australian Privacy Principles require that reasonable steps be taken to protect personal information and that personal information be destroyed or de-identified once it is no longer needed.[760] However, this Principle does not provide an individual with the ability to insist on earlier destruction. The Privacy Act Review proposal seeks to expressly recognise an individual's right to erasure (a right to have information deleted) under the Privacy Act.[761]

The ACCC supports the proposed reforms contained in the Attorney-General Department's Privacy Act Review Report including the provision of sufficient mechanisms to better allow consumers to understand and control how their data is collected, and for what purposes, and to create new consumer rights to objection, erasure and de-indexing.[762] At the time of submission of this Report, the Government had not released a response to the Privacy Act Review Report.

There may also be increased risks to security with more data from online services offered by expanding digital platform service providers being stored in the cloud. Vault submits that data sovereignty is relevant because "the collection and processing of data by Big Tech

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756 D Acemoglu et al, Too much Data: Prices and inefficiencies in data markets, *American Economic Journal: Microeconomics*, 14:4 (2022), pp 218-256.

757 Relatedly, this could also have implications for the prices faced by consumers as explored in the literature. A digital platform may induce some consumers to voluntarily share their personal information to receive favourable treatment, such as a discount. However, this could lead to unfavourable treatment of other consumers who choose not to share this information and potentially worse outcomes for all consumers (relative to a scenario where the platform is unable to offer any inducements for information). The self-defeating nature of voluntary disclosures is discussed by Grossman (1981) and Milgrom (1981). By contrast, Ali et al (2023) find that the combination of personalized pricing and consumer control can be beneficial to consumers in both monopolistic and competitive markets. See S J Grossman, The Informational Role of Warranties and Private Disclosure about Product Quality, *Journal of Law and Economics*, 24 (1981), pp 461-483; P Milgrom, Good News and Bad News: Representation Theorems and Applications, *The Bell Journal of Economics*, 12:2 (1981), pp 380–391; SN Ali, G Lewis and S Versserman, Voluntary disclosure and personalised pricing, *The Review of Economic Studies*, 90:2 (2023), pp 538-571. See also J Choi, D-S Jeon and B-C Shin, Privacy and personal data collection with information externalities, *Journal of Public Economics*, 173 (2019) pp 113-124; D Acemoglu et al, Too much Data: Prices and inefficiencies in data markets, *American Economic Journal: Microeconomics*, 14:4 (2022), pp 218-256.

758 Australian Human Rights Commission, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 231KB], May 2023, p 17.

759 OAIC, Australian Community Attitudes to Privacy Survey, 8 August 2023, accessed 14 September 2023, p 9.

760 OAIC, Read the Australian Privacy Principles, accessed 14 September 2023, Principle 11.1.

761 Attorney-General's Department, Privacy Act Review Report 2022, 16 February 2023, p 11.

762 Attorney-General's Department, Privacy Act Review Report 2022, 16 February 2023. See, the ACCC, ACCC Submission to the Government response to the Privacy Act Review Report, March 2023.

companies often involves the transfer of personal data across borders, which can have significant implications for privacy, security and national sovereignty".[763] Given the reliance consumers may have on digital platform services, and with more sensitive data being collected by digital platforms across a number of different sectors, there may be an increased risk of harm to consumers' security of information. This is explored in relation to consumer cloud storage services in box 7.8 below.

Box 7.8 Security of cloud storage services

Consumer cloud storage data is stored by service providers in physical data centres that are located both domestically and internationally. There is little transparency surrounding location of data storage for consumer files, and as such consumers are unable to choose services that may reflect preferences for storing their data in Australia. While the selection of a particular location for the storage of their data may be available to enterprise consumers, this service is not offered to consumers for the storage of their data.[764]

A consumer survey conducted by GoodFirms found that privacy and data security is the top concern for respondents, with 78% stating they use the cloud as a means of storing personal data.[765] When the CMA conducted its review of the consumer cloud storage sector, consumer comments, complaints and responses to its survey suggested that UK consumers did not fully trust cloud storage. It found that there is a perception among some consumers that stored data may not be secure.[766] However, the digital platforms continue to submit that data security is one of their highest priorities.[767]

The Department of Home Affairs is developing a National Data Security Action Plan and released a discussion paper in April 2022.[768] The National Data Security Action Plan will define a consistent set of national, whole-of-economy expectations for data security.[769]

7.3. Consumer lock-in practices impacting consumer choice

7.3.1. Unfair trading practices

As described in chapter 5, digital platform service providers have an incentive to lock consumers into their ecosystems. They may also use a number of methods to impact a consumer's ability to freely choose which products or services to use, including whether to switch to another provider. Among other business behaviours, the ACCC is concerned about

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763 Vault, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 89.1KB], May 2023, p 2.

764 Location of data storage can be a key factor for IaaS and Enterprise customers when choosing a service provider, which has encouraged growth in the number of data centres available in Australia. This is due to multiple factors, including: requirements for the storage of Australian Government data; enterprise preference for data to be stored in Australia for privacy and security reasons; the reduced latency involved in accessing cloud computing services domestically rather than internationally (which can be a key factor for enterprise). IaaS and enterprise customers of Google and Microsoft are, to an extent, able to choose which region their data is stored in.

765 GoodFirms, Usage and Trends of Consumer cloud storage: GoodFirms Research, 4 July 2023, accessed 14 September 2023.

766 CMA, Cloud storage: consumer compliance review: Findings Report, 27 May 2016, accessed 14 September 2023, p 5.

767 Google, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 325KB], May 2023, p 4. Apple, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 552KB], May 2023, p 5.

768 Department of Home Affairs, National data security action plan: Discussion paper – a call for views [PDF 972KB], 6 April 2022, accessed 14 September 2023.

769 Department of Home Affairs, Uplifting data security across Australia, accessed 14 September 2023.

the use of 'subscription traps', which are practices used by many businesses to make it difficult for consumers to cancel a particular subscription service.

There are a broad range of subscription practices that potentially contribute to consumer lock-in. Free subscriptions or trial periods may provide benefits to consumers in allowing them to try new products and services at no monetary cost. However, consumer harm may occur where businesses use multiple friction points that make it difficult for consumers to cancel subscription services and where the terms and conditions of a free trial are not adequately disclosed or understood. Where there are a large number of steps, and/or unnecessary steps, required for a consumer to cancel a free trial, this may prevent users from cancelling, or manipulate users into not cancelling, their subscription.

The Consumer Policy Research Centre identified that for a consumer to unsubscribe from an Amazon Music Unlimited subscription, a consumer must:

1. navigate away from Amazon Music app to the main Amazon app
2. provide a reason for cancellation
3. navigate alternative plans which Amazon provides
4. confirm cancellation. Even then cancellation is not explicitly confirmed as having occurred, with the screen instead showing only one button with the prompt 'Continue subscription'.[770]

The US Federal Trade Commission has taken action against Amazon for signing up consumers to its Prime subscription program without their consent and knowingly making it difficult for consumers to cancel their subscription.[771] The Federal Trade Commission found that when consumers were purchasing items from Amazon's online retail marketplace, they were faced with numerous opportunities to subscribe to Amazon Prime. As described in section 5.2, Amazon Prime membership is a subscription which bundles delivery services with its online video and music streaming service. During Amazon's online checkout process, the option to purchase items on Amazon without subscribing to Prime was more difficult to locate.[772] Further, consumers looking to cancel their Prime subscription were required to complete multiple steps that did not clearly present the option to cancel. For example, consumers had to locate the cancellation flow, and then were redirected to multiple pages each presenting offers to continue the subscription, to turn off the auto-renew feature, or to decide not to cancel.[773] Similar concerns were raised by the European Commission and, after negotiations, Amazon committed to bring its cancellation practices in line with EU consumer rules on all its EU websites in 2022.[774]

Aspects of these types of subscription practices may breach the Australian Consumer Law (ACL). For example, where a business makes a false or misleading representation in either the sign up or cancellation stage. Depending on the circumstances, non-disclosure or insufficient disclosure (e.g., where consumers are not made aware that they are signing up

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770 Consumer Policy Research Centre, Duped by Design – Final Report, 8 June 2022, accessed 14 September 2023, p 20.

771 US Federal Trade Commission, FTC Takes Action Against Amazon for Enrolling Consumers in Amazon Prime without Consent and Sabotaging their Attempts to Cancel, 21 June 2023, accessed 14 September 2023.

772 US Federal Trade Commission, FTC Takes Action Against Amazon for Enrolling Consumers in Amazon Prime without Consent and Sabotaging their Attempts to Cancel, 21 June 2023, accessed 14 September 2023.

773 H Towey and E Kim, Project Iliad: Amazon used a sneaky tactic to make it harder to quit Prime and cancellations dropped 14%, according to leaked data, *Insider*, 22 June 2023, accessed 14 September 2023.

774 Notably, following a dialogue with the European Commission and national consumer protection authorities in Europe, Amazon committed in July 2022 to improving its cancellation practices in Europe in line with EU consumer rules. The platform will enable European consumers to unsubscribe from Amazon Prime with just 2 clicks, using a prominent and clear "cancel button". European Commission, Consumer protection: Amazon Prime changes its cancellation practices to comply with EU consumer rules, Press release, 1 July 2022, accessed 14 September 2023.

for a monthly subscription payment), may also be misleading or deceptive conduct under the ACL.

Academics and regulators often describe 'subscription trap' conduct, as well as other practices prevalent on online businesses and platforms as 'dark patterns'. The ACCC has previously described these practices as those that are designed to confuse users, make it difficult for them to express their actual preferences, or manipulate them into taking certain actions.[775]

The ACCC can take some form of compliance or enforcement action where 'dark patterns' or other unfair practices raise potential ACL concerns, such as under the misleading or deceptive conduct, or unfair contract terms provisions. However, deliberate behavioural strategies, such as using unnecessary friction points, and manipulative design are generally not covered by existing provisions of the ACL. The ACCC has been advocating for some time for an unfair trading practices prohibition to be introduced into the ACL to address these and other practices that are not presently covered by the ACL.[776] Box 7.9 describes the consultation process underway to consider possible amendments to the ACL to better address unfair trading practices.

Box 7.9 Overview of the current work on unfair trading reforms

In August 2023, Treasury released a Consultation Regulation Impact Statement (RIS) to explore options for addressing unfair trading practices.[777] The Consultation RIS seeks further evidence on the nature of unfair trading practices and the extent of any consumer and small business harm arising from potential gaps in the Australian Consumer Law.

Ecosystems may exacerbate consumer lock-in by tying multiple services to the one account. This is particularly the case where a service is tied to a more popular or 'dominant' service that is used frequently. Similarly, as discussed in section 5.2 above, while interconnected products and services may bring benefits (e.g., convenience), they may also increase switching costs and introduce complexity where consumers seek to unsubscribe from a single service in a bundle. Some of the practices used by providers of cloud storage and the impact that may have on consumers are explored in box 7.10.

As also discussed in section 5.2 above, consumers are susceptible to a number of behavioural biases that may inhibit their ability to make optimal decisions. For example, consumers may have low interest in shopping around as a result of inertia, status quo biases, default biases, or the 'free effect' (wherein consumers favour zero-priced products even if much better quality alternatives are available at low prices).[778] As noted above, there are also limits to the amount of information consumers can take in about complex products and services.

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775 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 9.

776 ACCC, Digital Platforms Inquiry Final Report, 26 July 2019, p 26; ACCC, Digital Advertising Services Inquiry Final Report, 28 September 2021, p 40; ACCC, Digital Platform Services Inquiry First Interim Report, 23 October 2020, p 74; ACCC, Digital Platform Services Inquiry Second Interim Report, 28 April 2021, p 11; ACCC, Digital Platform Services Inquiry Third Interim Report, 28 October 2021, p 67; ACCC, Digital Platform Services Inquiry Fourth Interim Report, 28 April 2022, p 5; ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 4.

777 Treasury, Unfair trading practices – Consultation Regulation Impact Statement, 31 August 2023.

778 OECD, Data Portability, Interoperability and Digital Platform Competition, OECD Competition Committee Discussion Paper, 2021, accessed 14 September 2023, p 24.

Box 7.10 Subscription and lock-in practices for consumer cloud storage services

As described above in section 7.1 and in chapters 5 and 6, when digital platform service providers bundle cloud storage services with other popular products and services, a consumer may not be aware that they are signing up to a cloud service or that they are already contributing to the allotment of 'free' storage provided.

Further, users may also find it difficult when trying to reduce their amount of data stored to stay within the free tier subscription offered by the digital platform service providers. For example, consumers who do not wish to delete their files can face frictions with migrating files to other services.[779] Apple submits that the process it provides for consumers to transfer stored iCloud data to another provider (which, to date, only allows the transfer of photos and videos to Google Photos) takes between 3 and 7 days. Alternatively, users will need to rely on third-party providers.[780] Further, consumers might not be able to transfer all their files' meta-data, and some content such as shared albums and live photos.[781] Similarly, while Google facilitates users to download and export their data, this process can take between a few minutes to a few days and metadata like comments and location details may not be transferred over. Another process is then required to delete the data from the Google Account.[782] These circumstances may mean that consumers face hurdles with managing their files to stay within the free tier, so they may be more likely to be moved on to a paid tier subscription.

7.3.2. Unfair contract terms

Given the lock-in effects previously discussed, consumers may face hurdles in switching to alternative providers with more favourable contract terms. This may be because large providers of digital platform services have established themselves as dominant players in particular markets, creating significant barriers for potential competitors to enter and thrive, as explained in chapter 6.

Box 7.11 notes terms identified by the Italian Competition Authority (AGCM) in cloud storage services that it found to be unfair. While the AGCM's findings were about cloud storage services provided by large digital platform service providers Apple and Google, they also found Dropbox's services to contain unfair contract terms. However, the ACCC considers that the risk of unfair contract terms arising may further be exacerbated in an ecosystems context. The fact that many services offered by these platforms are inherently interconnected or tied to other services that users heavily rely on, means that consumers may be left susceptible to accepting unfair conditions in order to maintain access to the broader ecosystem of services they depend on.

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779 Australian Communications Consumer Action Network, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 273KB], May 2023, p 5.

780 Apple, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 552KB], May 2023, p 10. See also Apple, Transfer a copy of your iCloud Photos collection to another service, *Apple Support*, accessed 14 September 2023.

781 See also Apple, Transfer a copy of your iCloud Photos collection to another service, accessed 14 September 2023.

782 Google Help Centre, How to download your Google data, *Google Support*, accessed 14 September 2023. Google Help Centre, Copy your photos to a service outside of Google, *Google Support*, accessed 14 September 2023.

Box 7.11 Findings of unfair contract terms in consumer cloud storage services by the Italian Competition Authority

The AGCM launched investigations in September 2020 into Apple, Google, and Dropbox's cloud storage services in response to complaints alleging unfair commercial practices.[783] In September 2021, the AGCM found unfair clauses in their contractual terms including the right to unilaterally change the contractual conditions at any time, the right to suspend and interrupt the service at any time, and the exemption from liability in the event of a loss of documents stored on the user's cloud space.[784] The AGCM ordered Apple, Google and Dropbox to remove or amend these clauses. In March 2022, the AGCM fined Google EUR 50,000 for non-compliance by failing to publish the extract of the infringement notice in an appropriate manner.[785]

7.3.3. Financial and non-financial impacts

Consumer lock-in can reduce the ability of consumers to compare or switch to alternative suppliers. As discussed in this Report, these challenges may arise due to the investment in multiple devices, the interconnections between products and services (including commercial bundles), or the use of practices that limit consumer choice. This lock-in can have financial and non-financial impacts. Financially, consumers may end up paying more over time for products and services they do not use, or are not well suited to their needs in the long term. Non-financially, consumers may experience frustration when trying to leave an ecosystem. As one participant at the ACCC's Consumer Issues Discussion identified, these consumer frustrations can impact wellbeing.[786] Consumer lock-in practices may also mean that consumers remain with services that offer them weaker privacy protections (as described above in section 7.2.2) or unfavourable terms of use. Consumer lock-in may also be heightened by fear of losing personal files; see box 7.12 below.

Box 7.12 Potential loss of personal files from consumer cloud storage services

Consumer cloud storage is presented as a safe alternative to local back-ups. However, it continues to carry a risk of potential data loss. Providers may have policies relating to the deletion of user data based upon the lapse of usage or service payment that consumers may not be aware of. For example, Google has recently announced that it will delete Google accounts, including content within Gmail, Docs, Drive, Calendar and Google Photos in December 2023 if users have not signed into them in at least 2 years.[787]

Consumer cloud storage services also carry an additional risk of consumers being unable to access their data stored on these services through configuration issues, forgetting logins and passwords, and being unable to demonstrate to consumer cloud storage providers that they are authorised to access this data. Difficulty accessing this data can be exacerbated by service providers that limit access to forms of technical support to paying subscribers.

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783 AGCM, Anti-trust: Investigations launched against Google, Apple and Dropbox for their cloud computing services, Press release, 7 December 2020, accessed 14 September 2023.

784 ICGL, Consumer Protection Laws and Regulation Italy 2023, 28 April 2023, accessed 14 September 2023.

785 ICGL, Consumer Protection Laws and Regulation Italy 2023, 28 April 2023, accessed 14 September 2023.

786 ACCC, Consumer Issues Discussion Summary [PDF 123KB], 25 July 2023, p 2.

787 Google, Updating our inactive account policies, *Google Blog,* 16 May 2023, accessed 14 September 2023.

Further, consumers that reach the cap of their free cloud storage may risk losing their data if they do not pay for the higher tier of storage, or reduce their file storage by deleting files or migrating their files. While digital platform service providers give warning to consumers about reaching the limit for a free service, some consumers might find it difficult to migrate or export their files created across multiple services offered by a provider. And as a result, they may experience loss of personal files, souvenirs, photos and work.[788]

In its 2016 review of consumer cloud storage services, the CMA considered the potential harm that could arise should cloud storage service providers have a wide discretion to suspend or terminate a contract without any notice, or prevent consumers from accessing their data in the event that the service or contract is suspended or terminated. In additional to potential financial loss (incurred if they make payment for a cloud storage service they did not receive), the CMA considered that consumers could also face varying degrees of harm from loss of files, depending on how readily a consumer could replace the data and what the data was needed for.[789]

7.4. Other potential consumer harms from interconnection of services

With digital platforms expanding their reach and diversifying their online products and services, there may be increased opportunities for consumers to be susceptible to online harms, such as scams or businesses failing to meet their consumer guarantee obligations.

7.4.1. Scams

The ACCC has discussed in previous DPSI reports risks to consumers from scams perpetrated on digital platforms.[790] Digital platforms currently provide a low-cost way for unscrupulous actors to efficiently target large numbers of consumers and as such, the number and quantum of losses to scams on digital platforms has been increasing.[791] For example, losses reported to the ACCC's Scamwatch[792] from scams identifying the contact method as social media have increased to AUD66.5m in the 2023 year from 1 January to 13 August 2023, an increase of 41.6% on the same time period in 2022.

The potential for scams on digital platforms may increase as digital platforms become more embedded in consumers lives and consumers use more online products and services. Supporting this, a participant at the ACCC's Consumer Issues Discussion noted that, as consumers are increasingly reliant on particular ecosystems, there may be more of a gateway for consumers to be affected by scams.[793] Moreover, as consumers spend more time online, digital platform ecosystems become an increasingly effective means for scammers to target and access their victims.

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788 The ACCC Infocentre received approximately 150 contacts from January 2018 to March 2023 concerning 'consumer cloud storage services' offered by Apple, Google, Microsoft and Dropbox. Approximately, 15 of those contacts were related to issues concerning consumers unable to access data from cloud services. Note that reports to the ACCC do not always mean a business has acted in breach of the Australian Consumer Law or the *Competition and Consumer Act 2010*. CMA, Cloud storage: consumer compliance review: Findings Report, 27 May 2016, accessed 14 September 2023, p 34.

789 CMA, Cloud storage: Consumer Compliance Review Findings Report, 27 May 2016, accessed 14 September 2023, p 34.

790 ACCC, Digital Platform Services Inquiry First Interim Report, 23 October 2020, p 6; ACCC, Digital Platform Services Inquiry Second Interim Report, 28 April 2021, p 11; ACCC, Digital Platform Services Inquiry Fourth Interim Report, 28 April 2022, p 45; ACCC, Digital Advertising Services Inquiry Final Report, 28 September 2021, p 167.

791 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 73.

792 Scamwatch is a website run by the ACCC to provide information to consumers and small businesses about how to recognise, avoid and report scams.

793 ACCC, Consumer Issues Discussion Summary [PDF 123KB], 25 July 2023, p 2.

Where consumers have limited choice, there are reduced incentives for providers to address consumer concerns. For example, a digital platform service provider may have less incentive to compete on the basis of security and scam prevention. Conversely, consumers who increasingly consider a digital platform service as integral to their everyday life or face strong consumer lock-in to a provider's ecosystem is unlikely to stop using a service on the basis of weaker security or less effective scam prevention initiatives.

Digital platform service providers already take some steps to protect consumers. However, these steps have not prevented loses continuing to rise.[794] The ACCC considers that, absent targeted measures, scammers will continue to use digital platform services as a low-cost way to efficiently target large numbers of Australian users.

In the ACCC's Regulatory Reform Report the ACCC recommended that digital platforms should be required to implement specific processes to help protect users, including mandatory processes to prevent and remove scams.[795]

Scams cross multiple sectors, including telecommunications and banking sectors, requiring broad industry engagement and input. Obligations on digital platform service providers would complement other government initiatives already progressed. These include the National Anti-Scam Centre, which was launched on 1 July 2023 to co-ordinate government, law enforcement and the private sector to combat scams.[796] As outlined further in section 8.2.2, the ACCC supports these developments.

7.4.2. Consumer guarantee obligations

The ACL provides a basic set of guarantees to consumers who acquire goods and services from suppliers, importers or manufacturers carrying on business in Australia. These guarantees include that goods and services (including software) are of acceptable quality and fit for purpose.

The consumer guarantees apply to interconnected ecosystem goods and services, such as smart home devices. However, it can be difficult for consumers to understand how their consumer guarantees rights apply to integrated and bundled goods and services. This particularly applies where they may purchase a product or device from a retailer but then enter into an agreement with another business to provide an ongoing connected service. It can also be difficult for them to exercise and enforce their consumer guarantee rights in these circumstances.

In general, the ACCC also considers that despite the considerable compliance and enforcement activities by the ACCC and state and territory ACL regulators over the years, consumers still struggle to exercise their consumer guarantee rights. The ACCC considers the ACL should be amended to make it a contravention of the law:[797]

- for businesses to fail to provide a remedy for consumer guarantees failures, when they are legally required to do so, and
- for manufacturers to fail to reimburse suppliers for consumer guarantees failures that the manufacturers are responsible for.

