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Executive Summary

This second interim report (Report) under the five-year Digital Platform Services Inquiry (the DPSI) looks at the competition and consumer issues associated with the distribution of mobile apps to users of smartphones and other mobile devices. This Report focuses on the two key app marketplaces used in Australia: the Apple App Store (the App Store) and the Google Play Store (the Play Store). These two app marketplaces dominate mobile app distribution in Australia, with minimal use by Australians of rival app marketplaces and other alternatives.

The ACCC's examination of the operation of the Apple App Store and the Google Play Store in Australia has identified a number of significant issues which warrant attention. These include: the market power of each of Apple and Google; the terms of access to app marketplaces for app developers, including payment arrangements; the effectiveness of self-regulation, including arrangements to deal with harmful apps and consumer complaints; and concerns with alleged self-preferencing and the use of data. These issues affect competition with potentially significant impacts for both app developers and consumers.

This Report builds on the ACCC's earlier work on digital platforms. Many of the findings in relation to the dominant app marketplaces mirror those in the ACCC's original *Digital Platforms Inquiry Final Report (DPI Final Report)*,¹ including the ability and incentive of large platforms such as Apple and Google to each favour their own related businesses at the expense of other businesses using their app marketplaces, and a lack of transparency. This Report highlights the continued importance of particular recommendations from the *DPI Final Report*, where they have applicability to the operation of app marketplaces.

A key area of focus for this Report is the concerns raised with the ACCC that Apple and Google's ability to set and enforce the rules governing access to the App Store and the Play Store can harm competition and negatively impact app developers and/or consumers. This is an area where the ACCC considers more can be done by Apple and Google, including in order to meet expectations that they should not leverage their market power, and the access they have to commercial information, to advantage themselves to the disadvantage of rival apps. This Report identifies, as potential measures, those steps that could be undertaken by Apple and Google; however, regulation may be required if they fail to do so. The ACCC notes that a number of jurisdictions have already, or are proposing to, put in place rules governing the conduct of digital platforms which meet certain thresholds.

The ACCC will revisit the issues raised in this Report during the course of the five-year DPSI and, in revisiting these issues, the ACCC will consider developments in the relevant markets and the steps taken by Apple and Google to address the issues identified here. The ACCC will also take into account the overseas developments that aim to address the same competition and consumer concerns that have been identified in this Report.

App marketplaces are critical gateways to reach consumers

Most adult Australians own a smartphone and use the apps installed on it many times a day to engage with friends, family and colleagues, for entertainment, work and to complete tasks such as banking, booking appointments and accessing critical information and services. Consumers rely on the ability to complete a multitude of tasks wherever they are; apps

¹ ACCC, [Digital Platforms Inquiry Final Report](#), 26 July 2019.

installed on mobile devices make this possible. Worldwide, there are now over two million apps on the App Store,² and around three million apps on the Play Store.³

App marketplaces are digital shopfronts that provide a centralised distribution platform for developers to offer and distribute their apps, and for consumers to discover, download and update apps. Australian consumers overwhelmingly choose and install their apps from the Apple App Store or the Google Play Store. Apple and Google, via their respective operating systems (OS) and their app marketplaces, are therefore critical intermediaries or gateways between app developers and consumers. The operation and policies of these critical gateways have important implications for users on both sides of the platform: developers of apps, and app consumers. This Report considers both sets of users but first examines the market power that is held by the two dominant app marketplaces.

Apple and Google's market power in app marketplaces and the link to their mobile operating systems

Mobile apps are installed on the mobile OS that operate and control the functionality of mobile devices, predominantly smartphones and tablets.

Google, with its Android OS, and Apple, with iOS, account for close to 100% of the global market (excluding China) for mobile OS. Google has approximately 73% of this market and Apple has around 27%.⁴ Apple and Google also dominate the Australian market, each holding around 50% of this market.⁵

The duopoly in the market for mobile OS and the significant barriers to entry and expansion provide each of Google and Apple significant market power in the supply of mobile operating systems in Australia.

The ownership and control of their respective OS give Apple and Google control over the distribution of mobile apps on their respective mobile ecosystems. Apple does not allow the installation of app marketplaces (other than the App Store) on iOS mobile devices and while other app marketplaces can be installed on Android mobile devices, Google uses its control of Android to preference its own app marketplace, with the Play Store pre-installed on the vast majority of Android devices. As a result, over 90% of apps available on Android mobile devices are downloaded using the Play Store.⁶

Apple and Google's dominance in mobile OS, combined with the control exerted over the app marketplaces permitted into their mobile ecosystems, means that the App Store and the Play Store control the key gateways through which app developers can access consumers on mobile devices. As there are limited effective alternatives to access consumers on mobile devices, the App Store and the Play Store are 'must haves' for the majority of app developers in Australia. This provides Apple and Google with market power in mobile app distribution in Australia, and the ACCC considers it likely that this market power is significant.

² Statista estimates that as of Q4 2020, there were almost 2.09 million available apps for iOS in the App Store. See Statista, [Number of apps available in leading app stores as of 4th quarter 2020](#), accessed 24 March 2021. Apple submits that there are 1.8 million apps available on the App Store. See Apple, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 2 October 2020, p 1.

³ AppBrain estimated there were 2,992,327 Android apps on Google Play as of 23 March 2021. See AppBrain, [Number of Android apps on Google Play](#), accessed 24 March 2021.

⁴ Statista, [Mobile operating systems' market share worldwide from January 2012 to January 2021](#), 8 February 2021, accessed 16 March 2021.

⁵ Kantar reports estimated smartphone sales shares of around 54% for Android OS and 46% for iOS for the three months ending December 2020. See Kantar, [Smartphone OS market share](#), 2020, accessed 24 March 2021. StatCounter reports estimated mobile OS shares of 54% for iOS and 46% for Android OS for December 2020, based on mobile OS shares of webpage views. See StatCounter, [Mobile operating system market share Australia](#), 2021, accessed 24 March 2021.

⁶ See *US Department of Justice v Google LLC*, [Complaint filed in the US District Court for the District of Columbia](#), 20 October 2020, p 24.

App developer concerns with the operation of the dominant app marketplaces

Given the market power held by Apple and Google respectively and the reliance of app developers on the App Store and the Play Store to reach consumers, the ACCC has scrutinised Apple and Google's policies and practices to assess their potential effects on competition.

The ACCC has focused on those issues that app developers have expressed most concern with, that is, the terms and conditions imposed by Apple and Google, alleged self-preferencing of their own first-party apps including via their access to the data generated by third-party apps, as well as in-app payments and related terms.

In assessing the competitive implications of these practices and policies, it is important to recognise that competition occurs, or can occur, at two levels. At one level there is competition **between** mobile ecosystems.⁷ At another level there is competition **within** Apple and Google's mobile ecosystems.

Apple and Google make differentiated offers to attract and retain customers on their mobile ecosystems. Apple operates a closed system while Google allows third-party mobile devices to use its OS. In relation to app marketplaces, however, the practical difference between Apple and Google is minimal. While Google allows third-party app marketplaces on Android and the loading of Android apps directly from a developer's website, Google's control of the Android OS enables it to advantage the Play Store, including through the requirement for device manufacturers seeking to pre-install desired Google apps to also pre-install the Play Store. In practice, the Play Store is effectively isolated from competition and is not in a dissimilar position to the App Store.

As set out below, the practices and policies of both Apple and Google restrict competition to distribute mobile apps **within** their respective mobile ecosystems. Some of these practices may, however, form part of the way in which Apple and Google compete with each other to attract and retain customers on their mobile ecosystems. The ACCC recognises this level of competition and considers it important to ensure that any measures proposed to increase competition **within** mobile ecosystems do not lessen competition **between** mobile ecosystems.

Terms of access

Particular concerns raised by app developers in relation to access to the App Store and the Play Store identified during the DPSI include:

- unfair terms including restrictions on the ability of app developers to access the users of their apps
- a lack of transparency in the policies and processes governing Apple and Google's app review and approval process, and
- inadequate avenues to resolve disputes.

The ACCC recognises that processes for the review and approval of apps are appropriate and necessary to ensure that apps that pose harms to users or could undermine the integrity and performance of mobile OS are excluded.

However, fair and reasonable terms and efficient, timely processes for the review and approval of apps are of critical importance to app developers. In particular, app developers

⁷ We use the term 'mobile ecosystem' to refer to mobile operating systems and the mobile devices and software products that make use of mobile operating systems.

have expressed concerns that Apple and Google's enforcement of their rules in the app review process appears to be applied inconsistently, with reasons for rejection not always easily understood and with limited avenues of appeal. This can lead to inefficient business decisions and unduly restrict or prevent the innovation and the emergence of disruptive business models.

The *US House Report on Competition in Digital Markets* observed that the terms and conditions imposed by Apple and Google to determine access to their respective app marketplaces may be to the detriment of app developers as it 'requires concessions and demands that carry significant economic harm, but that are "the cost of doing business" given the lack of options.'⁸

The ACCC is continuing to closely monitor and consider issues raised by app developers about the terms of access to Apple and Google's app marketplaces.