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794 ACCC, Digital Platform Services Inquiry Sixth Interim Report, 28 April 2023, p 139.

795 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 16.

796 ACCC, National Anti-Scam Centre, accessed 14 September 2023.

797 ACCC, National Consumer Congress 2023 introduction and ACCC keynote address, 15 June 2023, accessed 14 September 2023. See also the ACCC's submissions to the Productivity Commission Inquiry into the Right to Repair in Australia (ACCC, ACCC's Submission to the Productivity Commission Inquiry into the Right to Repair, February 2021; ACCC, ACCC's Submission to the Productivity Commission Inquiry into the Right to Repair, July 2021).

These amendments would significantly change business incentives to comply with their consumer guarantee obligations and more effectively support consumers in securing their statutory consumer guarantee rights.[798]

[798] ACCC, National Consumer Congress 2023 introduction and ACCC keynote address, 15 June 2023, accessed 14 September 2023.

8. Future directions

This chapter concludes this Report with a consideration of emerging issues and future regulatory developments in Australia and internationally. This Report has built upon the ACCC's body of work on digital platforms by taking a broader perspective, considering how the ecosystems of digital platform service providers are expanding.

8.1. Emerging issues

Digital markets and technologies are continuing to evolve. Consumers are welcoming new devices and services into their daily lives. As outlined in appendix A, digital platform service providers have played crucial roles developing, disseminating and evolving emerging technologies, such as artificial intelligence.

Digital platform service providers are also investing in a wide range of other digital technologies that could have transformative potential, such as cloud computing, immersive technologies such as virtual and augmented reality (VR/AR), robotics and quantum computing). While the extent to which each of the specific technologies will transform the economy is uncertain, the substantial investments made by digital platform service providers across these areas will prepare them for an evolving landscape.

Given the scale of investments necessary and the long payback period, digital platform service providers may be able to make investments in these areas that some rivals struggle to match, owing to the large revenue generated by their core services. This may be particularly advantageous where a digital platform service provider integrates a new technology with multiple products and services they offer in their ecosystem, such as the integration of generative AI across search engines, productivity software and cloud services.

These new technologies provide benefits and as demonstrated in this Report, may provide users with an improved or more convenient experience within the ecosystem. However, the emergence of technologies, the unpredictable way in which new technology markets can evolve, and how market power can be used in these emerging markets are factors that give rise to regulatory challenges and risks of harm.

In addition to harms to competition and consumer protection, emerging technologies may pose risks of harm in other areas, such as privacy, as explored in the Submission from Peta Estens.[799] These regulatory challenges may require coordination between different areas of government and between regulators. The ACCC contributes to this coordination by working collaboratively with other regulators through the Digital Platform Regulators Forum (DP-REG). DP-REG was established in 2022 as an avenue for Australian regulators to share information about, and collaborate on, intersecting activities relating to the regulation of digital platforms. In its early stages, DP-REG has identified as an area of focus, working together to explore new and emerging technologies and issues. For example, DP-REG regulators have been working together to consider issues related to algorithmic processing and transparency, and are currently considering the benefits, risks and harms of generative AI as well as how this technology intersects with the regulatory remit of each member.[800] Horizon scanning for new and emerging issues allows regulators to better identify intersecting regulatory issues which may challenge traditional regulatory boundaries.

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799 Peta Estens, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report, May 2023, pp 1-4.

800 OAIC, Digital Platform Regulators Forum puts generative AI on agenda, 4 July 2023, accessed 14 September 2023.

The ACCC can also remain responsive to these emerging issues within its competition and consumer jurisdiction. For example, when considering impacts on competition, the ACCC may need to consider factors such as barriers to entry that may be affected by changes in products, services, and technology.

As previous ACCC reports have highlighted, because of the significance of digital platform services, and because competition is important for markets to function well, ensuring effective competition in the supply of emerging products and services is crucial for productivity and the future prosperity of Australians.[801] This will only become more important with the growth and expansion of the digital economy and digital platform ecosystems. Therefore, regulators worldwide are considering the challenges of regulation of digital platform services to address potential competition and consumer concerns.

8.2. Regulatory reform

This section provides an update on international developments in regulatory reform of digital platforms to address competition and consumer issues (section 8.2.1), and reiterates the ACCC's recommendations from the September 2022 Regulatory Reform Report (section 8.2.2).

8.2.1. International regulatory reform

Several jurisdictions have implemented, are in the process of enacting, or are considering, new laws to address the competition and consumer harms occurring in digital platform markets in their respective jurisdictions. Given the wide reach of the most powerful digital platforms, many of the issues that the ACCC has identified are common in overseas jurisdictions and the reforms occurring overseas are directly relevant to the consideration of reform in the Australian context.

There has been significant progress internationally on new ex ante measures to address the range of competition concerns that are increasingly becoming apparent in digital platform markets. These are detailed in appendix D. In particular, in Europe, the Digital Markets Act (DMA) and Digital Services Act (DSA) impose a range of competition and consumer measures on various digital platforms to promote competition and consumer protection in Europe's digital economy. Similarly, a new competition regime is being progressed through the legislative process in the UK. New competition laws to deal with digital platforms are also being considered in the US, Japan and India, among other jurisdictions.

[801] ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022, p 1.

8.2.2. ACCC's proposed reforms and update on Regulatory Reform Report

On 30 September 2022, the ACCC provided the Regulatory Reform Report to the Treasurer. The report was publicly released on 11 November 2022.[802]

The report identified significant and growing harms on digital platform services from a lack of effective competition, including reduced choice, innovation and quality, and higher (monetary and non-monetary) prices, as well as financial losses from scams and unresolved disputes. To address these harms, the report recommended that Government implement:

- An economy-wide unfair trading practices prohibition and strengthened unfair contract term protections (recommendation 1).
- Digital platform-specific consumer measures to address scams, harmful apps, fake reviews, and to improve dispute resolution with mandatory internal dispute resolution standards and an external ombuds scheme (recommendation 2).
- A new competition regime with targeted obligations in service-specific codes of conduct to apply to a small number of designated digital platforms with the ability and incentive to engage in anti-competitive conduct (recommendation 3). Codes would include targeted obligations to address issues such as anti-competitive self-preferencing and tying, exclusive pre-installation and defaults, and impediments to switching and interoperability (recommendation 4).

These recommendations build on the ACCC's experience in examining competition and consumer issues in the supply of digital platform markets. This has been a major focus of the ACCC since 2017, with 9 significant reports published to date.

On 20 December 2022, Treasury commenced consultation on the Regulatory Reform Report's recommendations.[803] Treasury's consultation paper sought views on various options, including using current frameworks and the possibility of self-regulation, as well as who would be the appropriate decision maker and regulator under a new regulatory regime. Consultation closed on 15 February 2023.

Developments on consumer measures

Regarding the economy-wide consumer measures in recommendation 1:

- Amendments to the unfair contract terms laws passed Parliament in October 2022 and will take effect from November 2023. In particular, these changes strengthen the unfair contact term laws by prohibiting businesses from proposing, using or relying on unfair contract terms in standard form contracts, and introducing penalties for breaches of the law.
- As discussed in section 7.3.1, Treasury has commenced consultation on a new economy-wide unfair trading practices prohibition.[804] The ACCC supports this development.

There are also several developments in relation to recommendation 2, particularly regarding scams. Scams are a priority area for the Government, and on 1 July 2023, the National Anti-Scam Centre was established within the ACCC to bring together experts from government

802 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022.

803 Treasury, Digital Platforms – Consultation on Regulatory Reform, 20 December 2022, accessed 14 September 2023.

804 Treasury, Unfair trading practices – Consultation Regulation Impact Statement, 31 August 2023, accessed 14 September 2023.

and the private sector to tackle harmful scams across the economy.[805] The Australian Government has also signalled that there will be codes of conduct developed to impose obligations on key players in the scams ecosystem, including banks, telecommunication providers, social media platforms, and other industry players.[806]

The ACCC supports these developments on scams, and reiterates its support for mandatory and enforceable obligations to apply to all platforms that provide search, social media, online private messaging, app store, online retail marketplace and digital advertising services. While digital platform service provides face some incentives to stop scams, platforms can also profit from scams that are spread on their platforms. Among other things, platforms should be required to implement specific processes including:

- a notice-and-action mechanism
- verification of certain business users
- additional verification of advertisers of financial services and products
- public reporting on mitigation efforts
- a requirement to provide redress to users who have been harmed by the platform failing to meet these obligations.

While these reforms are broad in nature, relevant examples in the context of expanding ecosystems of digital platform service providers are discussed in chapter 7 of this Report.

In parallel to action regarding scams, the ACCC supports mandatory internal and external dispute resolution processes. The ACCC notes the importance of obligations to ensure effective internal dispute resolution and the ability to escalate disputes to an external ombuds scheme, to complement any codes of conduct or legislated obligations, including those that deal with scams. Mandatory internal dispute resolution standards should ensure accessibility, timeliness, accountability, the ability to escalate to a human, and transparency.

To incentivise effective internal processes, an independent external ombuds scheme should be established to handle complaints and disputes covered by the internal dispute resolution standards. The ombuds should have powers to compel information, make binding decisions (such as requiring digital platforms to take down scams), order compensation in appropriate cases, and investigate and refer systemic issues in complaints and disputes received.

Developments on competition measures

As discussed in the previous section, there is much progress internationally on new ex ante measures to address the range of competition concerns that are increasingly becoming apparent in digital platform markets. The ACCC considers that Australia should keep pace with overseas jurisdictions by adopting the ACCC's recommendations from the Regulatory Reform Report. This would ensure Australians are provided similar protections to those put in place internationally and would ensure effective competition in these key markets, leading to greater innovation and productivity growth across the economy.

In the Regulatory Reform Report, the ACCC specifically called out potentially anti-competitive conduct including self-preferencing, tying, exclusivity agreements, lack of transparency, and withholding access to important hardware, software, and data inputs. Similar examples are discussed throughout chapter 6 in this Report, demonstrating the broad scope of conduct

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805 ACCC, National Anti-Scam Centre, accessed 14 September 2023.

806 L Florance and M Atkin, National anti-scams centre set to open in July, as Australians lose billions to fraudsters, *ABC News*, 15 May 2023, accessed 14 September 2023.

occurring across digital platform markets, potentially to the detriment of competition in multiple interconnected markets.

This Report builds on and reinforces the basis for recommendations 3 and 4 in the Regulatory Reform Report. These recommendations will ensure that Australia's laws are fit-for-purpose for the digital age, so that Australia is well placed to embrace the opportunities afforded by digital platform services, and to respond to current and future challenges as they arise. These reforms are important given the widespread and growing use of digital platform services, and their role in underpinning a more resilient, productive and dynamic economy. The ACCC looks forward to working with the Government to implement these important reforms.

In addition to the recommendations of the Regulatory Reform Report, the ACCC recently outlined proposals for reforms to Australia's merger control system.[807] While these proposals are economy-wide, these are relevant to the challenges in assessing digital mergers. In particular, these proposals include mandatory and suspensory notification of mergers above specified thresholds, and changes to the law to emphasise the importance in merger assessments of data, removal of potential competition, 'creeping acquisitions' (i.e., small serial acquisitions over time) and whether an acquisition will entrench, materially increase or materially extend a position of substantial market power. Treasury has announced the creation of a Competition Taskforce that will consider the ACCC's proposed merger reform.[808]

8.3. Next Steps

The ACCC looks forward to continuing to work with the Government on these reforms. The ACCC's Digital Platform Services Inquiry is due to be completed and a report on the inquiry given to the Treasurer by 31 March 2025.

[807] ACCC, Reform of merger laws critical for Australia's economic transition, 12 April 2023. G Cass-Gottlieb, The Role of the ACCC and competition in a transitioning economy, Speech, Address to the National Press Club, 12 April 2023.

[808] Treasury, A more dynamic and competitive economy, 23 August 2023, accessed 14 September 2023.

Appendix A: Digital Platforms role in emerging technologies

This appendix explores in more detail the ways in which digital platform service providers are active in emerging technologies (discussed in sections 2.3 and 8.1.1 of the body of the Report).

Digital platform service providers are increasingly integral in the development and supply of important emerging digital technologies

Digital platform service providers have played crucial roles developing, disseminating and evolving the technology that has come to underpin our daily lives. Enormous growth in computing power, data volumes as well as the widespread adoption of machine learning have fostered major changes in the way economic activities are undertaken.[809]

As an example, artificial intelligence technologies are embedded in a huge variety of products and services offered by digital platform service providers that consumers rely upon every day. Some popular services like Google Translate were built entirely using AI, with AI also built into a wide range of other products and services to improve their quality.[810]

For example, consumers rely on AI when:

- recommender systems prioritise and personalise the content they see on social media, search engine results and recommended products in online retail marketplaces[811]
- their device offers spell check and autocomplete services when drafting messages or emails[812]
- a voice assistant uses Natural Language Processing to understand their voice command
- they rely on a mapping service to provide up-to-date information about traffic conditions and delays[813]
- using their face to unlock their smartphone
- translating street signs or menus using Apple Live Text or Google Lens[814]
- using Google's Magic Eraser to remove distractions from photos.[815]

AI is also operating in the background as services are provided to consumers, perhaps even where they do not realise, for example, filtering spam emails before they reach a consumer's inbox.[816]

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809 OECD, Competition, regulation and growth in a digitized world. Dealing with emerging competition issues in digital markets, OECD Economics Department Working Papers No. 1752, 2023, accessed 14 September 2023.

810 J Burr, 9 ways we use AI in our products, *Google Blog*, 19 January 2023, accessed 14 September 2023.

811 See, for example, Meta, Our approach to explaining ranking, 29 June 2023, accessed 14 September 2023; AWS, Announcing new tools for building with Generative AI on AWS, 13 April 2023, accessed 14 September 2023.

812 J Burr, 9 ways we use AI in our products, *Google Blog*, 19 January 2023, accessed 14 September 2023.

813 J Burr, 9 ways we use AI in our products, *Google Blog*, 19 January 2023, accessed 14 September 2023.

814 L Wang, 8 ways Google Lens can help make your life easier, *Google Blog*, 14 June 2023, accessed 14 September 2023.

815 J Burr, 9 ways we use AI in our products, *Google Blog*, 19 January 2023, accessed 14 September 2023.

816 J Burr, 9 ways we use AI in our products, *Google Blog*, 19 January 2023, accessed 14 September 2023.

As explored in section 4.1.1, digital platform services providers are also driving the emergence of generative AI, such as via Microsoft's Bing Chat or Google's Bard.

Services or features relying on AI are continually being developed for consumers by digital platform service providers. For example, Apple recently announced an improvement to AirPods Pro that will automatically turn off noise cancelling when the user engages in conversation,[817] while Google recently launched a feature in the US to help users choose the right clothing while shopping online. The feature takes one clothing image and accurately reflects how it would drape, fold, cling, stretch and form wrinkles on a diverse set of real models in various poses.[818]

Aside from consumer facing services, AI is built into improving the efficiency of operations of digital platform service providers, such as using AI to improve the efficiency of data centres or to improve logistics when operating a warehouse for online retail marketplaces.[819]

The benefits of AI are also shared with other businesses. For example, cloud providers offer a wide range of AI services to businesses to improve their productivity, such as AI chatbots or tools to forecast demand, conduct video and image analysis or workforce planning, among many others.[820]

Digital platform service providers will continue to conduct research and make investments to expand their knowledge and the use of AI in their products and services over time. The 5 digital platform ecosystems considered in this Report make considerable investments in research and development (R&D), with AI (or subsets of AI such as machine learning or smaller subsets such as speech and natural language processing) being a key research area.[821] The Department of Industry, Science and Resources noted that Google has a higher research impact than any other research institution globally on machine learning and natural language processing.[822]

Digital platform service providers can also use acquisitions to expand in this area. For example, between 2013 and 2020, Apple purchased 14 AI companies, most of which worked on virtual assistance, facial and voice recognition, natural language processing, and machine or deep learning.[823] Expansion strategies used by digital platform ecosystems are discussed more generally in section 4.2.1 of the Report.

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817 Apple, AirPods redefine the personal audio experience, 5 June 2023, accessed 14 September 2023.

818 L Rincon, Virtually try on clothes with a new AI shopping feature, *Google Blog,* 14 June 2023, accessed 14 September 2023.

819 DeepMind, DeepMind AI Reduces Google Data Centre Cooling Bill by 40% , 20 July 2016, accessed 14 September 2023; A Kharpal, 'Amazon is focusing on using A.I. to get stuff delivered to you faster', *CBNC,* 15 May 2023, accessed 14 September 2023; S Sivasubramanian, 'Announcing new tools for building with Generative AI on AWS', *AWS,* 13 April 2023, accessed 14 September 2023.

820 Cloud providers offer a wide range of AI services to businesses. See, for example, AWS, Amazon Forecast, accessed 14 September 2023; Google Cloud, Vertex Vision AI, accessed 14 September 2023; Microsoft Azure, Computer Vision, accessed 14 September 2023; Microsoft Power Virtual Agents, Empower everyone to easily create conversational bots, accessed 14 September 2023.

821 Google Research, Our Research, accessed 14 September 2023; Meta Research, Research Areas, accessed 14 September 2023; Amazon Science, Research Areas, accessed 14 September 2023; Apple Machine Learning Research, All Research, accessed 14 September 2023; Microsoft Research, Microsoft Research: Advancing science and technology to benefit humanity, accessed 14 September 2023.

822 Department of Industry, Science and Resources, Critical technology profiles [PDF 5.2MB], 22 August 2022, accessed 14 September 2023.

823 M Wörsdörfer, 'Apple's Antitrust Paradox', *European Competition Journal (Forthcoming)*, 30 June 2023, accessed 14 September 2023.

Increasing importance of emerging technologies over time

While AI is being used across digital platform services today, its importance is only expected to increase over time, becoming more deeply embedded in society as technology develops. A 2019 study by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and Data61 forecasts that AI and other digital technologies will add AUD315bn to the Australian economy by 2028.[824]

As recognised by the Department of Industry, Science and Resources and the Productivity Commission, there are a range of other digital technologies with transformative potential for the economy, such as cloud computing, immersive technologies (such as virtual and augmented reality (VR/AR)), robotics and quantum computing.[825]

Digital platform service providers are making significant investments in these areas. Given the scale of investments necessary and the long payback period, digital platform service providers may be able to make investments that some rivals may struggle to match, owing to the large revenue generated by their core services. For example, Alphabet (Google's parent company) spent USD27.57bn on R&D during the fiscal year 2020.[826] Some common research areas being pursued by digital platform service providers are explored in box A.1 below.[827]

Box A.1 Emerging technologies

Generative AI: Generative AI is a type of AI that can create content such as text, images, audio, video, or data, usually in response to plain language prompts entered by a user, using 'natural language processing'. This technology has received considerable attention since the launch of OpenAI's Large Language Model (LLM) ChatGPT in late 2022,[828]with digital platform service providers integrating generative AI into their services. For example, Microsoft has launched its new Bing chatbot (Bing Chat) which combines OpenAI's GPT-4 with Bing's existing search infrastructure,[829] with Google offering the competing chatbot service, Bard.[830] Microsoft and Google have both also announced the integration of this technology into their productivity software.[831] Amazon (through Amazon Bedrock)[832] and Microsoft (through Azure AI)[833] have also begun to leverage their cloud operations to sell the underlying technology behind LLMs. Meta's own large language model (LLaMA) was publicly released under a non-commercial licence in February 2023, offering a

824 CSIRO, Data61, and the Department of Industry, Innovation and Science, Artificial intelligence: Solving problems, growing the economy and improving our quality of life, 14 November 2019, accessed 14 September 2023.

825 Department of Industry, Science and Resources, List of critical technologies in the national interest, 19 May 2023, accessed 14 September 2023; Productivity Commission, 5-year Productivity Inquiry: Advancing Prosperity, Volume 4, 7 February 2023, accessed 14 September 2023, p 3.

826 Google, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 325KB], May 2023.

827 Google Research, Our Research, accessed 14 September 2023; Meta Research, Research Areas, accessed 14 September 2023; Amazon Science, Research Areas, accessed 14 September 2023; Apple Machine Learning Research, All Research, accessed 14 September 2023; Microsoft Research, Microsoft Research: Advancing science and technology to benefit humanity, accessed 14 September 2023.

828 Microsoft has a strategic partnership with OpenAI, which used a Microsoft supercomputer hosted in Azure to train its models. Microsoft, Microsoft announces new supercomputer, lays out vision for future AI work, 19 May 2020, accessed 14 September 2023.

829 Microsoft Bing Blogs, Confirmed: the new Bing runs on Open AI's GPT-4, 14 March 2023, accessed 14 September 2023.

830 Bard uses Google PaLM 2 LLM.

831 Microsoft Blog, Introducing Microsoft 365 Copilot – your copilot for work, 16 March 2023, accessed 14 September 2023; Google Workspace, A new era for AI and Google Workspace, 15 March 2023, accessed 14 September 2023.

832 AWS, Amazon Bedrock, accessed 14 September 2023.

833 Microsoft, Azure AI, accessed 14 September 2023.

comparatively smaller, less computationally power-intensive model.[834] Meta has also announced Voice box, a speech generation model using generative AI.[835] It also announced it is open sourcing AudioCraft, a suite of generative AI tools for creating music and audio from text prompts.[836]

It is expected that generative AI will be incorporated into further digital platform services over time. Digital platforms are reported to be developing LLM-based improvements to voice assistants, Google Assistant, Siri and Alexa.[837] In its submission, the Custom Electronics Design & Installation Association argued that the use of AI marks a massive shift in smart technologies and how they will evolve.[838] In August 2023, Amazon CEO Andy Jassy said that every single one of Amazon's businesses are working on generative AI,[839] while reports have suggested Apple is also working on its own generative AI chatbot.[840]

Immersive technologies: In 2021, Meta was outspoken about its vision for immersive technologies using VR and AR (the Metaverse) to be the successor to the mobile internet,[841] and has reportedly spent USD100bn on research and development and product development in this area.[842] While much attention has been placed on generative AI since the launch of ChatGPT by OpenAI in October 2022 and doubt has been cast about the potential of these immersive technologies,[843] it is noteworthy that other digital platform service providers are making significant investments in this area. In addition to Meta's Quest Pro headset released in October 2022,[844] Apple announced its Vision Pro headset in June 2023.[845] Microsoft has launched HoloLens headsets as noted in section 4.1.1 of the Report and is also developing Microsoft Mesh –a platform that powers shared immersive experiences over Teams – which was made available for private preview in May 2023.[846] As for Google, while prior immersive technology products (Google Cardboard and Google Daydream) have been discontinued, its acquisition of Raxium in 2022, a startup with MicroLED technology that could be key in building a new generation of augmented, virtual and mixed reality headsets, suggests it may have a continued interest in immersive

834 Meta, Introducing LLaMA: A foundational, 65-billion-parameter large language model, 24 February 2023, accessed 14 September 2023.

835 Meta AI, Introducing Voicebox: The first generative AI model for speech to generalize across tasks with state-of-the-art performance, 16 June 2023, accessed 14 September 2023.

836 Meta, Open sourcing AudioCraft: Generative AI for audio made simple and available to all, 2 August 2023, accessed 14 September 2023.

837 Axios, Scoop: Google Assistant to get an AI makeover, 31 July 2023, accessed 14 September 2023; J Peters, Amazon is working on an improve LLM to power Alexa, *The Verge*, 28 April 2023, accessed 14 September 2023; J Peters, Siri struggles, *The Verge*, 28 April 2023, accessed 14 September 2023.

838 Custom Electronics Design & Installation Association, Submission to the ACCC Digital Platform Services Inquiry Seventh Interim Report [PDF 71KB], May 2023.

839 J Peters, 'Every single' Amazon team is working on generative AI, says CEO, *The Verge*, 4 August 2023, accessed 14 September 2023.

840 T Marcin, 'Apple GPT: Tech giant reportedly working on a ChatGPT, generative AI competitor', *Mashable,* 19 July 2023, accessed 14 September 2023.

841 Meta, Connect 2021: Our vision for the metaverse, 28 October 2021, accessed 14 September 2023.

842 A Hern, 'Meta shares dip is proof metaverse plan never really had legs', *The Guardian*, 28 October 2022, accessed 14 September 2023.

843 See, for example, S Rose, ''The metaverse will be our slow death!' Is Facebook losing its $100bn gamble on virtual reality?', *The Guardian*, 7 December 2022, accessed 14 September 2023; J Schreier, 'Companies Are Spending Billions on a Metaverse That Makes No Sense', *Bloomberg,* 11 February 20223, accessed 14 September 2023.

844 Meta, Meta Quest Pro Is Now Available, 25 October 2022, accessed 14 September 2023.

845 Apple, Introducing Apple Vision Pro: Apple's first spatial computer, 5 June 2023, accessed 14 September 2023.

846 L Craw, Microsoft Mesh: Transforming how people come together in the modern workplace, *Microsoft Tech Community*, 23 May 2023, accessed 14 September 2023.

technologies,[847] with commentators speculating about the development of an operating system.[848]

Computer vision: Several of these digital platform service providers are also actively researching computer vision, a strand of AI. With computer vision technology, machines can understand visual information from the world around them through image processing techniques that approximate how human vision works.[849] The software compares features extracted from images or videos against patterns it already knows. If there is a match, it launches an appropriate pre-defined action. For example, a self-driving car could respond to a stop sign by braking.[850]

Autonomous vehicles are an application of computer vision that could have significant potential. In January 2023, McKinsey estimated that 37% of new passenger cars sold in 2035 would have advanced autonomous driving technologies.[851] Digital platform service providers have been active in this space. For example, Amazon's workforce at its self-driving vehicle unit Zoox reportedly grew from 1,900 to 2,300 in the first half of 2023 and Zoox has received approval to test drive its robotaxis on public roads in the US state of Nevada.[852] Waymo, Alphabet's autonomous vehicle unit offered its first paid fully autonomous ride-hailing service in 2022,[853] though reportedly has reduced staff numbers in 2023.[854] Apple is reportedly aiming to launch an electric vehicle with autonomous driving capabilities in 2026.[855] Microsoft has invested in an autonomous driving start-up (Wayve) and entered a strategic partnership with Cruise, the self-driving subsidiary of General Motors.[856]

Applications of computer vision are not limited to autonomous vehicles. For example, it could be used to detect faults in manufacturing, to perform medical diagnostics (for example, reviewing X-ray results) or surveying agricultural land for anomalies via drones.[857] Amazon Go physical stores also deploy computer vision, along with sensor vision and deep learning technologies to allow customers to 'Just Walk Out' of the store without needing to scan items, though such stores are not currently available in Australia.[858]

Robotics: The development of robots can enable the automation of manual tasks usually performed by humans. Robotics has potential for a wide variety of applications from automating simple and repetitive tasks in manufacturing or warehouse packing, to

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847 R Lawler, 'Google bought a MicroLED display company that could help make AR headsets better and cheaper', *The Verge*, 5 May 2022, accessed 14 September 2023.

848 T Bezmalinovic, 'Google kills its smart glasses project, shifts to developing an 'Android for AR'', *Mixed*, 28 June 2023, accessed 14 September 2023.

849 C Wagner, 'The Untapped Business Potential Of Computer Vision Technology', *Forbes*, 26 May 2023, accessed 14 September 2023.

850 C Wagner, 'The Untapped Business Potential Of Computer Vision Technology', *Forbes*, 26 May 2023, accessed 14 September 2023.

851 J Deichmann et al, 'Autonomous driving's future: Convenient and connected', *McKinsey Digital*, 6 January 2023, accessed 14 September 2023.

852 A Roy and A Sriram, 'Zoox headcount grows as Amazon's self-driving unit expands testing in Vegas', *Reuters*, 28 June 2023, accessed 14 September 2023.

853 Waymo, Seeing the road ahead, accessed 14 September 2023.

854 A Roy and A Sriram, 'Zoox headcount grows as Amazon's self-driving unit expands testing in Vegas', *Reuters*, 28 June 2023, accessed 14 September 2023.

855 Reuters, Apple scales back self-driving car, delays launch to 2026 - Bloomberg New, 7 December 2022, accessed 14 September 2023.

856 S Shead, 'Autonomous driving start-up Wayve bags $200 million from Microsoft, Virgin and Baillie Gifford', *CNBC*, 17 January 2023, accessed 14 September 2023.

857 C Wagner, 'The Untapped Business Potential Of Computer Vision Technology', *Forbes*, 26 May 2023, accessed 14 September 2023.

858 Amazon, Amazon Go is a new kind of corner store, accessed 14 September 2023; Just Walk Out, FAQs, accessed 14 September 2023.

household tasks or automating skilled surgical procedures.[859] The Department of Industry, Science and Resources released a National Robotics Strategy discussion paper in April 2023.[860]

Amazon has invested heavily in robotics to support the operation of its warehouses, with more than 750,000 mobile robots deployed worldwide.[861] It has also begun testing robots that use AI and computer vision to move freely throughout facilities.[862] In addition to using robots to improve the efficiency of their own operations, in 2021, Amazon also announced Astro, a robot for consumers to use at home.[863] Microsoft, Google and reportedly Amazon are also researching how to incorporate large language models into robots to enable them to be controlled using natural language commands.[864]

Quantum computing: Quantum computing, an emerging technology that uses the laws of quantum mechanics to produce exponentially higher performance for certain types of calculations, offers the possibility of major breakthroughs across sectors.[865] Quantum computers are not only faster than most modern computers, but they can also carry out multiple calculations at once. This means that quantum computers could tackle problems that have simply been unsolvable before.[866] While at an early stage of development, Microsoft, Amazon, and Google highlight this technology as research areas.[867]

While it is uncertain the extent to which each of the specific technologies in box A.1 above may transform the economy, it is clear that the trend is towards ever greater digitalisation. While broader than the digital platform service providers considered in this Report, the economic contribution of the tech sector in Australia grew an estimated 79% between 2016 and 2021 according to the Tech Council,[868] with growth expected to continue as evinced by the Government's commitment to creating 1.2 million tech-related jobs by 2030.[869]

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859 Productivity Commission, 5-year Productivity Inquiry: Advancing Prosperity, Volume 1, 7 February 2023, accessed 14 September 2023, p 3; Department of Industry, Science and Resources, Critical technology profiles [PDF 5.2MB], 22 August 2022, accessed 14 September 2023.

860 Department of Industry, Science and Resources, National Robotics Strategy Discussion Paper, April 2023, accessed 14 September 2023.

861 J Quinlivan, How Amazon deploys collaborative robots in its operations to benefit employees and customers, *About Amazon*, 27 June 2023, accessed 14 September 2023.

This has been supported by Amazon's acquisition of robotics company Kiva Systems for USD775m in 2012. L Rao, 'Amazon acquires robot-coordinated order fulfillment company Kiva Systems for $775 million in cash', *TechCrunch*, 20 March 2012, accessed 14 September 2023.

862 Amazon, J Roach, The quest to deploy autonomous robots within Amazon fulfillment centers, 24 October 2022, accessed 14 September 2023.

863 Consumers in the US can request an invite to purchase Astro. C Tritschler, Meet Astro, a home robot unlike any other, *About Amazon*, 29 September 2021, accessed 14 September 2023.

864 Microsoft, ChatGPT for Robotics: Design principles and model abilities, 20 February 2023, accessed 14 September 2023; J P Tuohy, 'Amazon's working on a secret new home robot that could be more like Rosie', The Verge, 13 May 2023, accessed 14 September 2023,; B Edwards, 'Google's PaLM-E is a generalist robot brain that takes commands', *Ars Technica*, 3 August 2023, accessed 14 September 2023; E David, 'Google is training robots the way it trains AI chatbots', *The Verge*, 29 July 2023, accessed 14 September 2023.

865 M Biondi et al, 'Quantum computing use cases are getting real—what you need to know', *McKinsey Digital*, 14 December 2021, accessed 14 September 2023.

866 Forbes, 15 Significant Ways Quantum Computing Could Soon Impact Society, 18 April 2023, accessed 14 September 2023.

867 Google Research, Quantum computing, accessed 14 September 2023; Amazon Science, accessed 14 September 2023; Microsoft, Quantum Computing, accessed 14 September 2023; F Lardinois, 'Microsoft expects to build a quantum supercomputer within 10 years', *TechCrunch*, 22 June 2023, accessed 14 September 2023

868 Tech Council, The economic contribution of Australia's tech sector [PDF 20.7MB], August 2021, accessed 14 September 2023, p 6.

869 Australian Government Department of Industry, Science and Resources, Investments to grow Australia's critical technologies industries, 12 May 2023, accessed 14 September 2023; Productivity Commission, 5-year Productivity Inquiry: Advancing Prosperity, 7 February 2023, accessed 14 September 2023. While the reported size of the 'tech workforce' in Australia varies depending on the occupations that are classified as working in digital and data-related roles, several industry associations have estimated that there are now over 800 000 workers employed in 'tech jobs'.

As digital technologies become ever more deeply embedded and diversely woven through the fabric of the economy and society, digital platform service providers are making substantial investments, funded by the revenue generated from their core services, to ensure they are in strategically important positions in an evolving digital economy. As discussed in section 4.2 of the Report, digital platform service providers may aim to expand to become the 'winner of new discoveries' to diversify their business portfolios and be resilient to changes in preferences, trends, or technological developments.[870]

Notably, these technologies do not only operate in isolation. As described in box A.1 above, there are potential synergies arising from developing capabilities in several of these areas at once, for example, employing generative AI models to aid the training of robots.[871] The role digital platforms service providers are playing in the development of these technologies speaks to their importance to the Australian economy, both now and in the future.

As the ACCC's Regulatory Reform Report highlighted, because of the significance of digital platform services, and because competition is important for markets to function well, ensuring effective competition in the supply of these services is crucial for productivity and the future prosperity of Australians.[872] This will only become more important with the growth and expansion of the digital economy and digital platform ecosystems.

870 CMA, Online platforms and digital advertising market study, Appendix E: ecosystems of Google and Facebook, 1 July 2020, accessed 14 September 2023, p E2.

871 Microsoft, ChatGPT for Robotics: Design principles and model abilities, 20 February 2023, accessed 14 September 2023; E David, 'Google is training robots the way it trains AI chatbots', *The Verge,* 29 July 2023, accessed 14 September 2023; J P Tuohy, 'Amazon's working on a secret new home robot that could be more like Rosie', *The Verge,* 13 May 2023, accessed 14 September 2023.

872 ACCC, Digital Platform Services Inquiry Fifth Interim Report, 11 November 2022.

Appendix B: Expansion by digital platform service providers

This appendix builds on the discussion in section 4.1.1 of the Report to discuss the expansion by digital platform service providers in more detail. The ACCC has observed throughout the DPSI the increasing breadth of products and services offered by providers of digital platform services. Below is a non-exhaustive overview of how the largest digital platform service providers have expanded from their initial offerings to their current range of products and services. The dates shown are best estimates based on publicly available sources.

Apple

Apple started out as a manufacturer and supplier of desktop computers with the launch of the Apple Computer in 1976, which was followed by the release of the Macintosh in 1984.[873] As explored in figure B.2 below, it has expanded significantly over the last 25 years to provide a wide range of products and services.[874]

Figure B.2 shows that Apple's expansion accelerated following the release of the iPhone. As noted in section 3.1.1, Apple's iPhone bundle of services forms the core of its current offering (taking over the iPod shortly after its release). In particular, Apple has expanded its range of consumer devices (and associated operating systems), software, digital content and other media offerings. The majority of these products and services are complementary to Apple's core offering, by adding value to users of its devices and subsequently increasing their loyalty and spending with Apple.

Figure B.2 also highlights some additional areas of focus for Apple, such as financial services, education, health, advertising, and immersive technologies. Apple's expansion in these areas is largely underpinned by its device ecosystems.

Areas of focus

Consumer electronic devices and related software

Apple has developed a range of consumer electronic devices — and related operating systems — over the years. This includes desktop computers (Mac and macOS), portable music players (iPod, discontinued), smartphones (iPhone and iOS), tablet computers (iPad

873 See, for example, M Weinberger, A Hartmans and L Varanasi, 'The history of Apple in photos, from the early Steve Jobs era and iPhone launch to crossing the $3 trillion milestone under Tim Cook', Insider, updated 11 September 2023, accessed 14 September 2023.

874 Figure B.2 provides an indicative picture of Apple's expansion over time, rather than seeking to present an exhaustive list of all products and services offered or companies acquired. The figure focusses predominantly on consumer-facing products and services, rather than those offered to business users. In providing this indicative picture of Apple's expansion over time and into new areas, this figure also includes Apple products and services which are not offered in Australia, though it is noted where this is the case. This figure has been compiled using best estimates based on publicly available sources. It is recognised that this is just one approach that could be taken to categorise the products and services offered by Apple.

and iPadOS), digital media players (Apple TV console and tvOS), smartwatches (Apple Watch and watchOS) and smart speakers (HomePod).

While Apple generated the majority (70%) of its global revenues from the sale of iPhones, Mac computers and iPads (and their packaged software) in 2022, Apple's revenues from its Wearables, Home and Accessories segment has been increasing (from 7% of total global revenue in 2018 to 10% in 2022).[875] According to a recent Statista study on the most used smart watches by brand in Australia, Apple holds a leading position in the supply of smart watches in Australia — with almost half of respondents who use a smart watch and/or fitness tracker indicating they owned an Apple-branded smart watch (Apple Watch).[876]

As noted in section 3.1.1, Apple's device offerings encompass a wide range of bundled Apple services. This range of services has expanded significantly over time. For example, the first iPhone came pre-installed with a small number of apps such as Weather, Notes, Photos and Calculator.[877] Today, an iPhone will come with over 30 pre-installed apps (some of which can and others which cannot be removed).[878] Mac computers similarly also come with over 35 pre-installed apps.[879] In this regard, figure B.2 only partially demonstrates the expansion of Apple's range of services, as new services tend to be incorporated in the bundle via device and software upgrades. This includes Apple's voice assistant Siri,[880] the Safari web browser, and the Apple App Store. As noted in appendix A, Apple is increasingly integrating technologies such as artificial intelligence into its services.

Apple also offers a range of other services to consumers such as consumer cloud storage services (iCloud), communication services (iMessage and iCloud Mail) productivity services (iWork), navigation services (Apple Maps) and device insurance (AppleCare+). Apple's expansion of its consumer cloud storage services is discussed in section 4.1.2 of the Report. These services form a core part of Apple's value proposition and allow it to market its devices towards the higher end of the market. For example, Apple's CEO Tim Cook recently stated "the iPhone has become so integral into people's lives. It contains their contacts and their health information and their banking information and their smart home and so many different parts of their lives, their payment vehicle …. And so I think people are willing to really stretch to get the best they can afford in that category".[881]

875 Based on ACCC analysis of Apple Pty Limited's ASIC Form 338 Annual reports between 2018-2022.

876 Statista, Most used eHealth tracker / smart watches by brand in Australia as of March 2023, accessed 14 September 2023.

877 J Rossignol, '15 Features the Original iPhone Didn't Have When First Announced', *MacRumors*, 7 January 2022, accessed 14 September 2023.

878 These include Safari, Mail, Phone, Contacts, Messages, FaceTime, Camera, Photos, App Store, Wallet, Apple Music, Find My, Podcasts, Apple Books, Maps, Home, and Files. See, for example, Apple Support, Delete built-in Apple apps from your iPhone, iPad or Apple Watch, accessed 14 September 2023.

879 Apple, Apps included on your Mac, *Apple Support*, accessed 14 September 2023.

880 As noted in section 4.2.3 of the Report, Apple has made a number of acquisitions related to voice assistant technology, including Cue, Novauris Technologies and Voysis.

881 The Motley Fool, Apple (AAPL) Q1 2023 earnings call transcript, 2 February 2023, accessed 14 September 2023.

Digital content and other media services

The global revenue Apple generates from its Services segment — including its digital content and streaming services, advertising, cloud, and payment services has been increasing significantly in recent years (doubling from USD39bn in 2018 to USD78bn in 2022).[882] These services have also been growing as a proportion of Apple's revenue in Australia.[883]

In particular, Apple has increasingly focussed on its various subscription services in recent years, including:

- Apple Music (music streaming)
- Apple News+ (news and magazine service)
- Apple TV+ (video streaming)
- Apple Arcade (video game library)
- Apple Fitness+ (fitness classes and meditation streaming).

Apple has invested significantly in content for these services. In this regard, it has previously been suggested by some commentators that Apple sees these streaming services as loss-leaders for the sales of iPhones, Apple TVs and other hardware products.[884] However, there are several indicators that this may not (or no longer) be the case. Namely, the recent price rises for streaming services, Apple's moves to open its Apple TV+ and Apple Music services to non-Apple device users, and the increasing profitability of its Services segment.[885]

Growth in financial services, education, health, advertising and immersive technologies

In relation to financial services, Apple launched its Apple Pay service (mobile wallet payments) in the US in 2014, and in Australia in 2015.[886] Apple Pay allows users to make payments in person via an Apple device, online or within apps. As noted in section 2.1 of the Report, the Australian Banking Association has estimated the value of mobile wallet transactions in Australia reached AUD93bn in 2022.[887] The majority of these payments are made using Apple Pay (see figure B.1 below). In Australia, the Reserve Bank of Australia (RBA) Consumer Payments Survey found that around half of respondents stated they had a card stored in a mobile wallet in 2022, with mobile wallet usage higher among younger people.[888]

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882 Apple Inc, Form 10-K for the fiscal year ended September 24, 2022, accessed 14 September 2023, p 2.

883 Apple Pty Limited, ASIC Form 338 Annual report 2022, accessed 14 September 2023 (available at ASIC Connect).

884 T Spangler, 'Apple CEO: "'We Don't Make Purely Financial Decisions" About Apple TV Plus Content', *Variety*, 27 January 2022, accessed 14 September 2023.

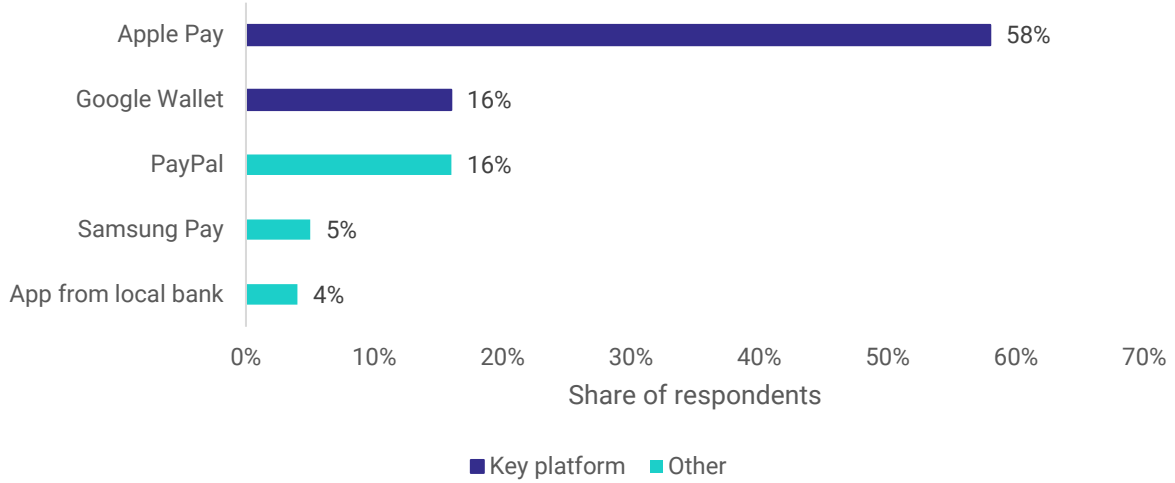
885 A Levy, 'Apple's latest price changes tell investors a lot about the future of the company', *The Motley Fool*, 1 November 2022, accessed 14 September 2023.

886 S Drummond, 'Apple Pay switched on in Australia, but only for Amex', *Sydney Morning Herald*, 18 November 2015, accessed 14 September 2023.

887 Australian Banking Association, Bank on it: Customer Trends 2023, 7 June 2023, accessed 14 September 2023, p 30.

888 RBA, Consumer Payment Behaviour in Australia, 15 June 2023, accessed 14 September 2023.

Figure B.1: Split of payments made in Australia using mobile wallets by platform in 2022[889]



Moreover, Apple recently introduced Apple Pay Later, a buy-now-pay-later service, in the US.[890] Apple also appears to be working towards using its mobile wallet for Digital IDs (e.g., driver's licences and student cards).[891] In the US, Apple has been further expanding its range of financial products and services to include credit, debit, and savings accounts. In August 2023, Apple announced that the Apple Card high-yield savings account offered by Goldman Sachs had reached over USD10bn in deposits.[892] It is not yet clear whether Apple will offer similar accounts in Australia.

In terms of education, Apple offers the Apple Classroom and Schoolwork apps for iPad and Mac. Apple's presence in education is otherwise largely based around the sale of and support for devices (such as Macs and iPads) for schools.[893] Apple offers an Apple School Manager service which allows schools to manage devices, buy apps and online books in bulk, and sync student user accounts with school student information systems.