The ACCC also notes that the *DPI Final Report* recommended:

- the development of minimum internal dispute resolution standards to apply to digital platforms, covering among other things, the visibility, accessibility, responsiveness, objectivity, confidentiality and collection of information of digital platforms' internal dispute resolution processes (recommendation 22), and
- the introduction of external oversight of the digital platforms to resolve complaints between platforms and businesses and platforms and consumers via an ombudsman scheme (recommendation 23).

These recommendations were recommended to cover complaints or disputes from businesses and complaints or disputes from consumers including in relation to scams and the removal of scam content. These recommendations may assist in the context of concerns raised in relation to app marketplaces, as they could help ensure Apple and Google address concerns raised by third-party app developers about the app review process.

Risk of self-preferencing

Apple and Google each offer their own apps (first-party apps), which compete directly with apps developed by third parties (third-party apps) reliant on Apple and Google's app marketplaces.

The ACCC is concerned that, given their market power and their related activities, Apple and Google each have the ability and the incentive to favour their own first-party apps at the expense of rival third-party apps, and that such conduct may have anti-competitive effects on downstream markets. Developers identified the following practices in submissions to the ACCC:

- first-party apps benefit from being pre-installed or set as defaults
- first-party apps reportedly benefit from greater discoverability on the app marketplaces
- first-party apps benefit from greater access to functionality, or from a competitive advantage gained by withholding access to device functionality to rival third-party apps.

A number of Apple and Google's own apps clearly benefit from being pre-installed or set as defaults and/or having superior integration with the relevant OS. Pre-installation and defaults may entrench market power, limit consumer choice, and reduce potential for innovation in the downstream markets in which they compete.

⁸ 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 11.

The introduction of ‘choice screens’, which display different app options for users prior to use, are an option that may go some way to addressing any anti-competitive effects associated with pre-installation or default settings. The ACCC is looking at how choice screens may address concerns in relation to some digital platform services in its next interim report.⁹

Potential measure to provide for greater choice of default apps for consumers

There is a need for consumers to have more choice through an ability to change any pre-installed default app on their device that is not a core phone feature. This would provide consumers with more control to choose the app that best meets their needs, and promote more robust competition in downstream markets for apps.

The ACCC will also continue to consider how choice screens may address some of the concerns associated with pre-installation or default settings.

Concerns that first-party apps and apps that generate commission revenue for the app marketplace benefit from greater discoverability, or that third-party apps are unjustifiably penalised in ranking and discoverability, are difficult for the ACCC to assess given the opacity of the algorithms determining ranking and discoverability in the app marketplaces. However, the ACCC notes that independent research suggests that these practices may be occurring.¹⁰

Some app developers submitted that Apple and Google should make more information available regarding the operation of their respective search algorithms that determine discoverability on the App Store and Play Store, as well as provide greater advance notice of impending changes to the algorithms (given the difficulties of third-party app developers to adapt). In addition to the more general benefits associated with reducing opacity, greater transparency may go some way to both detecting anti-competitive self-preferencing and providing third-party app developers with greater confidence that this is not occurring.

However, the ACCC recognises the legitimate concerns of the app marketplaces that greater transparency of the discoverability algorithms is likely to increase the risk of gaming.

Developers are also concerned about instances where third-party apps do not have access to the same functionality accessed by Apple and Google’s first-party apps, preventing them from competing effectively, potentially to the detriment of product innovation and consumer choice. Information provided to the ACCC indicates that Apple limits access by third-party apps to a greater number of application programming interfaces (APIs) than does Google.

The self-preferencing concerns identified in this Report are similar to concerns recognised by the ACCC in relation to online search and social media in the *DPI Final Report* and in relation to Google’s ad tech services in the *Digital Advertising Services Inquiry Interim Report*.¹¹ In each case, the platform holds market power at one or more levels of the market and competes with rivals at another level. The risk of self-preferencing in each of these scenarios is increased given the opacity of the applicable algorithms and/or auctions.

Multiple solutions have been identified internationally to address this issue of self-preferencing. These include structural separation of vertically integrated platforms, and the introduction of a per-se prohibition which would effectively ban or restrict a platform with

⁹ See ACCC, [Digital Platform Services Inquiry Third Interim Report – Issues Paper](#), 11 March 2021.

¹⁰ T Mickle, ‘[Apple Dominates App Store Search Results, Thwarting Competitors](#)’, *The Wall Street Journal*, 23 July 2019, accessed 24 March 2021; J Nicas and K Collins, ‘[How Apple’s Apps Topped Rivals in the App Store It Controls](#)’, *The New York Times*, 9 September 2019, accessed 24 March 2021; 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 361.