Apple published its health strategy in 2022. The strategy indicates that Apple will seek to further integrate health and fitness features into its iPhone and Apple Watch, including expansion of the Health app, and to encourage the use of Apple products in medical research and support.[894]

Until recently, Apple has not focussed on advertising (and monetising the data of its customers). However, with the growth of its advertising business over the last few years, it

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889 Get App, 79% Australian users use digital wallets as debit/credit cards, 15 November 2022, accessed 14 September 2023.

890 Apple Newsroom, Apple introduces Apple Pay Later to allow consumers to pay for purchases over time, 28 March 2023, accessed 14 September 2023.

891 Apple, Add your driver's license or state ID to Apple Wallet, *Apple Support*, 13 December 2022, accessed 14 September 2023 (US only); Apple, Add your student ID to Apple Wallet on your iPhone or Apple Watch, *Apple Support*, 18 April 2023, accessed 14 September 2023.

892 Apple Newsroom, Apple Card's savings account by Goldman Sachs reaches over $10 billion in deposits, 2 August 2023, accessed 14 September 2023. There have however been reports that Goldman Sachs may be seeking to end its partnership with Apple: A Andriotis, 'Goldman Is Looking for a Way Out of Its Partnership With Apple', *Wall Street Journal*, 30 June 2023, accessed 14 September 2023.

893 Apple, Apple and Education, accessed 14 September 2023; Apple, Intro to Classroom and Schoolwork, *Apple Support*, 29 September 2020, accessed 14 September 2023; Apple, Apple School Manager User Guide, *Apple Support*, accessed 14 September 2023.

894 Apple, How Apple is empowering people with their health information, Press release, 20 July 2022, accessed 14 September 2023; Apple, Empowering people to live a healthier day: Innovation using Apple technology to support personal health, research and care, Report, July 2022, accessed 14 September 2023.

has been noted that this strategy may be changing.[895] It has been reported that Apple's advertising revenue has grown from a few hundred million dollars in the late 2010s to about USD5bn in 2022.[896] Currently, Apple displays ads within its News and Stocks apps, and the Apple App Store. The Apple App Store also has search ads.

Apple has also announced its entry into immersive technologies. Apple announced its Vision Pro headset and Vision OS in June 2023, which is expected to be available in early 2024.[897] Apple is also rumoured to be developing generative AI tools as noted in appendix A,[898] and an electric self-driving vehicle which drivers would be able to unlock and pay for using their iPhone.[899]

Amazon

Having launched as a US-based online retail marketplace for books in 1994, Amazon has expanded from these origins and now operates an extensive global online retail marketplace.[900] More recently, Amazon has been expanding its digital content and consumer electronic device offerings. Amazon has also become a major supplier of technology and cloud services through AWS. Figure B.3 below provides an overview of Amazon's expansion over the last 25 years.[901]

Amazon's expansion has largely occurred in relation to services that complement or otherwise relate to its core ecommerce and online retail marketplace services. This includes its third-party fulfillment and delivery services, retail advertising and payment services, as well as its expanding range of entertainment offerings which form part of the value proposition of its Amazon Prime membership program. Further, Amazon's increasing interest in consumer hardware (such as tablets, smart speakers and smart TVs) appears to complement its expanding entertainment offering and build on its investment in the Alexa voice assistant.[902]

While Amazon's expansion into cloud computing was facilitated by excess server capacity used for its online retail marketplace, it has now grown into a significant business in its own right (see sections 3.1.1 and 4.1.1 of the Report).

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895 Financial Times, Apple plans to double its digital advertising business workforce, 5 September 2022, accessed 14 September 2023; M Gurman, 'Apple Finds Its Next Big Business: Showing Ads on Your iPhone', *Bloomberg*, 14 August 2022, accessed 14 September 2023; E Roth, 'Your iPhone may soon have more ads', *The Verge*, 15 August 2022, accessed 14 September 2023.

896 Financial Times, Apple plans to double its digital advertising business workforce, 5 September 2022, accessed 14 September 2023.

897 Apple Newsroom, Introducing Apple Vision Pro: Apple's first spatial computer, 5 June 2023, accessed 14 September 2023.

898 T Marcin, 'Apple GPT: Tech giant reportedly working on a ChatGPT, generative AI competitor', *Mashable,* 19 July 2023, accessed 14 September 2023.

899 See, for example, MacRumors, Apple Car: Apple's vehicle project, focused on building a fully autonomous car, 24 May 2023, accessed 14 September 2023; J Westbrook, 'The Apple Car "Project Titan" Reportedly Is Delayed and In Need of a Partner', *Motortrend*, 6 December 2022, accessed 14 September 2023 (while originally rumoured to be announced in 2024, Mototrend suggests it has been delayed to 2026.); M Owen, 'Project Titan' self-driving car could be summoned and paid for on an iPhone, *Apple Insider*, 7 February 2019, accessed 14 September 2023.

900 See, for example, C Gartenberg, 'Bezos' Amazon: from bookstore to backbone of the internet', *The Verge*, 4 February 2021, accessed 14 September 2023.

901 Figure B.3 provides an indicative picture of Amazon's expansion over time rather than seeking to present an exhaustive list of all products and services offered or companies acquired. The figure focusses predominantly on consumer-facing products and services rather than those offered to business users. In providing this indicative picture of Amazon's expansion over time and into new areas, this figure also includes Amazon products and services which are not offered in Australia, though it is noted where this is the case. This figure has been compiled using best estimates based on publicly available sources. It is recognised that this is just one approach that could be taken to categorise the products and services offered by Amazon.

902 As noted in section 4.2.3 of the Report, Amazon has made a number of acquisitions related to voice assistant technology (IVONA Software, Evi, Yap).

Areas of focus

Online retail marketplace and related services

The Amazon.com online retail marketplace has expanded significantly since its inception in 1994 and now consists of 4 key elements.

- Amazon Retail (first-party sales)
- Amazon's third-party seller services
- Amazon Prime loyalty program
- Amazon advertising and payment services.

The Amazon Retail business has expanded significantly since 1994. From books, Amazon quickly broadened its range of first-party products and services. It now offers a huge range of first-party products as well as third-party manufactured products, and has developed an expansive logistics network. However, Amazon is reportedly planning to discontinue a majority of the first-party brands currently offered on its marketplace.[903] While Amazon's retail marketplace business has a more limited geographic footprint due to the need to deploy physical logistics assets, it has been investing heavily in expanding its global footprint (including into Australia).

Amazon's range of third-party seller services have also been increasing since the third-party seller marketplace was launched in 2000.[904] Amazon now has over 6 million third-party sellers globally.[905] Recently, Amazon's CFO Brian Olsavsky advised that 59% of the items sold on Amazon.com were from third-party sellers.[906] In addition to being able to list their products on the Amazon marketplace for a fee, sellers can also make use of Amazon's expanding logistics network. Initially, this was only available for sales made on the marketplace (Fulfillment by Amazon[907]). However, Amazon has recently launched its Multi-channel Fulfillment service, which allows sellers to use Amazon's fulfillment and delivery service for sales made outside of Amazon.com (e.g., via their own website or other marketplaces, such as eBay).[908]

Amazon's advertising services have also seen significant growth. However, these services are primarily limited to sales of advertising to sellers, vendors, publishers and authors. Amazon's total global advertising revenues are dwarfed by Meta and Google's (USD37bn in 2022, compared to Meta's USD113bn and Google USD224bn).[909]

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903 E Roth, 'Amazon is dropping dozens of in-house brands you didn't even know it owned', *The Verge*, 11 August 2023, accessed 14 September 2023.

904 Amazon Press Center, Amazon Marketplace a winner for customers, sellers and industry; New service grows over 200 percent in first 4 months, 19 March 2001, accessed 14 September 2023.

905 Marketplace Pulse, Amazon tops six million third-party sellers, 24 March 2023, accessed 14 September 2023.

906 The Motley Fool, Amazon.com (AMZN) Q4 2022 earnings call transcript, 2 February 2023, accessed 14 September 2023.

907 This allows sellers to store their products in Amazon's warehouses, and for Amazon to not only 'pick, pack and ship' the products to customers but also provide sale-related customer service. See Amazon.com.au, Save time and grow your business with FBA, accessed 14 September 2023.

908 Amazon.com.au, Get reliable shipping with Multi-Channel Fulfillment, accessed 14 September 2023; B Tu, What is Amazon Multi-Channel Fulfillment (MCF) and how can ecommerce brands benefit from it?, *DCL*, 24 May 2023, accessed 14 September 2023.

909 Based on ACCC analysis of Amazon, Apple, Google, Meta and Microsoft's US SEC Form 10 Annual reports.

Amazon offers Amazon Pay, which enables Amazon account holders to purchase goods on the Amazon online retail marketplace or third-party ecommerce services using stored card details, either online via one-click purchase or via Alexa.[910]

In 2020, Amazon launched its Amazon Flex 'gig economy' delivery service in Australia (following its initial launch in the US in 2015), which allows individuals to deliver packages for Amazon for a fee.[911] It also offers a click-and-collect service (Amazon Hub)[912] and, in the US, it is also trialling an electric, autonomous delivery system (Amazon Scout).[913]

Amazon Prime, related entertainment offerings and consumer devices

Amazon has also expanded its Amazon Prime membership program. The original program launched in 2005 in the US and provided members with unlimited two-day shipping for USD79 annually.[914] In its recent investor call, Amazon's Chief Financial Officer highlighted Amazon's continued focus on attracting buyers to its marketplace through offering a wide selection, 'sharp pricing' and fast delivery.[915] Amazon Prime has now been rolled out across Amazon's marketplace footprint (including Australia in 2018)[916] and, in addition to free expedited delivery and exclusive deals, now also includes a wide range of additional entertainment services. This includes Prime Video (video streaming service), Amazon Music Prime (music streaming services), Prime Reading (limited selection of free ebooks) and Prime Gaming (limited selection of free online games). These entertainment services, such as the Prime Video and Amazon Music Unlimited, are also increasingly being offered to non-Prime delivery members (i.e., as stand-alone services).[917]

Combined, the above subscriptions services accounted for USD35bn in global revenues for Amazon in 2022.[918] While this accounts for only 7% of Amazon's total global revenues, the broader range of subscription services also increase the strength of Amazon's online retail marketplace brand. In Australia, Amazon earned AUD246mil in revenue for subscription services in 2022.[919]

In Australia, Amazon Prime is the third-most popular video streaming service (after Netflix and Disney+).[920] In this context, it is worth noting that Amazon invested USD16.6bn on music and video content in 2022 (a significant increase from USD6.7bn in 2018); with USD7bn of that spent on Amazon original content, live sports and third-party content for Prime.[921] By

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910 Amazon, Amazon Pay - How it works, accessed 14 September 2023. Amazon Pay is an online payment system that allows Amazon customers to make payments through their Amazon account on Amazon.com and other online stores. Unlike Apple Pay and Google Pay, Amazon Pay is not a mobile wallet service.

911 M Elmas, 'Amazon launches Uber-esque delivery service in Australia, amid safety and pay criticism in the US', *SmartCompany*, 22 January 2020, accessed 14 September 2023.

912 Amazon, About Amazon Hub, accessed 14 September 2023.

913 S Scout, Meet Scout, *About Amazon*, 24 January 2019, accessed 14 September 2023.

914 D Kawamoto, 'Amazon unveils flat-fee shipping', *CNET*, 2 February 2005, accessed 14 September 2023.

915 The Motley Fool, Amazon.com (AMZN) Q4 2022 earnings call transcript, 2 February 2023, accessed 14 September 2023.

916 Amazon.com.au, Amazon launches Prime in Australia offering free delivery in as fast as 2 days for nearly 90 per cent of Australians, Press release, 19 June 2018, accessed 14 September 2023.

917 Amazon also offers a free ad-supported music streaming service, Amazon Music Free.

918 Based on ACCC analysis of Amazon.com Inc's US SEC Form 10-K Annual reports. Subscription services includes Amazon Prime memberships, as well as Kindle, Audible, Prime Video and Amazon Music subscriptions.

919 Based on ACCC analysis of Amazon Commercial Services Pty Ltd's ASIC Form 338 Annual reports between 2018-2022.

920 Department of Infrastructure, Transport, Regional Development, Communication and the Arts, 2022 Media Content Consumption Survey [PDF 2.2MB], 6 March 2023, accessed 14 September 2023, p 22.

921 Amazon.com, Inc., Form-10K for the fiscal year ended December 31, 2022, p 48; Amazon.com, Inc., Form-10K for the fiscal year ended December 31, 2019, p 48; The Motley Fool, Amazon.com (AMZN) Q4 2022 earnings call transcript, 2 February 2023, accessed 14 September 2023.

comparison, Netflix spent USD16.7bn in the same year.[922] Amazon operates the Amazon Studios production company, and recently acquired Metro-Goldwyn-Mayer (MGM) for USD8.5bn.[923]

Following the launch of its Kindle ereader and the Kindle ebook store in 2007,[924] Amazon expanded to audiobooks with the acquisition of Audible in 2008 and comic books with the acquisition of comiXology in 2014.[925] Amazon has also expanded in book publishing with its Kindle Direct Publishing business.[926] As noted in section 3.1.1, Amazon has been found to have market power in ebook distribution in the EU.

In the terms of the gaming sector, Amazon launched Amazon Games (formerly Amazon Game Studios) in 2012.[927] Amazon officially launched the cloud gaming platform, Luna, in the US in 2022, though it was first unveiled and available to limited numbers via an invite-only early access program since September 2020.[928] It is not yet known if or when Luna will be rolled out in Australia. Amazon also acquired Twitch in 2014, the market leader in live game streaming globally.[929]

In addition to its Kindle devices, Amazon has also expanded its hardware offerings to include tablets (Amazon Fire Tablets), wearables and various smart home devices. Amazon also previously offered 2 wearable fitness devices, the Halo Band and the Halo View.[930] However, these were discontinued in 2023. Amazon's expansion into smart home devices is discussed further in section 4.1.3 of the Report.

Broader expansion into cloud and health

As noted in section 3.1.1, AWS is now part of Amazon's core offering. While Amazon's expansion into cloud computing was facilitated by excess server capacity used for its online retail marketplace, it has now grown into a significant business in its own right. AWS was launched in 2006, Amazon now offers a large range of cloud computing and storage services and other digital services such as analytics, business applications, machine learning and AI, robotics and content delivery (focussing on a range of industries such as education, health, financial services, entertainment and gaming).[931] Amazon has also recently begun offering services using generative AI via Amazon Bedrock.[932] It is, however, difficult to ascertain the rate of expansion of Amazon's enterprise offering as these services are often highly technical and customised, and are usually not announced or followed by commentators to the same degree as consumer-facing services.

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922 T Spangler, 'Netflix content spending declined 5% in 2022', *Variety*, 20 June 2023, accessed 14 September 2023.

923 A Malik, 'Amazon completes $8.5 billion acquisition of MGM', *TechCrunch*, 18 March 2022, accessed 14 September 2023.

924 Amazon Press Center, Introducing Amazon Kindle, 20 November 2007, accessed 14 September 2023.

925 Amazon Press Center, Amazon.com to acquire comiXology, 11 April 2014, accessed 14 September 2023; Amazon Press Center, Amazon.com completes acquisition of Audible, 19 March 2008, accessed 14 September 2023.

926 Amazon, How Amazon's self-publishing service has empowered authors and diversified publishing over the last 15 years, 18 November 2022, accessed 14 September 2023.

927 S Rodriguez, 'Amazon launches game studio and a Facebook social game', *Los Angeles Times*, 6 August 2012, accessed 14 September 2023.

928 A Malik, 'Amazon Luna officially launches in the US with free games for Prime members and more', *TechCrunch*, 2 March 2022, accessed 14 September 2023.

929 Amazon Press Center, Amazon.com to acquire Twitch, 26 August 2014, accessed 14 September 2023.

930 C Welch, 'Inside Amazon's canceled plan to make Halo a fitness success', *The Verge,* 2 May 2023, accessed 14 September 2023.

931 AWS, Start building on AWS today, accessed 14 September 2023.

932 AWS, Amazon Bedrock, accessed 14 September 2023.

Amazon's investments into health have largely occurred in the US. For example, Amazon acquired online pharmacy service, PillPack, and primary care provider, OneMedical.[933] Amazon has also launched Amazon Pharmacy (online pharmacy) and Amazon Clinic (virtual health service) in the US.[934] Additionally, Amazon has also been investing in facilitating Alexa-based medical solutions, which may indicate its future direction.[935] In Australia, Deloitte has developed the DeloitteAssist 'Alexa Skill' for use in the Prince of Wales Hospital in Sydney. Alexa 'skills' allow users to make certain Alexa voice requests and are described by Amazon as 'like apps for Alexa'.[936] DeloitteAssist enables patients to use the Alexa voice assistant to ask staff for specific help (e.g., through requests for pain medication or assistance to use the bathroom).[937]

Retail

Amazon's activity in physical brick and mortar retail has been largely focussed on the US and Europe. Amazon began offering grocery delivery services to Prime members in parts of the US via Amazon Fresh in 2007.[938] It has since expanded to offering Amazon Fresh and Amazon Go physical grocery stores in the US and UK and acquired US supermarket chain Whole Foods Market for USD13.7bn in 2017.[939] Amazon also opened a range of physical bookstores in the US, beginning in 2015, but announced the closure of these stores in 2022.[940] Amazon launched its first physical apparel store (Amazon Style) in the US in 2022.[941]

Amazon is also implementing emerging digital technologies within its physical retail businesses. Amazon Go convenience stores deploy computer vision, sensor vision and deep learning technologies so customers can 'Just Walk Out' without needing to scan items.[942] Amazon is also deploying palm-scanning payment technology (known as Amazon One) for a number of its retail businesses, including Amazon Go and Whole Foods Market.[943]

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933 Amazon Press Centre, Amazon to Acquire PillPack, 28 June 2018, accessed 14 September 2023; Amazon Press Centre, One Medical Joins Amazon to Make It Easier for People to Get and Stay Healthier, 23 February 2023, accessed 14 September 2023.

934 N Ayogu, 'Amazon Clinic expands nationwide to provide messaging and video visits for common health conditions', *About Amazon*, 1 August 2023; C Chen, Amazon's full-service online pharmacy makes it easy and affordable to shop for medication. Here's how it works, Amazon, *About Amazon*,10 February 2023, accessed 14 September 2023.

935 E Kim and Ch Farr, 'Amazon is building a 'health & wellness' team within Alexa as it aims to upend health care', *CNBC*, 10 May 2018, accessed 14 September 2023.

936 Amazon, Alexa Skills, accessed 14 September 2023.

937 E Schwartz, 'A New Alexa Skill Connects Hospital Patients to Nurses in Australia', *Voicebot.ai,* 5 June 2019, accessed 14 September 2023; Deloitte, DeloitteASSIST: Transforming patient communication through artificial intelligence, accessed 14 September 2023. Amazon states that Alexa 'skills' are like 'apps for Alexa'.

938 JY Park, 'Amazon gets fresh challenges with new grocery business', *CNBC*, 27 August 2007, accessed 14 September 2023.

939 Amazon, Introducing the first Amazon Fresh grocery store, 27 August 2020, accessed 14 September 2023; Amazon, Amazon Go is a new kind of corner store, accessed 14 September 2023; Amazon, Amazon and Whole Foods Market Announce Acquisition to Close This Monday, Will Work Together to Make High-Quality, Natural and Organic Food Affordable for Everyone, 25 August 2017, accessed 14 September 2023; L Hirsch and J Dastin, 'Amazon to buy Whole Foods for $13.7 billion, wielding online might in brick-and-mortar world', *Reuters*, 16 June 2017, accessed 14 September 2023.

940 J Dastin, 'Amazon to shut its bookstores and other shops as its grocery chain expands', *Reuters,* 3 March 2022, accessed 14 September 2023.

941 S Vasen, Amazon reimagines in-store shopping with Amazon Style, *About Amazon*, 20 January 2022, accessed 14 September 2023.

942 Amazon, Amazon Go is a new kind of corner store, accessed 14 September 2023; Just Walk Out, FAQs, accessed 14 September 2023.

943 D Kumar, Introducing Amazon One—a new innovation to make everyday activities effortless, *About Amazon*, 29 September 2020, accessed 14 September 2023; Amazon, Here's your first look at Project Kuiper's low-cost customer terminals, *About Amazon*, 14 March 2023, accessed 14 September 2023. Note, not available at all stores. Amazon also notes that it plans to offer the Amazon One service to third parties, such as retailers, stadiums and office buildings.

Satellite broadband and autonomous vehicles

Amazon has invested in developing low Earth orbit satellites to provide satellite broadband services via Project Kuiper, and is expected to begin offering services commercially in 2024.[944] It has also acquired autonomous vehicle company, Zoox.[945]

Microsoft

Microsoft has grown significantly from its early days as a supplier of microprocessors and software for early computers in 1975.[946] It is now an integral player in software and digital infrastructure across the world, and offers hundreds of digital products and services to consumers and business globally. Figure B.4 below provides an overview of Microsoft's expansion over the last 25 years.[947]

While Microsoft has expanded its range of consumer-facing services (including its Xbox gaming portfolio), its most significant expansion activities have occurred in relation to its business offerings. As noted above in relation to Amazon, it is difficult to ascertain the full breadth of Microsoft's expansion as these services are often highly technical and customised, and are usually not announced or followed by commentators to the same degree as consumer-facing services. However, this expansion appears to largely occur in relation to products or services that complement or otherwise relate to its core offerings (i.e., desktop operating systems, productivity suite software, and cloud computing services).

Areas of focus

Operating systems, web browsers, search engines and devices

Microsoft launched its first operating system (PC DOS) in 1981, followed soon after by Windows in 1985. Since then, Microsoft has released many iterations of the Windows operating system which is one of 2 major desktop operating systems today (see section 3.1.1).[948]

In addition to operating systems, Microsoft expanded its offerings to include the Internet Explorer web browser (which has been replaced by its Edge product[949]) in 1995 and search itself, following the launch of the MSN Search in 1998 (which subsequently became Bing Search).[950] In February 2023, Microsoft announced that it was launching a new generative AI-powered Bing search engine (including Bing Chat) and Edge browser.[951] Following the

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944 Amazon, Here's your first look at Project Kuiper's low-cost customer terminals, 14 March 2023, accessed 14 September 2023.

945 Amazon, We're acquiring Zoox to help bring their vision of autonomous ride-hailing to reality, 26 June 2020, accessed 14 September 2023.

946 Microsoft, Facts about Microsoft, *Microsoft News*, accessed 14 September 2023.

947 Figure B.4 provides an indicative picture of Microsoft's expansion over time rather than seeking to present an exhaustive list of all products and services offered or companies acquired. The figure focusses predominantly on consumer-facing products and services rather than those offered to business users. In providing this indicative picture of Microsoft's expansion over time and into new areas, this figure also includes Microsoft products and services which are not offered in Australia, though it is noted where this is the case. This figure has been compiled using best estimates based on publicly available sources. It is recognised that this is just one approach that could be taken to categorise the products and services offered by Microsoft.

948 As noted in figure B.4, Microsoft also offered a mobile OS, which has since been discontinued.

949 ACCC, Digital Platform Services Inquiry Third Interim Report, 28 October 2021, footnote 69.

950 JC Perez, 'Microsoft enhances MSN search engine', *Computerworld*, 1 July 2004, accessed 14 September 2023.

951 Y Mehdi, Reinventing search with a new AI-powered Microsoft Bing and Edge, your copilot for the web, *Microsoft Blogs*, 7 February 2023, accessed 14 September 2023.

release, Bing reached 100 million daily active users for its search service in March 2023.[952] Similar to Google, Microsoft also offers a web mapping service (Bing Maps) and an online shopping comparison service (Bing Shopping).[953]

Microsoft launched its advertising business (Microsoft Advertising), which offers search and news advertising, in 2006.[954] In June 2022, Microsoft completed its acquisition of digital advertising technology company, Xandr, to accelerate its delivery of digital advertising and retail media solutions.[955] In February 2023, Microsoft stated that its advertising revenue reached near USD18bn in the last 12 months (significantly smaller than Google and Meta's ads businesses).[956]

While Microsoft licenses its operating system to third-party manufacturers, it also offers a range of personal computers and tablets under the Surface brand.[957] Microsoft has a relatively small share of the laptop and tablet sectors, earning approximately USD7bn in global revenue from its Surface devices in 2022.[958] While Microsoft did offer a mobile operating system, Windows Mobile, this has been discontinued.[959] Following a short partnership between Microsoft and Nokia on the Lumia mobile phone, Microsoft completed its acquisition of Nokia's Devices and Service division in 2014.[960] This was later sold and the Lumia discontinued in 2016.[961] Microsoft currently offers Surface Duo line of smartphones (which operate on the Android OS), which first launched in 2020.[962]

Microsoft offers a voice assistant, Cortana, which launched in 2014.[963] While this was originally available as a stand-alone app for iOS and Android devices, this was discontinued in 2021.[964] Microsoft has since announced that it will not support Cortana as a stand-alone app on Windows devices from late 2023 (discussed further in section 4.1.3).[965] Microsoft also offers an app store for Windows applications (Microsoft Store).[966]

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952 T Warren, 'Microsoft Bing hits 100 million active users in bid to grab share from Google', *The Verge*, 9 March 2023, accessed 14 September 2023.

953 Bing Maps originally operated as MSN Virtual Earth, launched in 2005, while Bing shopping originally operated as MSN eShop and launched in 1999. Microsoft, MSN eShop Opens its Doors for Convenient Online Shopping, 2 November 1999, accessed 14 September 2023; Microsoft, MSN Virtual Earth Gives People an Immersive Way to Search, Discover and Explore Their World Online, 24 July 2005, accessed 14 September 2023.

954 Originally launched as MSN adCenter. J Slegg, 'MSN adCenter Officially Launches & Changes Name to Microsoft adCenter', *Search Engine Watch*, 4 May 2006, accessed 14 September 2023.

955 M Parakhin, Microsoft to acquire Xandr to accelerate delivery of digital advertising and retail media solutions, *Microsoft Advertising*, 21 December 2021, accessed 14 September 2023.

956 Microsoft Investor Call, New AI-powered Bing and Edge Conference Call, 7 February 2023, accessed 14 September 2023. This includes revenues from search, news and LinkedIn Marketing Solutions.

957 Microsoft, Microsoft Announces Surface: New Family of PCs for Windows, 18 June 2012, accessed 14 September 2023. See also ACCC, Digital Platform Services Inquiry Third Interim Report, 28 October 2021, p 33.

958 Based on ACCC analysis of Microsoft Corporation's Form-10K for the fiscal year ended December 31, 2022 (Microsoft Corporation, Form-10K for the fiscal year ended December 31, 2022, pp 44-45). See also Statista, PC vendor market share worldwide from 2006 to 2022, accessed 14 September 2023; StatCounter, Tablet Vendor Market Share Worldwide, July 2022 – July 2023, accessed 14 September 2023.

959 ACCC, Digital Platform Services Inquiry Second Interim Report, 28 April 2021, footnote 68.

960 N Lomas, 'Microsoft's $7.2BN+ Acquisition Of Nokia's Devices Business Is Now Complete', *TechCrunch,* 25 April 2014, accessed 14 September 2023.

961 Microsoft, Support options for Nokia, Lumia, and feature phone devices, *Microsoft Support,* accessed 14 September 2023.

962 T Warren, 'Microsoft's Surface Duo arrives on September 10th for $1,399', *The Verge*, 12 August 2020, accessed 14 September 2023.

963 K Levy, 'Microsoft has its own version of Siri, a voice assistant called 'Cortana'', *Business Insider*, 3 April 2014, accessed 14 September 2023.

964 T Warren, 'Microsoft shuts down Cortana on iOS and Android', *The Verge,* 1 April 2021, accessed 14 September 2023.

965 E Roth, 'Microsoft will end support for Cortana on Windows later this year', *The Verge*, 3 June 2023, accessed 14 September 2023.

966 Microsoft, Microsoft Store, accessed 14 September 2023.

Microsoft has offered a range of media and entertainment services which have been discontinued (e.g., Xbox Music) and continues to offer Microsoft Films & TV.[967]

Productivity, communication and networking

While the core applications within Microsoft's Office productivity suite have remained relatively consistent since its launch in 1990 (namely Word, Excel and PowerPoint[968]), Microsoft has increasingly added new services to the broader suite. In terms of productivity software, it now also includes email (as the Outlook mail client, and the Outlook.com webmail service based on the acquired Hotmail service), OneNote, Access and Publisher. Microsoft has increasingly been moving away from one-off licences of its Office suite towards the cloud-based Microsoft 365 subscription service, which it has made available for iOS and Android devices.

Microsoft has also added significantly to its consumer and business-facing voice and video communications, and networking portfolio over the years — with a particular focus on services that support its enterprise services. This expansion was facilitated by its acquisition of Skype (voice-over-IP video calling service) in 2011, Yammer (enterprise social networking service) in 2012 and LinkedIn (professional networking service) in 2016.[969]

In terms of consumer facing communications services, Microsoft continues to offer Skype voice-over-IP video calling services as well as video conferencing service, Microsoft Teams, which is available for free (basic version) or as part of a Microsoft 365 subscription.[970] For businesses, Microsoft offers Microsoft Teams as part of certain enterprise Microsoft 365 subscriptions.[971]

Microsoft's LinkedIn professional networking business was examined as part of the ACCC's Report on Social Media.[972] Microsoft also provides access to social networking services for employees through its Microsoft Viva employee experience platform (integrated into Teams and Outlook).

Microsoft expanded to cloud storage services following the launch of its OneDrive (formerly SkyDrive) services in 2007. Today, Microsoft offers a range of consumer and business cloud storage services, as part of its productivity suite offerings. Microsoft's consumer cloud storage services are discussed further in section 4.1.2 of the Report.

Microsoft has also expanded into immersive technologies, with the release of its HoloLens augmented/mixed reality headset in 2015.[973] While these headsets are available for consumers, they are generally marketed towards business users, particularly in the manufacturing, engineering and construction, healthcare and education sectors.[974]

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967 Microsoft, Microsoft Films & TV, accessed 14 September 2023.

968 These were launched individually earlier, starting with Word in 1983, Excel in 1985 and PowerPoint (via acquisition) in 1987.

969 Microsoft, Microsoft to acquire Yammer, 25 June 2012, accessed 14 September 2023; Microsoft, Microsoft officially welcomes Skype, 13 October 2011, accessed 14 September 2023; Microsoft, Microsoft to acquire LinkedIn, 13 June 2016, accessed 14 September 2023.

970 Microsoft, How do I get Microsoft Teams?, accessed 14 September 2023.

971 Note, Microsoft announced that it is unbundling Teams from its Microsoft 365 and Office 365 productivity suites in the European Economic Area and Switzerland from October 2023 in order to address concerns raised by the European Commission (Microsoft, Microsoft announces changes to Microsoft 365 and Office 365 to address European competition concerns, 31 August 2023, accessed 14 September 2023).

972 See ACCC, Digital Platform Services Inquiry Sixth Interim Report, 28 April 2023, pp 53-56.

973 Microsoft, Microsoft announces global expansion for HoloLens, 12 October 2016, accessed 14 September 2023.

974 Microsoft, Microsoft HoloLens 2: For precise, efficient, hands-free work, accessed 14 September 2023; D Bohn, 'Microsoft's HoloLens 2: a $3,500 mixed reality headset for the factory, not the living room', *The Verge*, 25 February 2019, accessed 14 September 2023.

Gaming

Microsoft entered the gaming market following the launch of the Xbox console in 2001. In 2022, Microsoft's gaming business earned approximately USD15bn in revenue.[975] Microsoft is present in almost all layers of the home-console gaming industry. It manufactures Xbox gaming consoles, and it distributes and publishes video games via the Digital Games Store (one-off purchases) or through Game Pass subscriptions. Acquisitions have played an important role for Microsoft in this area. In 2014, Microsoft acquired the developer of the popular game Minecraft, Mojang, for USD2.5bn.[976] It subsequently acquired game developer and publisher, ZeniMax Media (parent company of Bethesda Softworks, developer of games such as Fallout and Skyrim) in 2020 for USD7.5bn.[977] Microsoft also offers cloud-based game streaming services (Xbox Cloud Gaming, also included as part of Game Pass Ultimate subscription).[978] While Microsoft previously offered a live game streaming platform, Mixer – similar to Amazon's Twitch service – this was shut down in 2020.[979] Finally, Microsoft is also involved in video game development. In 2022, Microsoft announced its decision to acquire Activision, a leading game publisher and distributor, for around USD68.7bn (noting the transaction is still under review in several jurisdictions).[980]

Cloud and enterprise solutions

Microsoft launched its Azure enterprise cloud infrastructure business in 2010.[981] As noted in section 3.1.1, Microsoft's cloud and server business is now its primary revenue earning business. Microsoft now offers hundreds of cloud and enterprise solutions. This includes AI and machine learning, analytics, cloud computing, databases, software and app development, developer tools, migrations services, storage, cyber security, content distribution networks, web management and governance, and virtual desktops.[982] Microsoft announced the completion of its acquisition of Nuance Communications Inc. in March 2022 for USD19.7bn, a leader in conversational AI and ambient intelligence across industries including healthcare, financial services, retail and telecommunications.[983]

Generative AI

Microsoft's strategic partnership with and partial stake in OpenAI has received considerable attention since the launch of OpenAI's Large Language Model (LLM) ChatGPT in late 2022. Microsoft has incorporated OpenAI's GPT-4 into a range of its products, such as its search engine (Bing Chat), its office productivity software (Copilot) and has also begun to leverage its cloud operations to sell the underlying technology behind LLMs through Azure AI.[984]

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975 Based on ACCC analysis of Microsoft Corporation's US SEC Form 10-K Annual reports.

976 Microsoft, Minecraft to join Microsoft, 15 September 2014, accessed 14 September 2023.

977 Microsoft, Microsoft to acquire ZeniMax Media and its game publisher Bethesda softworks, 21 September 2020, accessed 14 September 2023.

978 Xbox, Xbox Cloud Gaming (Beta), accessed 14 September 2023.

979 T Warren, 'Microsoft is shutting down Mixer and partnering with Facebook Gaming', *The Verge*, 23 June 2020, accessed 14 September 2023.

Mixer was derived from Microsoft's acquisition of game streaming service Beam. T Warren, 'Microsoft renames Beam to Mixer, adds new game streaming features', *The Verge*, 25 May 2017, accessed 14 September 2023.

980 Microsoft, Microsoft to acquire Activision-Blizzard to bring the joy and community of gaming to everyone across every device, 18 January 2022, accessed 14 September 2023.

981 Forbes, A Look Back At Ten Years Of Microsoft Azure, 3 February 2020, accessed 14 September 2023.

982 Azure, Products available by region, accessed 14 September 2023.

983 Microsoft, Microsoft completes acquisition of nuance ushering in new era of outcomes-based AI, 4 March 2022, accessed 14 September 2023.

984 Microsoft, Azure AI, accessed 14 September 2023.

Google

Since its beginning in 1998 as a provider of search services, Google has expanded to supply a wide range of consumer and business-facing digital services.[985] Figure B.5 below provides an overview of Google's expansion over the last 25 years.[986]

Areas of focus

Search and advertising

Google's founders launched the Google search engine in 1998, which has long been the most widely used search engine in the world. Google offers web browser services through its Chrome desktop and mobile browser, and the Chromium browser engine[987] (launched in 2008).[988] Google also offers a range of specialised search services, this includes Google Images, Google News, Google Shopping, Google Books, Google Scholar, Google Finance, and Google Travel (which includes Flights and Hotels).[989]

Google launched its advertising business (Google Ads, formerly AdWords) in 2000[990] and has since expanded to offer a range of search and display advertising, and ad tech services. Google's ad tech services were examined in detail in Digital Advertising Services Inquiry.[991] As noted in section 3.1.1, Google's advertising services are its main source of revenue and profit, and Google holds a strong market position in the supply of search and ad tech services. Google's expansion in this area has been supported by a number of acquisitions, including DoubleClick for USD3.1bn in 2008,[992] AdMob (mobile advertising), Applied Semantics (AdSense) and Urchin (Google Analytics).[993]

Mobile operating systems and related services

Following its acquisition of Android Inc. in 2005, Google launched version 1.0 of the Android operating system in 2008, which has since become one of the leading mobile operating systems in the world.[994] Google has also expanded its range of Android-based operating

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985 Google, From the garage to the Googleplex, *About Google*, accessed 14 September 2023. Note, Google created a new holding company, Alphabet, in 2015 and moved a range of companies unrelated to its main internet products (which remained within Google) into this company. See L Page, G is for Google, *Google Blog*, 10 August 2015, accessed 14 September 2023.

986 Figure B.5 provides an indicative picture of Google's expansion over time rather than seeking to present an exhaustive list of all products and services offered or companies acquired. The figure focusses predominantly on consumer-facing products and services rather than those offered to business users. In providing this indicative picture of Google's expansion over time and into new areas, this figure also includes Google products and services which are not offered in Australia, though it is noted where this is the case. This figure has been compiled using best estimates based on publicly available sources. It is recognised that this is just one approach that could be taken to categorise the products and services offered by Google.

987 *Browser engine:* A critical piece of software required by all browsers to run, which interprets the code behind a website and presents it in the graphical format that the user sees and interacts with.

988 T Warren, 'Google's Chrome browser is now 10 years old', *The Verge*, 3 September 2018, accessed 14 September 2023; See also ACCC, Digital Platform Services Inquiry Third Interim Report, 28 October 2021, p 37.

989 M Karch, '10 of Google's other search engines', *Lifewire*, 24 January 2019, accessed 14 September 2023.

990 WordStream, The evolution of Google AdWords – a $38 billion advertising platform, 19 November 2021, accessed 14 September 2023.

991 ACCC, Digital Advertising Services Inquiry Final Report, 28 September 2021.

992 E Schmidt, We've officially acquired DoubleClick, *Google Blog*, 11 March 2008, accessed 14 September 2023.

993 For further information about relevant acquisitions made by Google in relation to its ad tech services, see ACCC, Digital Advertising Services Inquiry Final Report, 28 September 2021, pp 193-194 (Appendix C).

994 O Thomas, 'Google exec: Android was best deal ever', *VentureBeat*, 27 October 2010; JR Raphael, 'Android versions: A living history from 1.0 to 14', *Computerworld*, 7 April 2023, accessed 14 September 2023.

systems to include Chrome OS (for desktop computers/tablets), Android TV (for smart TVs), Wear OS (for smartwatches) and Android Go (for low end/budget smartphones).

Google's expansion into hardware has followed alongside this expansion— it now offers a range of consumer electronic devices including mobile phones (Pixel), digital media players (Chromecast), smartwatches (Pixel Watch) and smart home devices. The latter is discussed further in section 4.1.3 of the Report. In 2019, Google acquired of Fitbit (a wearable fitness tracker) for USD2.1bn.[995] While Google did briefly manufacture Chromebooks (desktop computers/tablets) and Google Glass (smart glasses), they have since stopped manufacturing these first party devices.[996] Google CEO, Sundar Pichai, has recently, however, reiterated the importance of its hardware portfolio and its role in 'guiding the ecosystem'.[997] Some commentators have suggested its push into mobile phones may be driven by threats to its mobile search and ads business.[998]

Google continues to expand the number of first-party apps and features that come pre-installed or are otherwise available for Android devices. In the beginning, Android phones came installed with a small number of basic apps like Gmail, Maps, Calendar and YouTube.[999] Now, Android devices often come pre-installed with Google Play Store (app store), Google Search, Chrome Browser, Gmail, Google Photos, Google Drive, Maps, Google Play Movies & TV, YouTube Music and YouTube.[1000] Similar to Apple, Google also offers a mobile wallet payment services for mobile devices (Google Pay and Wallet) and a voice assistant (Google Assistant). Google also offers communication services such as Google Meet and Google Chat as well as other related services such as Google Translate.

Google's subscription business, which has largely been built off its YouTube platform (acquired in 2006[1001]), has grown in recent years. In particular, Google now offers YouTube Premium (video streaming) and YouTube Music (music streaming), which recently surpassed 80 million subscribers worldwide.[1002] In the US, Google also offers the YouTube TV online pay television service.[1003] Google also offers other media and entertainment services such as Google Podcasts and Google TV video on demand service.

While Google has also made several attempts at entering into the gaming market, these have had limited success so far. For example, Google has recently discontinued its cloud-based game streaming service, Stadia, after less than 5 years.[1004] Similarly, its stand-alone video game live streaming app, YouTube Gaming was shut down in 2019.[1005] However, consumers continue to widely use Google's Play Store to download and play games on

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995 R Osterloh, 'Google completes Fitbit acquisition', *The Keyword*, 14 January 2021, accessed 14 September 2023.

996 M Crider, 'Google is done making its own Chromebooks', *PC World*, 13 September 2022, accessed 14 September 2023; M Clark, 'Google Glass Enterprise Edition is no more', *The Verge*, 16 March 2023, accessed 14 September 2023.

997 The Motley Fool, Alphabet (GOOGL) Q4 2022 Earnings Call Transcript, 2 February 2023, accessed 14 September 2023.

998 Press-Telegram, Google begins selling its own mobile phone, 5 January 2023, accessed 14 September 2023; S Gibbs, 'What does Google want with HTC's smartphone business?', *The Guardian*, 22 September 2017

999 J Victor and A Efrati, 'Facing Threat From Apple, Google Tries New Hardware Playbook', *The Information*, 18 October 2022, accessed 14 September 2023; M Vonau, 'Google is going all-in on Pixel hardware to fight Apple, de-emphasizing Assistant', *Android Police*, 19 October 2022, accessed 14 September 2023.

1000 K Bradshaw, 'These are the new default Google apps for Android 10 and Android Go', *9to5Google*, 7 October 2019, accessed 14 September 2023.

Collectively referred to as Google Mobile Services. These apps are installed at the system level and therefore more integrated into the Android system in contrast to third-party apps installed via the Google Play Store.

1001 Google, Google to acquire YouTube for $1.65 billion in stock, 9 October 2006, accessed 14 September 2023.

1002 The Motley Fool, Alphabet (GOOGL) Q4 2022 Earnings Call Transcript, 2 February 2023, accessed 14 September 2023. Google counts users on trials as subscribers for the purposes of this milestone.

1003 YouTube TV, Welcome, accessed 14 September 2023.

1004 J Peters and A Cranz, 'Google is shutting down Stadia', *The Verge*, 30 September 2022, accessed 14 September 2023.

1005 A Robertson, 'The YouTube Gaming app is shutting down this week', *The Verge*, 28 May 2019, accessed 14 September 2023.

Android devices. As discussed in the ACCC's Report on App Marketplaces, games are an important revenue source for app stores.[1006]

Google's activities in mapping and navigation have been growing, and are increasingly being leveraged into the automotive industry. Supported by acquisitions of Where 2 Technologies and KeyHole, Google launched Google Maps and Google Earth (3D satellite mapping) services in 2005.[1007] Google has since expanded its navigation offerings, including features like driving and public transport navigation, Google Street View and more recently Google announced Immersive View (which uses AI to visualize routes).[1008] Google's parent company, Alphabet, also acquired Waze (a crowd-sourcing navigation and traffic monitoring app) in 2011, which continues to operate as a stand-alone app.[1009] Google has also developed Android Automotive OS, an operating system for smart cars which is being used by car makers such as Volvo and Renault,[1010] as well as a smartphone car mirroring feature (Android Auto). Google's parent company, Alphabet, is also active in autonomous vehicles, after separating out its self-driving car unit into Waymo in 2016, an independent company within the Alphabet umbrella.[1011]

Productivity, cloud and enterprise solutions

Google's productivity suite Google Docs Editors (available as part of the paid Google Workspace offering) has been increasing in popularity in recent years with both consumers and enterprise. Google has made significant investments in building this suite of services, which includes Gmail, Google Docs (word documents), Sheets (spreadsheets), Slides (presentations), Calendar, and Google Drive (cloud storage). Google's expansion has been supported by several acquisitions in this area, Docs (Upstartle), Sheets (2Web Technologies) and Slides (Tonic Systems).[1012] Google's consumer cloud storage services are discussed further in section 4.1.2 of the Report. Google also offers several communication and network services, including Google Meet and Google Chat.

Beyond its consumer-facing services, Google is also increasingly investing in its cloud and enterprise solutions portfolio. The greatest increases in Google's global revenue have come from its cloud business, which has increased by 30+% each year over the last 5 years (from USD5bn in 2018 to USD26bn in 2022).[1013] Google's cloud business consists of its Google Cloud Platform (GCP) as well as Google Workspace and other enterprise services. Google acquired cybersecurity firm Mandiant in September 2022 for USD5.4bn.[1014] However in 2022, this segment only accounts for 9% of Google's total global revenues.[1015] Cloud services have also been increasing as a proportion of total revenue in Australia over the last few years.[1016]

1006 ACCC, Digital Platform Services Inquiry Second Interim Report, 28 April 2021, p 32.

1007 S Gibbs, 'Google Maps: a decade of transforming the mapping landscape', *The Guardian*, 8 February 2015, accessed 14 September 2023.

1008 M Daniel, 'New ways AI is making Maps more immersive', *The Keyword,* 10 May 2023, accessed 14 September 2023.

1009 Google has recently committed to keeping Waze as a stand-alone app, despite bringing the app's staff to the team running Google Maps, Earth and Street View: L Tung, 'Google brings Waze and Maps teams together in cost-cutting move', *ZDNET*, 9 December 2022, accessed 14 September 2023.

1010 J Tsau, What's new with Android for Cars: I/O 2023, *Android Developers Blog*, 10 May 2023, accessed 14 September 2023.

1011 S Etherington and L Kolodny, 'Google's self-driving car unit becomes Waymo', *TechCrunch*, 14 December 2016, accessed 14 September 2023.

1012 S Schillace, We're expecting, *Google Blog*, 17 April 2007, accessed 14 September 2023; L Baker, 'Google's acquisition of Upstartle – Writely so', *Search Engine Journal*, 10 March 2006, accessed 14 September 2023; Tech Monitor, Google: Set to launch Google spreadsheets, 8 June 2006, accessed 14 September 2023.

1013 Based on ACCC analysis of Alphabet Inc's US SEC Form 10-K Annual reports.

1014 P Sawers, 'Google closes $5.4 B Mandiant acquisition', *TechCrunch*, 13 September 2022, accessed 14 September 2023.

1015 Based on ACCC analysis of Alphabet Inc's US SEC Form 10-K Annual reports.

1016 Based on ACCC analysis of Google Australia Pty Ltd's ASIC Form 338 Annual reports between 2018-2022.

Education and health

Google has also been expanding into the education and health sectors, building on its existing suite of services.

In addition to its Workspace for Education, Google also provides the Google Classroom service, a free-to-access learning platform that streamlines the process of file sharing between teachers and students. Teachers can track student progress, prepare assignments/quizzes and integrate external ed-tech tools. Google appears to have achieved a high level of take-up in Australian schools, for example the ACT government funded Chromebooks for ACT state high schools.[1017] Similar to Apple, Google also offers device management (Chromebooks or other Chrome OS devices) for school administrators, allowing them to manage user accounts and install apps and extensions.

Google also has a strong consumer and enterprise health strategy, with a focus on data and AI.[1018] For example, Google Cloud recently partnered with the Mayo Clinic (an American non-profit academic medical centre and website) for patient diagnostic tools.[1019] Similarly, Google is increasingly integrating health features into its devices, such as the Google Fit app and sleep tracking in its Nest home devices.

Social media

While Google has offered a range of social media services since the early 2000s (e.g., Orkut, Google+), its success in this area has been limited and a variety of services have been discontinued.[1020]

Generative AI and immersive technologies

Similar to other digital platform service providers, Google has also launched a number of generative AI services in 2023, such as Bard (search engine chat bot) and Duet AI for Google Workspace (for use in productivity software).[1021] It has also announced NotebookLM (digital notebook).[1022] YouTube is also running tests to auto-generate video summaries using generative AI.[1023]

Google has also previously offered products using immersive technologies (Google Cardboard and Google Daydream) which have been discontinued. However, Google's acquisition of Raxium in 2022 (a startup with MicroLED technology that could be key in building a new generation of augmented, virtual and mixed reality headsets) suggests it may

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1017 Canberra Weekly, New Chromebooks for ACT school students, 4 February 2022, accessed 14 September 2023.

1018 Google Health, About Us, accessed 14 September 2023.

1019 T Kurian, How Google and Mayo Clinic will transform the future of healthcare, *Google Cloud,* 11 September 2019, accessed 14 September 2023. Google has a specific health branch, including a Chief Health Officer, that undertakes research and develops health-related initiatives. See Google, Meet the experts behind Google Health's healthcare technology advancements, *Google Health*, accessed 14 September 2023, and Health, Google's Chief Health Officer Explains How Technology Is Making Health Care Accessible to Everyone, accessed 14 September 2023.

1020 E Huet, 'Google Finally Shuts Down Orkut, Its First Social Network', *Forbes*, 30 June 2014, accessed 14 September 2023; C Welch, 'Google begins shutting down its failed Google+ social network', *The Verge*, 3 April 2019, accessed 14 September 2023.

1021 S Pichai, An important next step on our AI journey, *Google Blog,* 6 February 2023, accessed 14 September 2023; A Pappu, Introducing Duet AI for Google Workspace, *Google Workspace Blog,* 11 May 2023, accessed 14 September 2023; Google, Now Available: Duet AI for Google Workspace, *Google Workspace Blog*, 30 August 2023, accessed 14 September 2023.

1022 R Martin and S Johnson, 'Introducing NotebookLM', *The Keyword*, 12 July 2023, accessed 14 September 2023.

1023 L Forristal, 'YouTube experiments with AI auto-generated video summaries', *TechCrunch*, 2 August 2023, accessed 14 September 2023.

have a continued interest in immersive technologies,[1024] with commentators speculating about the development of an operating system.[1025]

Meta

Meta's Facebook was founded in 2004 as a social networking site for Harvard University students, later expanding to include other universities, high schools, and corporate users.[1026] In the last 20 years, Meta has significantly expanded its social media offerings. Figure B.6 below provides an overview of Meta's expansion over the last 20 years.[1027] The ACCC's Report on Social Media also discusses the business model and evolution of social media platforms such as those provided by Meta.

As demonstrated by figure B.6, Meta has largely focussed on social media and communication products and services, related advertising services, gaming and immersive technologies. In addition, the majority of its successful products have arisen from acquisition of established companies.

Areas of focus

Social media, private messaging and advertising

As noted above, Meta (Facebook) started out providing social media services via Facebook in 2004 — originally as a desktop website, and later also as a stand-alone app. In 2012, Meta acquired another social media service, Instagram (photo and video sharing platform).[1028] In Australia in 2022, Facebook had an average of 21 million active users per month, while Instagram had around 10 million.[1029] On 5 July 2023, Meta announced the launch of Threads (text-based social media app, similar to Twitter).[1030]

While Meta has previously offered additional social media services such as Facebook Slingshot (a photo-messaging app, similar to Snapchat) and Lasso (a short-video sharing app, similar to TikTok), these were subsequently discontinued, with core functionality from these apps being integrated into the Facebook and Instagram social networks.[1031]

Meta also supplies several online private messaging services. Starting with Facebook Chat (now the Messenger app) in 2008 and then the acquisition of WhatsApp in 2014.[1032]

1024 R Lawler, 'Google bought a MicroLED display company that could help make AR headsets better and cheaper', *The Verge*, 5 May 2022, accessed 14 September 2023.

1025 T Bezmalinovic, 'Google kills its smart glasses project, shifts to developing an 'Android for AR'', *Mixed*, 28 June 2023, accessed 14 September 2023.

1026 S Phillips, 'A brief history of Facebook', *The Guardian*, 25 July 2007, accessed 14 September 2023. Note, Meta announced it was changing its name from Facebook to Meta in October 2021 - see, Meta, Introducing Meta: A Social Technology Company, 28 October 2021, accessed 14 September 2023.

1027 Figure B.6 provides an indicative picture of Meta's expansion over time rather than seeking to present an exhaustive list of all products and services offered or companies acquired. The figure focusses predominantly on consumer-facing products and services rather than those offered to business users. In providing this indicative picture of Meta's expansion over time and into new areas, this figure also includes Meta products and services which are not offered in Australia, though it is noted where this is the case. This figure has been compiled using best estimates based on publicly available sources. It is recognised that this is just one approach that could be taken to categorise the products and services offered by Meta.

1028 Meta, Facebook to acquire Instagram, 9 April 2012, accessed 14 September 2023.

1029 ACCC, Digital Platform Services Inquiry Sixth Interim Report, 28 April 2023, pp 36, 40. Based on Sensor Tower data.

1030 Meta, Introducing Threads: A New Way to Share With Text, 5 July 2023, accessed 14 September 2023.

1031 M Singh, 'Facebook is shutting down Lasso, its TikTok clone', *TechCrunch*, 2 July 2020, accessed 14 September 2023; C Newton, 'Facebook shuts down its experimental Creative Labs division - Social apps including Slingshot, Rooms, and Riff are removed from the app stores', *The Verge,* 8 December 2015, accessed 14 September 2023.

1032 Meta, Facebook to acquire WhatsApp, accessed 14 September 2023.

Messenger and WhatsApp are 2 of the most used online private messaging services in Australia.[1033] Meta also offers a direct business-to-consumer messaging platform through WhatsApp, which is seeing significant growth (particularly in emerging economies).[1034]

Meta monetises its social media service through advertising (as noted in section 3.1.2). In 2007, Meta launched its Facebook Ads services, allowing businesses and brands to advertise on the Facebook social media platform (display advertising).[1035] Meta subsequently launched the Facebook Audience Network (now Meta Audience Network) which allowed Meta to offer advertising outside of the Facebook app.[1036]

In March 2023, Meta also launched 'Meta Verified', a subscription service for both Facebook and Instagram aimed at influencers.[1037]

Additional services and features

Over time, Meta has added various additional services and features to its Facebook, Instagram, Messenger and WhatsApp platforms over time, including photo tagging, News Feeds and the Like button, Messenger Rooms, and Instagram Reels.

Meta introduced Marketplace in 2016,[1038] connecting users (and some businesses) within a geographic location to buy, sell and trade items. Facebook Marketplace is integrated within the Facebook social media platform. Recently, Meta noted that Facebook Marketplace was developed primarily to facilitate buying and selling interactions that were already occurring between Facebook Users.[1039] Facebook Shops, another feature introduced in 2020, allows businesses to create an online store through the Facebook mobile app.[1040]

In 2017, Meta introduced a video on demand, live streaming and short-form video sharing service, Facebook Watch, to the Facebook social media platform.[1041] While Meta was investing in original content for the video on demand service, that division was shut down in 2023 as part of budgetary cuts.[1042] Meta also launched a news aggregation service, Facebook News, on its Facebook platform in 2019.[1043]

Meta has also displayed an interest in gaming for a long time as a means to increase engagement with its platform. In 2007, it launched Facebook Platform, which enabled third-party developers to create games (or other social applications) that integrated into Facebook.[1044] This led to the emergence of games such as Zynga's Farmville which gained

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1033 ACCC, Digital Platform Services Inquiry First Interim Report, 23 October 2020, p 23.

1034 Based on ACCC analysis of Meta Platforms, Inc's US SEC Form 10-K Annual reports. Note, although these revenues are growing, they only make up a very small proportion of total global revenues. See also The Motley Fool, Meta Platforms Inc. (META) Q2 2022 Earnings Call Transcript, 27 July 2022, accessed 14 September 2023.

1035 T Chen, Audience Network Launch, *Meta for Developers,* 7 October 2014, accessed 14 September 2023.

1036 Meta, Facebook Unveils Facebook Ads, 6 November 2007, accessed 14 September 2023.

1037 Meta, Introducing Meta Verified, accessed 14 September 2023.

1038 M Ku, Introducing Marketplace: Buy and Sell With Your Local Community', *Facebook*, 3 October 2016, accessed 14 September 2023.

1039 Meta, Submission to the Sixth Interim Report, 12 October 2022, accessed 14 September 2023.

1040 Meta, Introducing Facebook Shops: Helping Small Businesses Sell Online, 19 May 2020, accessed 14 September 2023.

1041 Facebook, Introducing Watch, a New Platform For Shows On Facebook, 9 August 2017, accessed 14 September 2023.

1042 R v Veen, Introducing Summer and Fall Programming For Facebook Watch Originals, *Facebook,* 12 June 2019, accessed 14 September 2023; P White and N Andreeva, 'Meta Content Exec Mina Lefevre Leaves As Facebook Watch Ends Originals; 'Red Table Talk' Being Shopped', *Deadline*, 26 April 2023, accessed 14 September 2023.

1043 C Brown and M Sarantakos, 'Introducing Facebook News', *Facebook,* 25 October 2019, accessed 14 September 2023.

1044 Meta, Facebook Unveils Platform for Developers of Social Applications, *Meta Newsroom*, 24 May 2007, accessed 14 September 2023.

short-lived popularity.[1045] The Facebook Instant Games feature was launched in 2016, enabling users to download and play games on the Messenger and Facebook apps.[1046] In 2020, Meta also launched a separate Facebook Gaming video game live streaming and gaming app, though this was ultimately discontinued in 2022.[1047]

In terms of financial services, Meta has Meta Pay, which allows users to store their card details and make payments on Facebook, Messenger, Instagram and participating online stores.[1048] Meta also announced work on a blockchain-based stablecoin payment system, Libra (later Diem), before ultimately terminating the project (in light of regulatory headwinds) in 2022.[1049]

Hardware

Meta has made several efforts to enter into the consumer electronic devices market, with limited success. For example, its partnership with HTC for the 'Facebook Phone' in 2013 was unsuccessful.[1050] In 2018, Meta made a short foray into smart home devices with the Meta Portal video-calling and smart TV devices, which were also discontinued. Meta also recently discontinued plans to launch a smartwatch with activity tracking features.[1051] In terms of its current offering, in addition to its Oculus headsets (discussed below), Meta has partnered with Ray-Ban to offer smart glasses, which feature in-built cameras, audio and social sharing features.[1052]

Immersive technologies and generative AI

In recent years Meta has increasingly shifted its focus to immersive technologies and the 'Metaverse' (discussed in appendix A). Beginning with its acquisition of Oculus (a small start-up firm manufacturing VR headsets) in 2014,[1053] Meta has been investing significantly in immersive technologies and use cases.[1054] As noted in appendix A, Meta has reportedly spent USD100bn on research and development in this area.[1055] In addition to VR headsets, Meta is investing in the development of immersive technology video games and apps (such as fitness class apps), which it offers through the Meta Quest Store. Meta also acquired Beat Games (creator of Beat Saber) and Within Unlimited (following an unsuccessful attempt by the US Federal Trade Commission to block the acquisition).[1056] Similar to

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1045 J Naughton, 'How FarmVille and Facebook helped to cultivate a new audience for gaming', *The Guardian*, 10 January 2021, accessed 14 September 2023; K Lyons, 'The original FarmVille on Facebook is shutting down at the end of the year', *The Verge,* 28 September 2020, accessed 14 September 2023.

1046 C Grunewald, Instant Games, *Meta for Developers*, 30 November 2016, accessed 14 September 2023.

1047 A Malik, 'Facebook is shutting down its standalone Gaming app in October', *TechCrunch*, 31 August 2022, accessed 14 September 2023.

1048 Meta, S Kasriel, Introducing Meta Pay, *Meta Newsroom*, 23 June 2022, accessed 14 September 2023.

1049 A Heath, 'Zuckerberg's dream of launching a cryptocurrency is officially over', *The Verge,* 1 February 2022, accessed 14 September 2023.

1050 S Brodsky, 'Whatever Happened to the Facebook Phone?', *Lifewire*, 13 October 2020; Z Epstein, 'No Home for Facebook at AT&T: HTC First to be discontinued', *BGR*, 13 May 2013, accessed 14 September 2023.

1051 S Hollister, 'Meta is killing portal and both its unreleased smartwatches', *The Verge*, 12 November 2022, accessed 14 September 2023.

1052 Meta, Ray-Ban stories: Smart glasses designed to keep you in the moment, accessed 14 September 2023.

1053 Meta, Facebook to acquire Oculus, 25 March 2014, accessed 14 September 2023.

1054 See, for example, Meta Quest blog, Demo or Die: How Reality Labs' Display Systems Research Team Is Pushing the VR Industry Toward the Future, 1 August 2023, accessed 14 September 2023.

1055 A Hern, 'Meta shares dip is proof metaverse plan never really had legs', *The Guardian*, 28 October 2022, accessed 14 September 2023.

1056 Meta, M Verdu, Welcoming Beat Games to Facebook, *Meta Newsroom*, 26 November 2019, accessed 14 September 2023; J Rubin, Within joins Meta, *Meta*, 9 February 2023, accessed 14 September 2023.

Microsoft, Meta is also marketing its immersive technologies to businesses, particularly in creativity and design, education, and for business meetings and collaboration.[1057]

As noted in appendix A, Meta is also active in generative AI. Meta's own large language model (LLaMA) was publicly released under a non-commercial licence in February 2023, offering a less computational power-intensive model.[1058] Meta has also announced Voice box,[1059] a speech generation model using generative AI, as well as AudioCraft, a suite of generative AI tools for creating music and audio from text prompts.[1060]

[1057] J Rubin, Meta for work: Let's put virtual reality to work, *Meta,* 9 February 2023, accessed 14 September 2023.

[1058] Meta, Introducing LLaMA: A foundational, 65-billion-parameter large language model, 24 February 2023, accessed 14 September 2023.

[1059] Meta AI, Introducing Voicebox: The first generative AI model for speech to generalize across tasks with state-of-the-art performance, 16 June 2023, accessed 14 September 2023.

[1060] Meta, Open sourcing AudioCraft: Generative AI for audio made simple and available to all, 2 August 2023, accessed 14 September 2023.

Figure B.2: Apple's expansion

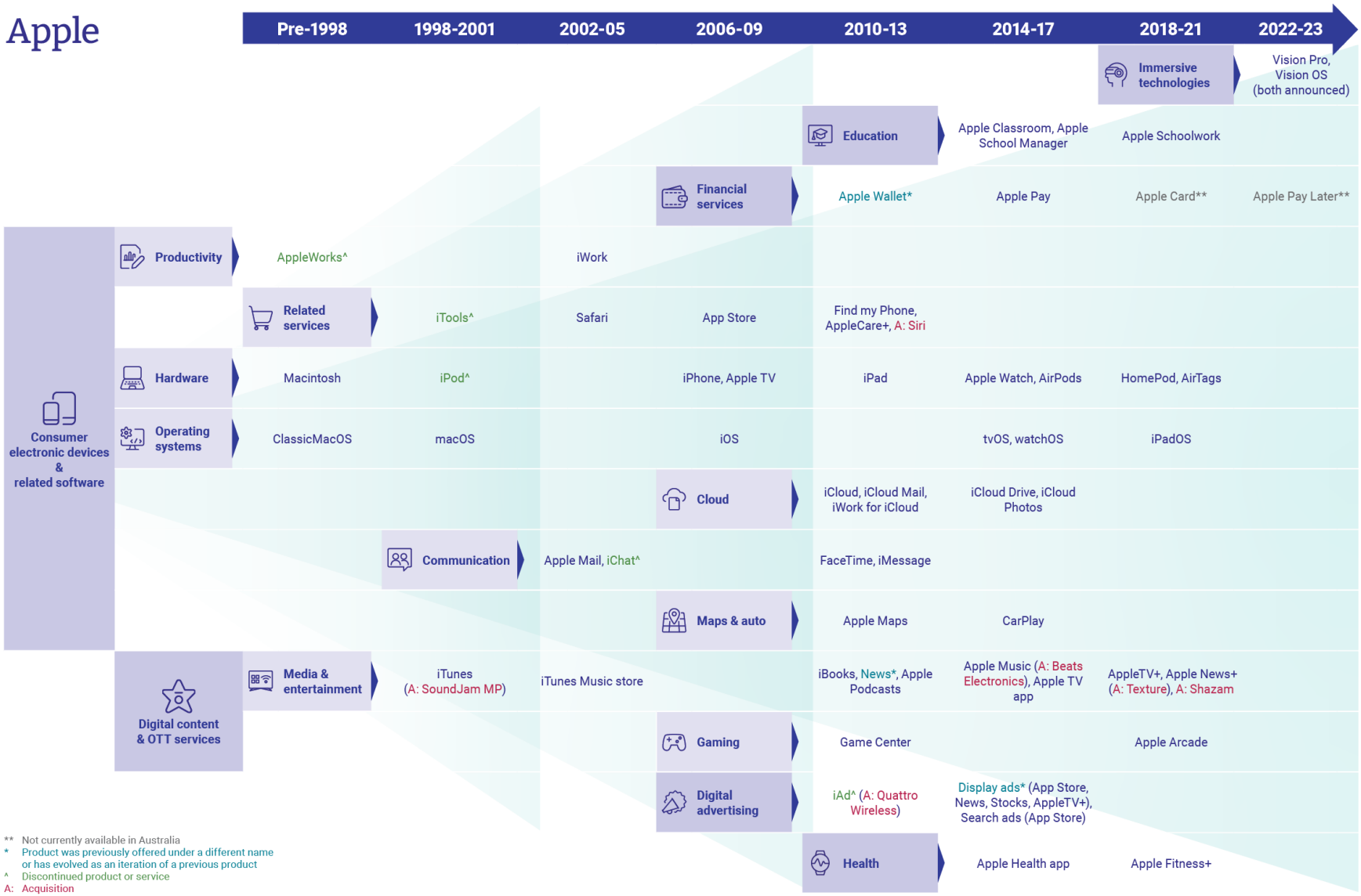


Figure B.3: Amazon's expansion

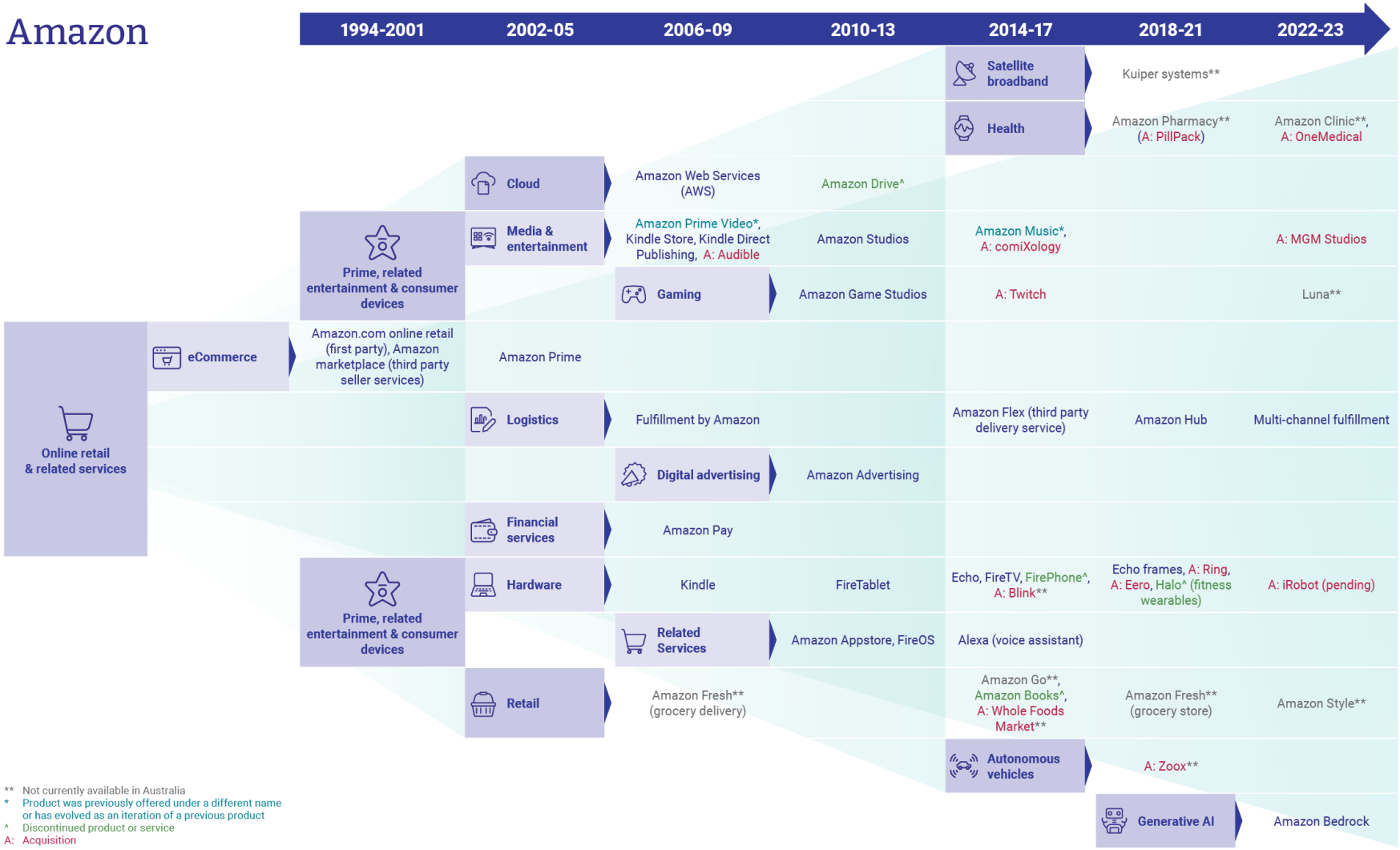


Figure B.4: Microsoft's expansion

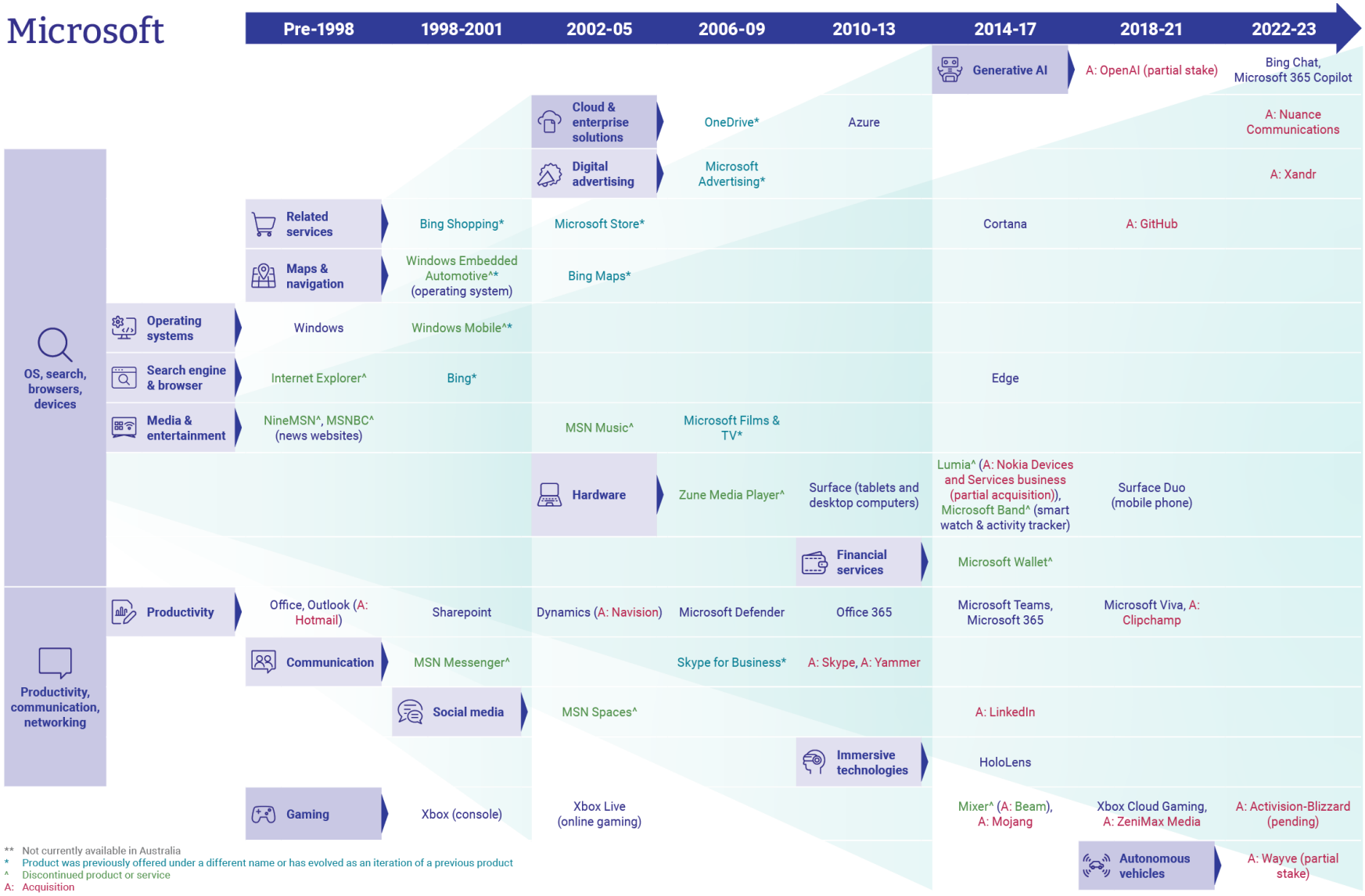


Figure B.5: Google's expansion

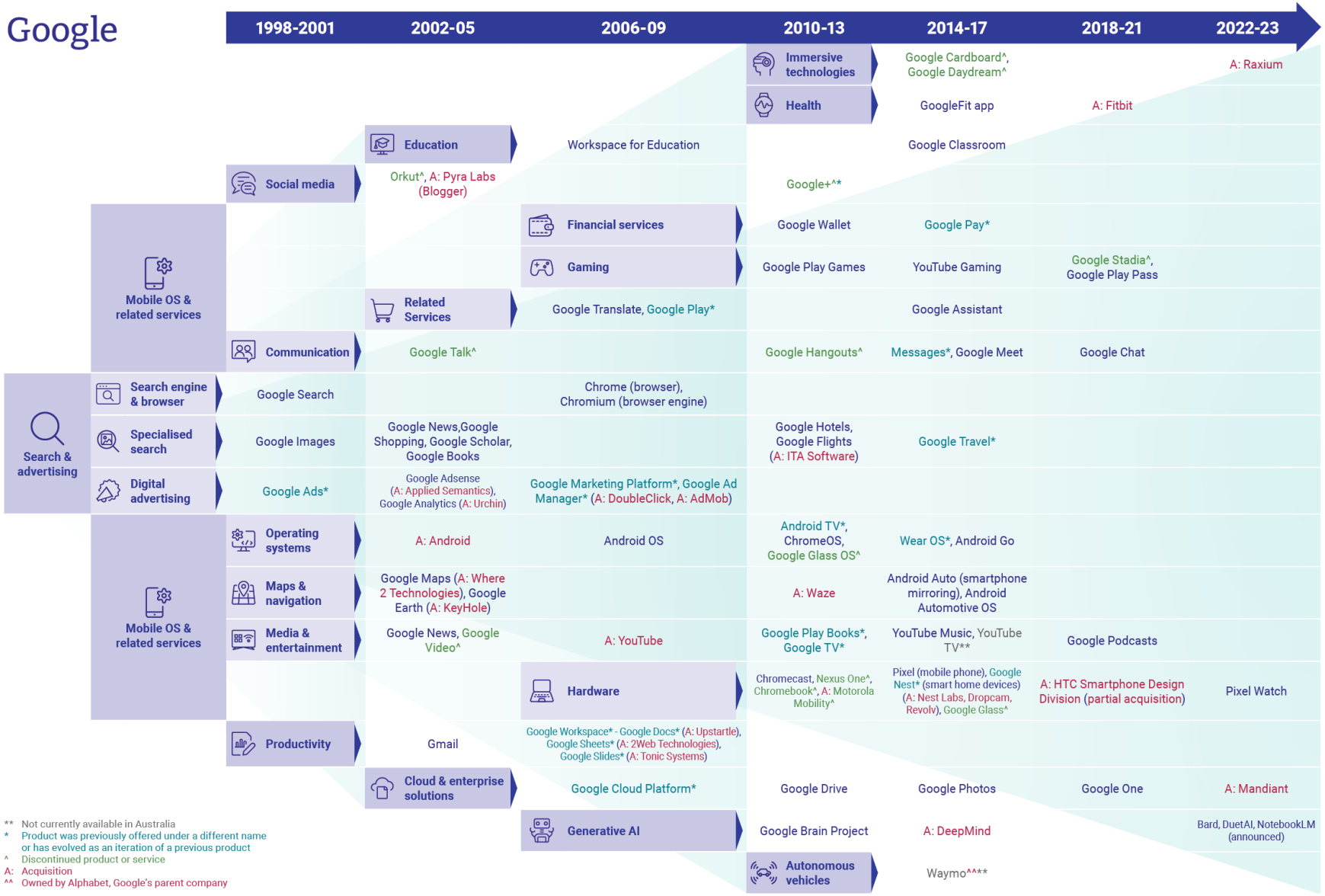
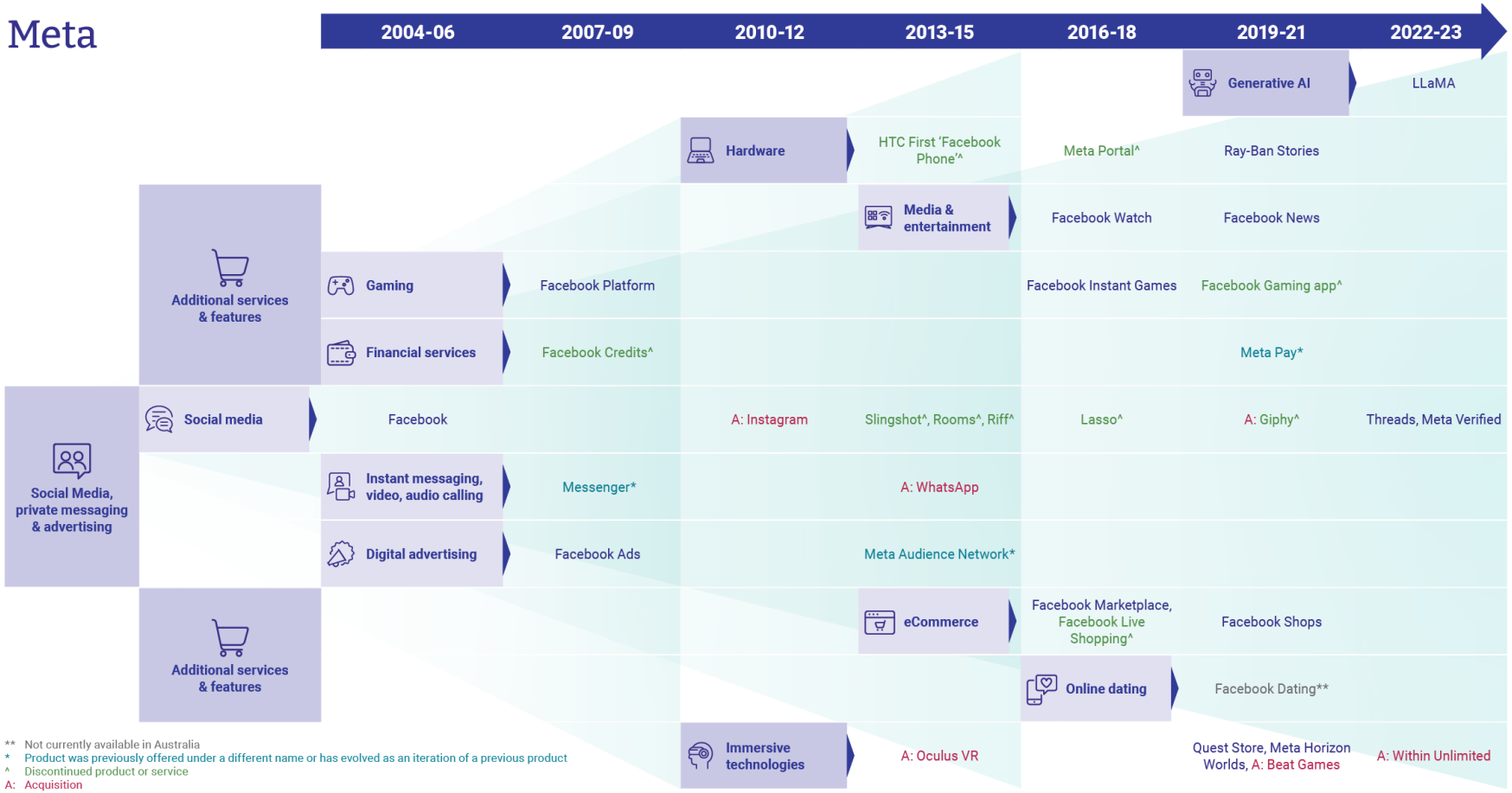


Figure B.6: Meta's expansion



Appendix C: Interconnection of first-party services on Google, Amazon and Apple smart home devices

This appendix expands on sections 4.1.3 and 5.1.3 that considers the first-party services provided by Amazon, Apple and Google in Australia for certain smart home devices. This appendix provides a non-exhaustive list of first-party smart home devices and first-party services provided by Amazon, Apple and Google in Australia in 2023.

Table C.1: first-party services on Google, Amazon and Apple smart speakers[1061]

	Music & entertainment	Tasks	News & publishing	Shopping	Smart home	Other
Google Nest Audio[1062]	Google Chromecast Google Chromecast Audio Google Play Music Google Play Movies & TV Google Podcasts Google Play Books YouTube YouTube Music	Google Duo Google Assistant Google Calendar	Google News	Google Shopping	Google Home Google Nest	Google Photos Google Maps Google Account Google Search (via Assistant) Google AI
Amazon Echo[1063]	Amazon Music Amazon Prime Amazon Kids+ Audible	Alexa		Amazon Australia Store marketplace (via Alexa)	Amazon Alexa App	Amazon Photos Amazon Account

[1061] This table is illustrative only, based on ACCC analysis of publicly available information, and does not reflect an exhaustive list of first-party services on Google, Amazon and Apple smart speakers.

[1062] Google, Nest Audio, App Partners, accessed 14 September 2023.

[1063] Amazon, Echo Show 10 (3rd Gen) | HD smart display with motion and Alexa | Charcoal, accessed 14 September 2023.

Apple HomePod [1064]	Apple Podcasts Apple Music iCloud Music Library iTunes Store purchases iTunes Match AirPlay	Siri	Apple News Today News briefings		Apple Home App Apple HomeKit	Find My iCloud account with Apple ID

Table C.2: First-party services on Google and Amazon display hubs[1065]

	Music & entertainment	Tasks	News & publishing	Shopping	Smart home	Other
Google Nest Hub[1066] Google Nest Hub Max[1067]	Google Chromecast Google Chromecast Audio Google Play Music Google Play Movies & TV Google Podcasts Google Play Books YouTube YouTube Music	Google Assistant Google Calendar	Google News	Google Shopping	Google Home App Nest Cam	Google Photos Google Account Google Search (via Assistant) Google Maps Google AI
Amazon Echo Show[1068]	Amazon Music Amazon Prime Video Audible Amazon Kids+	Alexa		Amazon Australia Store	Amazon Alexa App	Amazon Photos

[1064] Apple, HomePod, accessed 14 September 2023.

[1065] This table is illustrative only, based on ACCC analysis of publicly available information, and does not reflect an exhaustive list of first-party services on Google and Amazon display hubs.

[1066] Google, Nest Hub (2nd gen), accessed 14 September 2023.

[1067] Google, Nest Hub Max, accessed 14 September 2023.

[1068] Amazon, Echo Show 10 (3rd Gen) | HD smart display with motion and Alexa | Charcoal, accessed 14 September 2023.

Table C.3: First-party services on Google, Amazon and Apple smart TV related devices[1069]

	Music & entertainment	Tasks	News & publishing	Shopping	Smart home	Other
Google Chromecast with Google TV[1070]	YouTube YouTube Music YouTube Kids	Google Assistant		Google Shopping	Google Home App	Google Meet Google Search (via Assistant)
Amazon Fire TV[1071]	Amazon Prime Video Amazon Music Prime Gaming Amazon Kids+	Alexa		Amazon Australia Store Amazon Appstore	Amazon Alexa App	Amazon Photos Amazon Fire TV
Apple TV 4K[1072]	Apple TV Apple Music Apple Podcasts Apple Arcade Apple Fitness+	Siri		App Store	Apple HomeKit	iCloud Photo Library SharePlay

[1069] This table is illustrative only, based on ACCC analysis of publicly available information, and does not reflect an exhaustive list of first-party services on Google, Amazon and Apple smart TV related devices.

[1070] Google, Chromecast with Google TV, *Google Store,* accessed 14 September 2023.

[1071] Amazon, Fire TV, accessed 14 September 2023.

[1072] Apple, Apple TV 4K, accessed 14 September 2023.

Table C.4: First-party services on other Google and Amazon smart home devices[1073]

	Security subscription services	Tasks
Google Nest Doorbell and Nest Cam[1074]	Nest Aware Nest Aware Plus	Google Assistant Google Home app
Amazon Ring cameras[1075]	Ring Protect Basic Ring Protect Plus	Alexa
Google Nest Wifi Point[1076]		Google Assistant
Amazon Eero mesh router range[1077]		

[1073] This table is illustrative only, based on ACCC analysis of publicly available information, and does not reflect an exhaustive list of first-party services on other Google and Amazon smart home devices.

[1074] Google, Nest Doorbell (Battery), *Google Store,* accessed 14 September 2023.

[1075] Ring, Security Cameras, accessed 14 September 2023.

[1076] Google, Nest Wifi - Mesh Router, *Google Store,* accessed 14 September 2023.

[1077] Eero, Products, accessed 14 September 2023.

Appendix D: International developments

This appendix details some significant international developments in the regulation of digital platform services, including initiatives which address issues posed by digital platform ecosystems. It supplements the discussion at section 8.2.1 of the Report.

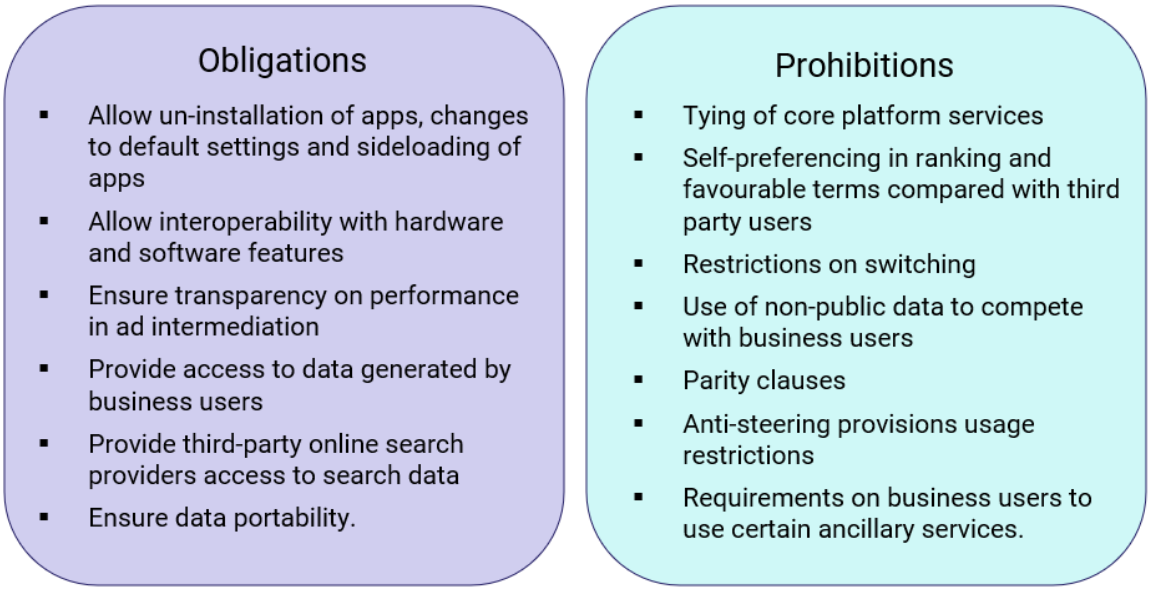
European Union

The 2 key pieces of law relating to competition and consumer issues in respect of digital platforms in Europe are the Digital Markets Act (DMA) and Digital Services Act (DSA). The former sets out new competition measures, and the latter sets out new consumer measures. These are discussed further below.

Digital Markets Act

The EU's DMA establishes a range of obligations and prohibitions for 'gatekeeper' platforms (including those listed in figure D.1).[1078] Its objective is to ensure contestability and fairness in the digital sector.

Figure D.1: EU Digital Markets Act obligations and prohibitions[1079]



Under the DMA, digital platforms are designated as 'gatekeeper' platforms where they have a significant impact on the market, operate a 'core platform service' which serves as an important gateway for business users to reach end users, and enjoy an entrenched and

[1078] Regulation (EU) 2022/1925 of the European Parliament and of the Council of 14 September 2022 on contestable and fair markets in the digital sector and amending Directives (EU) 2019/1937 and (EU) 2020/1828 (Digital Markets Act).

[1079] See Art 5 and Art 6, DMA.

durable position.[1080] A platform is presumed to be a 'gatekeeper' if it meets certain quantitative thresholds.[1081] Where a provider of a core platform service meets all of these quantitative thresholds, it will notify the European Commission which will subsequently designate the provider as a 'gatekeeper'.[1082]

The DMA has entered into application. In September 2023, Alphabet (Google), Amazon, Apple, Microsoft, Meta and ByteDance (TikTok) were designated as gatekeepers.[1083] These gatekeepers will need to comply with obligations by March 2024.[1084]

The European Commission is the sole enforcer of the DMA. Penalties for non-compliance may be up to 10% of annual worldwide turnover or up to 20% in case of repeated infringements.[1085]

Digital Services Act

The DSA sets out new responsibilities for all digital services that act as intermediaries in the EU, with the aim to better protect EU consumers online. [1086] It applies a tiered approach with different rules for different types of online intermediaries. The strictest rules will apply to platforms designated as a 'Very Large Online Platform' or 'Very Large Online Search Engine' with more than 45 million users (10% of the population in Europe).[1087]

The DSA imposes a range of obligations, including on the traceability of business users in online retail marketplaces, safeguards for users (including the possibility to challenge content moderation decisions), as well as bans on certain types of targeted advertisements (such as targeting children) and dark patterns. It also requires platforms to have mechanisms for users to flag illegal content, and transparency measures.[1088]

The DSA entered into force in November 2022 and most of its provisions will apply by 17 February 2024. In April 2023, the European Commission adopted the first designation decisions under the DSA, designating 17 Very Large Online Platforms and 2 Very Large

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1080 Art 3(1), DMA. The DMA includes 8 'core platform services': Online intermediation services, online search engines, online social networking services, video-sharing platforms, number-independent interpersonal communications services, operating systems, web browsers, virtual assistants, cloud computing services, and online advertising services. See Art (2)(2), DMA.

1081 Under Art 3(2), DMA, a platform will be designated as a gatekeeper platform if: it has EU turnover of more than €7.5bn in the last 3 years or a market capitalisation of more than €75bn and it operates in at least 3 member states; it has 45 million active monthly users and 10,000 EU business users annually, and has met these thresholds in each of the last 3 years.

1082 A digital platform may also present sufficiently substantiated arguments to demonstrate that it does not meet the criteria to be designated as a gatekeeper despite exceeding the quantitative thresholds. In addition, the European Commission may conduct a qualitative assessment to assess if a provider of a core platform service should be designated as a gatekeeper, despite not meeting the quantitative thresholds. See Art 3(5) and 3(8), DMA

1083 European Commission, Digital Markets Act: Commission designates six gatekeepers, Press release, 6 September 2023, accessed 14 September 2023

In particular, these digital platforms have been designated as gatekeepers with respect to specific core platform services. For example, Apple has been designated with respect to iOS (operating system), Safari (web browser), and the App Store (online intermediation service). In total, 22 core platform services provided by gatekeepers have been designated.

1084 European Commission, Digital Markets Act: rules for digital gatekeepers to ensure open markets enter into force, 31 October 2023, Press release, accessed 14 September 2023.

1085 Further, in cases of systematic non-compliance (at least 3 infringements within 8 years), the European Commission may impose behavioural remedies, structural remedies or a temporary ban on further digital acquisitions. See European Commission, Digital Markets Act: rules for digital gatekeepers to ensure open markets enter into force, 31 October 2023, Press release, accessed 14 September 2023.

1086 Regulation (EU) 2022/2065 of the European Parliament and of the Council of 19 October 2022 on a Single Market for Digital Services and amending Directive 2000/31/EC (Digital Services Act).

Intermediary services cover a broad range of services for transmitting or storing third-party content for users.

1087 Art 33(4), DSA.

1088 See, for example, Art 16, 17, 20, 25, 27, 28, 30 and 39 DSA.

Online Search Engines.[1089] The designations include services provided by Amazon (online retail marketplace), Apple (App Store), Meta (Facebook, Instagram), Microsoft (LinkedIn, Bing) and Google (Search, YouTube, Shopping, Maps, Play). These very large online platforms or search engines need to comply with obligations by September 2023.

Providers of intermediary services can be fined up to 6% of their worldwide turnover for non-compliance with the DSA.[1090]

United Kingdom

The Digital Markets, Competition and Consumers Bill was introduced into the House of Commons on 25 April 2023.[1091] The Bill aims to reform the UK's competition and consumer laws, with a focus on a modern, digitised economy. The Bill seeks to unlock growth and innovation in the UK's tech sector, ensure that UK businesses are treated fairly by digital platforms, and increase choice and lower prices for UK consumers.[1092]

The Bill proposes new powers for the CMA to designate firms as having 'Strategic Market Status' (SMS) where the firm has substantial and entrenched market power and a position of strategic significance in respect of a digital activity in the UK.[1093] To be designated, firms must meet the turnover condition and the digital activity must be linked to the UK.[1094]

Designation may occur following an investigation of up to 9 months (extendable by 3 months).[1095] The CMA is required to carry out a public consultation on its proposed decision following an SMS investigation and SMS designation lasts for up to 5 years.[1096]

Once designated, SMS firms can be made subject to conduct requirements or pro-competition interventions and will be subject to mandatory merger notification. The Bill includes:

- Conduct requirements to apply on a tailored basis for a designated firm and digital activity in the form of a code. They will be developed concurrently to SMS designation

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1089 European Commission, Digital Services Act: Commission designates first set of Very Large Online Platforms and Search Engines, Press Release, 25 April 2023, accessed 14 September 2023

1090 Art 52, DSA.

1091 UK Parliament, Bill 293 2022-23 (as introduced) (Digital Markets, Competition and Consumers Bill), introduced to the House of Commons on 25 April 2023.

This follows a UK Government consultation in July 2021, and the CMA's recommendation for a new pro-competition regime for digital platforms in July 2020. See UK Department for Digital, Culture, Media & Sport and Department for Business, Energy & Industrial Strategy, A new pro-competition regime for digital markets, July 2021, accessed 14 September 2023; UK Department for Business, Energy & Industrial Strategy, Reforming Competition and Consumer Policy, July 2021, accessed 14 September 2023; CMA, 'New regime needed to take on tech giants', July 2020, accessed 14 September 2023.

1092 UK Department for Business and Trade and Department for Science, Innovation and Technology, A new pro-competition regime for digital markets: policy summary briefing – Digital Markets, Competition and Consumers Bill, 25 April 2023, accessed 14 September 2023.

1093 In order to assess whether the firm has substantial and entrenched market power in respect of a digital activity, the CMA must carry out a forward-looking assessment of a period of at least 5 years, taking into account developments that a) would be expected or foreseeable if the CMA did not designate the undertaking as having SMS in respect of the digital activity; and b) may affect the firm's conduct in carrying out the digital activity. See Part 1, Chapter 2, Section 5 of the Bill [PDF 4.5MB]. With regard to the position of strategic significance, Part 1, Chapter 2, Section 6 of the Bill [PDF 4.5MB] outlines the conditions that must be met.

1094 See Part 1, Chapter 2, Section 7 of the Bill [PDF 4.5MB] for the turnover condition (global revenue over £25bn or over £1bn in revenue in the UK). See Part 1, Chapter 2, Section 4 of the Bill [PDF 4.5MB] for the link to the UK condition.

1095 See UK Department for Digital, Culture, Media & Sport and Department for Business, Energy & Industrial Strategy, A new pro-competition regime for digital markets – Consultation outcome, May 2022, accessed 14 September 2023.

1096 Part 1, Chapter 2, Sections 10-18 of the Bill [PDF 4.5MB].

investigations, and must aim to promote fair dealing, open choices and/or trust and transparency in digital markets.[1097]

- Pro-competition interventions to tackle sources of SMS firms' market power. This would involve an investigation, publication of investigative grounds, scope and purpose, and consultation. Pro-competition interventions can include behavioural or structural requirements.[1098]
- Merger control, where SMS firms will be required to report all transactions that meet certain thresholds to the CMA. Reporting must occur prior to completing a transaction.[1099]

The Bill provides the CMA with robust enforcement powers, including fines of up to 10% of global turnover and making senior managers responsible for compliance.[1100] The CMA will also have the ability to utilise a final offer arbitration mechanism to enforce conduct requirements involving complex price disputes between designated platforms and third parties.[1101] The Bill provides that the CMA's decisions can be subject to judicial review by the UK's Competition Appeal Tribunal.[1102]

The Bill also includes economy-wide reforms to the UK's consumer and competition regimes. Consumer amendments include updates to the UK's unfair practices prohibitions, measures to address subscription traps and Christmas/savings club schemes, and new consumer law enforcement powers for the CMA.[1103] On the competition side, the Bill also amends the merger notifications thresholds, expands the CMA's powers in relation to market studies, and expands the scope of the anti-competitive agreement prohibition.[1104]

Germany

New provisions of the German Competition Act commenced in January 2021.[1105] These provisions enable Germany's competition authority, the Bundeskartellamt, to designate platforms of 'paramount significance for competition across markets' through criteria such as having a dominant position in one or more markets, financial strength, vertical integration and activities on related markets, and/or access to data relevant for competition. The Bundeskartellamt may then 'activate' certain prohibitions to prevent these platforms from engaging in anti-competitive practices.

Designated companies may be prohibited from engaging in conduct such as:

- self-preferencing their own products
- exclusively pre-installing their own services on devices
- impeding interoperability or data portability
- tying unrelated products without giving users sufficient choice

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1097 Part 1, Chapter 3 of the Bill [PDF 4.5MB].

1098 Part 1, Chapter 4 of the Bill [PDF 4.5MB].

1099 Part 1, Chapter 5 of the Bill [PDF 4.5MB].

1100 Part 1, Chapter 7 of the Bill [PDF 4.5MB].

1101 Part 1, Chapter 3, Sections 38-43 of the Bill [PDF 4.5MB].

1102 Part 1, Chapter 7, Section 101 of the Bill [PDF 4.5MB].

1103 Parts 3 and 4 of the Bill [PDF 4.5MB].

1104 Part 2 of the Bill [PDF 4.5MB].

1105 Section 19a, Gesetz gegen Wettbewerbsbeschränkungen – GWB (German Competition Act), accessed 14 September 2023.

- raising barriers to entry by processing data relevant for competition.

The Bundeskartellamt has designated Alphabet (Google),[1106] Meta,[1107] Amazon[1108] and Apple[1109] as platforms of paramount significance for competition across markets and is presently examining whether Microsoft should be designated.[1110]

The Bundeskartellamt has also issued a preliminary legal assessment objecting to Google's practice of bundling in its in-vehicle infotainment offering, Google Automotive Services.[1111] Its view is that these practices "are not compatible with" the relevant provisions of the German Competition Act.[1112]

India

On 22 December 2022, the Indian Standing Committee on Finance tabled a report on Anti-Competitive Practices by Big Tech Companies,[1113] recommending the introduction of ex ante regulation and expansion of the powers of the Competition Commission of India.

On 6 February 2023, the Indian government established an inter-ministerial panel for drafting a new Digital Competition Act and assessing the need for regulatory reform.[1114] The report is expected soon.

Japan

The Act on Improving Transparency and Fairness of Digital Platforms came into effect in February 2021, and is intended to address low transparency and deficiencies in handling user requests in digital platform services.[1115] It enables designation of 'specified digital platform providers' to be subject to specific rules, including requirements to:

- disclose their terms and conditions and other information
- develop certain fair procedures and systems

1106 Bundeskartellamt, Alphabet/Google subject to new abuse control applicable to large digital companies – Bundeskartellamt determines "paramount significance across markets", 5 January 2022, accessed 14 September 2023.

1107 Bundeskartellamt, New rules apply to Meta (formerly Facebook) – Bundeskartellamt determines its "paramount significance for competition across markets", 4 May 2022, accessed 14 September 2023.

1108 Bundeskartellamt, Amazon now subject to stricter regulations – Bundeskartellamt determines its paramount significance for competition across markets (Section 19a GWB), 6 July 2022, accessed 14 September 2023. Amazon has appealed this decision. A Clasen, German court preliminarily sides with anti-trust authority in Amazon case, *Euractiv,* 29 June 2023, accessed 14 September 2023

1109 Bundeskartellamt, Apple also subject to provisions for large digital companies under Section 19a GWB, 5 April 2023, accessed 14 September 2023. Apple has reportedly challenged the designation. See A Clasen, 'Apple fights back against German competition control regime', *Euractiv,* 6 April 2023, accessed 14 September 2023.

1110 Bundeskartellamt, Examination of Microsoft's significance for competition across markets, 28 March 2023, accessed 14 September 2023.

1111 Google Automotive Services is a suite of products which Google licenses to vehicle manufacturers, consisting of Google Maps, Google Assistant (its voice assistant) and a version of the Google Play Store. Google's standard practice is to only offer GAS as a bundle.

1112 Bundeskartellamt, Statement of objections issued against various of Google's practices in connection with Google Automotive Services and Google Maps Platform, 21 June 2023, accessed 14 September 2023.

1113 Standing Committee on Finance (2022-23), Seventeenth Lok Sabha, Ministry of Corporate Affairs, Anti-Competitive Practices by Big Tech Companies [PDF 10.7MB], Fifty Third Report, Lok Sabha Secretariat, New Delhi, December 2022, accessed 14 September 2023.

1114 MLex, Indian government constitutes inter-ministerial panel for drafting Digital Competition Act, 6 February 2023, accessed 14 September 2023.

1115 Ministry of Economy, Trade and Industry, Cabinet Decisions Made on Two Cabinet Orders for the Act on Improving Transparency and Fairness of Digital Platforms, Press release, 26 January 2021, accessed 14 September 2023.

- submit yearly reports on their operations and conduct self-assessments.

Japan's Secretariat of the Headquarters for Digital Market Competition (HDMC) published its Competition Assessment of the Mobile Ecosystem Final Report on 16 June 2023.[1116] The report proposes a mix of co-regulation and an ex ante regulation to address competitive concerns in mobile ecosystems. The HDMC will now consider the legal framework necessary, while having regard to approaches in overseas jurisdictions such as Europe, and will conduct a public consultation on its proposed remedies.

United States

The Integrity, Notification and Fairness in Online Retail Marketplaces (INFORM) for Consumers Act came into force on 27 June 2023.[1117] This Act requires online retail marketplaces (such as Amazon, Etsy, and eBay) to protect consumers from counterfeit, unsafe and stolen goods by collecting data on and verifying the identities of high-volume third-party sellers. The Act also makes it easier for consumers to report suspicious marketplace activity. Violations of the Act can be enforced by the Federal Trade Commission and are subject to a civil penalty of USD50,120 per violation.

The Augmenting Compatibility and Competition by Enabling Service Switching (ACCESS) Act was re-introduced in the Senate on 26 July 2023.[1118] The Bill includes provisions requiring large social media platforms with over 100 million monthly active users in the US to make their services interoperable with competing social media platforms; enable users to easily access their own data or port it to a competing social media platform; and allow users to delegate qualified third-party agents to manage their online interactions, content and account settings. The timing and likely passage of this Bill is unclear.

The American Innovation and Choice Online Act was re-introduced in the Senate on 15 June 2023.[1119] The Bill includes provisions that would prohibit 'covered platforms' from preferencing their own products, services or lines of business over those of other business users in a manner that would materially harm competition. Whether this Bill will progress, and the timing of this, is unclear.

The Digital Consumer Protection Commission Act was introduced in the Senate on 18 May 2023.[1120] The Bill proposes to establish a commission to regulate digital platforms and to designate 'systemically important' digital platforms. The Bill includes provisions to prohibit anti-competitive conduct (such as self-preferencing and tying arrangements) and transparency requirements (such as clear terms of service and content moderation practices).[1121] The timing and likely passage of this Bill is not clear.

1116 For an English summary of the report, see Secretariat of the Headquarters for Digital Market Competition Cabinet Secretariat, Japan, Competition Assessment of the Mobile Ecosystem Final Report: Summary [PDF 2,023KB], 16 June 2023, accessed 14 September 2023.

1117 S.936 - INFORM Consumers Act.

1118 S.2521 – ACCESS Act of 2023.

1119 S.2992 - American Innovation and Choice Online Act.

1120 S.1671 - Digital Platform Commission Act of 2023.

1121 Warren, Warren, Graham Unveil Bipartisan Bill to Rein in Big Tech, 27 July 2023, accessed 14 September 2023.

Thailand

Thailand's Royal Decree on Digital Platforms will require digital platforms to be subject to notification requirements, including to report annually on gross income, user numbers, information regarding complaints received, and to designate a local point of contact.[1122] The Decree will apply to a broad range of digital platforms including electronic marketplaces, sharing economy platforms (such as Uber and Airbnb), social media services, search services and voice assistants. Large digital platforms, online intermediation services and search engine services will have additional obligations (for example, online intermediation services will also be required to inform users about the terms and conditions of service and any changes to terms and conditions). The Royal Decree came into force on 21 August 2023 and companies have 90 days to notify Thailand's Electronic Transactions Development Agency of their operations.

[1122] K Tortermvasana and S Leesa-Nguansuk, 'Digital platform law spelled out: Royal decree to take effect on Aug 21', *Bangkok Post*, 22 June 2023, accessed 14 September 2023.

Appendix E: Ministerial Direction

Competition and Consumer (Price Inquiry—Digital Platforms) Direction 2020

I, Josh Frydenberg, Treasurer, give the following direction to the Australian Competition and Consumer Commission.

Dated: 10 February 2020

Josh Frydenberg
Treasurer

Authorised Version F2020L00130 registered 14/02/2020

Contents

Authorised Version F2020L00130 registered 14/02/2020

Part 1—Preliminary

1 Name

This instrument is the *Competition and Consumer (Price Inquiry—Digital Platforms) Direction 2020*.

2 Commencement

(1) Each provision of this instrument specified in column 1 of the table commences, or is taken to have commenced, in accordance with column 2 of the table. Any other statement in column 2 has effect according to its terms.

Commencement information

Column 1	Column 2	Column 3
Provisions	**Commencement**	**Date/Details**
1. The whole of this instrument	The day after this instrument is registered.	

Note: This table relates only to the provisions of this instrument as originally made. It will not be amended to deal with any later amendments of this instrument.

(2) Any information in column 3 of the table is not part of this instrument. Information may be inserted in this column, or information in it may be edited, in any published version of this instrument.

3 Authority

This instrument is made under the *Competition and Consumer Act 2010*.

4 Definitions

Note: Expressions have the same meaning in this instrument as in the *Competition and Consumer Act 2010* as in force from time to time—see paragraph 13(1)(b) of the *Legislation Act 2003*.

In this instrument:

Australian law means a law of the Commonwealth, a State, or a Territory (whether written or unwritten).

data broker means a supplier who collects personal or other information on persons, and sells this information to, or shares this information with, others.

digital content aggregation platform means an online system that collects information from disparate sources and presents it to consumers as a collated, curated product in which users may be able to customise or filter their aggregation, or to use a search function.

digital platform services means any of the following:

(a) internet search engine services (including general search services and specialised search services);

(b) social media services;
(c) online private messaging services (including text messaging; audio messaging and visual messaging);
(d) digital content aggregation platform services;
(e) media referral services provided in the course of providing one or more of the services mentioned in paragraphs (a) to (d);
(f) electronic marketplace services.

electronic marketplace services means a service (including a website, internet portal, gateway, store or marketplace) that:
(a) facilitates the supply of goods or services between suppliers and consumers; and
(b) is delivered by means of electronic communication; and
(c) is *not* solely a carriage service (within the meaning of the *Telecommunications Act 1997*) or solely consisting of one of more of the following:
(i) providing access to a payment system;
(ii) processing payments.

exempt supply has the meaning given by subsection 95A(1) of the Act.

goods has the meaning given by subsection 95A(1) of the Act.

inquiry has the meaning given by subsection 95A(1) of the Act.

services has the meaning given by subsection 95A(1) of the Act.

State or Territory authority has the meaning given by subsection 95A(1) of the Act.

supply has the meaning given by subsection 95A(1) of the Act.

the Act means the *Competition and Consumer Act 2010*.

Authorised Version F2020L00130 registered 14/02/2020

Part 2—Price inquiry into supply of digital platform services

5 Commission to hold an inquiry

(1) Under subsection 95H(1) of the Act, the Commission is required to hold an inquiry into the markets for the supply of digital platform services. The inquiry is *not* to extend to any of the following:

(a) the supply of a good or service by a State or Territory authority;

(b) the supply of a good or service that is an exempt supply;

(c) reviewing the operation of any Australian law (other than the Act) relating to communications, broadcasting, media, privacy or taxation;

(d) reviewing the operation of any program funded by the Commonwealth, or any policy of the Commonwealth (other than policies relating to competition and consumer protection).

(2) For the purposes of subsection 95J(1), the inquiry is to be held in relation to goods and services of the following descriptions:

(a) digital platform services;

(b) digital advertising services supplied by digital platform service providers;

(c) data collection, storage, supply, processing and analysis services supplied by:

(i) digital platform service providers; or

(ii) data brokers.

(3) Under subsection 95J(2), the inquiry is not to be held in relation to the supply of goods and services by a particular person or persons.

6 Directions on matters to be taken into consideration in the inquiry

Under subsection 95J(6) of the Act, the Commission is directed to take into consideration all of the following matters in holding the inquiry:

(a) the intensity of competition in the markets for the supply of digital platform services, with particular regard to:

(i) the concentration of power in the markets amongst and between suppliers; and

(ii) the behaviour of suppliers in the markets, including:

(A) the nature, characteristics and quality of the services they offer; and

(B) the pricing and other terms and conditions they offer to consumers and businesses; and

Example: Terms and conditions relating to data collection and use.

(iii) changes in the range of services offered by suppliers, and any associated impacts those changes had or may have on other markets; and

(iv) mergers and acquisitions in the markets for digital platform services; and

(v) matters that may act as a barrier to market entry, expansion or exit, and the extent to which those matters act as such a barrier;

(b) practices of individual suppliers in the markets for digital platform services which may result in consumer harm, including supplier policies relating to privacy and data collection, management and disclosure;

(c) market trends, including innovation and technology change, that may affect the degree of market power, and its durability, held by suppliers of digital platform services;

(d) changes over time in the nature of, characteristics and quality of digital platform services arising from innovation and technological change;

(e) developments in markets for the supply of digital platform services outside Australia.

7 Directions as to holding of the inquiry

(1) Under subsection 95J(6) of the Act, the Commission is directed to do the following in holding the inquiry:

(a) regularly monitor the markets for the supply of digital platform services for changes in the markets, particularly focussing on the matters referred to in section 6 of this instrument; and

(b) give to the Treasurer an interim report on the inquiry by 30 September 2020, and then further interim reports every 6 months thereafter, on:

(i) any changes observed by the Commission in the markets since the last report; and

(ii) any other matter, within the scope of the inquiry, the Commission believes appropriate.

(2) Under subsection 95P(3) of the Act, the Commission is directed not to make available for public inspection, copies of any interim report until the Treasurer, in writing, authorises the Commission to do so.

8 Period for completing the inquiry

For the purposes of subsection 95K(1) of the Act, the inquiry is to be completed, and a report on the matter of inquiry given to the Treasurer, by no later than 31 March 2025.

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