¹¹ ACCC, [Digital Advertising Services Inquiry Interim Report](#), 28 January 2021.

particular characteristics self-preferencing its services and products over those of third parties.¹²

At this stage in the DPSI, the ACCC will continue to monitor and explore self-preferencing allegations as well as the impact of pre-installation or default settings. The ACCC is also considering the broader issues that arise when digital platforms occupy critical gatekeeper roles and at the same time compete with those businesses that rely on access to the gatekeeper platform. As part of this process, the ACCC is considering both the extent of these concerns and the solutions being put forward overseas, including recent amendments to the German Competition Act as well as proposals by the United Kingdom Competition and Markets Authority (CMA) and the European Commission.

In the meantime, the ACCC considers that greater transparency and more information on the operation of app discoverability mechanisms, as well as a level playing field for apps to receive consumer ratings and reviews, would go some way to addressing app developer concerns with self-preferencing.

Digital platforms such as Apple and Google that control access to markets in which they themselves participate have an incentive to set and enforce rules to their own advantage. Measures are required to discourage or prohibit digital platforms with market power from acting in this way. Two such measures are:

Potential measure to increase transparency and address risk of self-preferencing in app marketplace discoverability and display

There is a need for greater transparency about key algorithms and processes determining discoverability including impending changes to the key parameters used by algorithms and editorial processes to enable app developers to adapt in a timely way.

Increased transparency would help address third-party app developers' concerns that algorithms and other processes determining discoverability are treating all apps equally on their merits and that certain apps receive preferential treatment.

Potential measure to provide an option for consumers to rate and review first-party apps

To enable third-party apps to compete on their merits and ensure informed consumer choice consumers should be able to rate and write reviews on **all** apps including Apple apps on the App Store and Google apps on the Play Store.

The ACCC will continue to monitor these markets and explore self-preferencing allegations, as well as the impact of defaults.

Data practices of app marketplaces

Apple and Google have superior access to information about the entire app ecosystem and its users, which enables them to monitor the performance of all apps and hence gain valuable competitive insights. There are potential competition concerns arising from Apple and Google's intelligence gathering given that their own first-party apps compete with third-party apps in downstream app markets.

Similar to the issue of self-preferencing, the ACCC considers that Apple and Google may have the ability and the incentive to use information to assist strategic or commercial decisions about first-party app development. Such conduct may insulate first-party apps from

¹² European Commission, [The Digital Markets Act: Ensuring fair and open digital markets](#), accessed 24 March 2021.

competition, reduce developers' incentives to innovate, and reduce the quality and choice of apps for consumers.

The ACCC will continue to explore this issue during the course of the DPSI, but at this stage is of the view that there is an opportunity to support improved competition in the market for apps through measures that address misuse of commercially sensitive information.

Potential measure to address the risk of misuse of commercially sensitive information

There is a need for information collected by Apple and Google in their capacity as app marketplace operators to be ring-fenced from their other operations and business decisions. This would minimise the risk of this information being used to provide Apple and Google with an unfair competitive advantage over third-party app developers in downstream markets for apps.

In-app payments

Multiple app developers have raised concerns with the ACCC in relation to the commission rates charged by Apple and Google on payments made for digital goods through apps (in-app payments) and the associated terms.

Apple and Google both require that certain in-app payments must be processed through their respective in-app payment systems. Apple and Google both impose a commission of 30% on these payments, although there are circumstances where the rate is 15%. Both Apple and Google recently expanded the circumstances in which only 15% is required to be paid.¹³ Both app marketplaces provide that an app is not permitted to contain information that directs users to an off-app payment option.

The commission is charged by Apple and Google on all in-app payments processed via their respective in-app payment systems. However, many and indeed the vast majority of apps do not process payments via the in-app payment systems, principally because they do not offer their users in-app payment for digital goods and are therefore not required to use the Apple and Google in-app payment systems.

The ACCC considers that the lack of competitive constraint in the distribution of mobile apps is likely to affect the terms on which Apple and Google make access to their respective app marketplaces available to app developers, including the commission rates and terms that prevent certain app developers from using alternative in-app payment systems and promoting alternative off-app payment systems.

The ACCC considers that the commission rates are highly likely to be inflated by the market power that Apple and Google are able to exercise in their dealings with app developers. Apple and Google structure their charges and their levels in order to maximise their profits. For apps, this is about setting commission rates based on the likely ability and willingness of app developers to pay, and, to the extent possible, minimising any flow on effects to consumers. While the ACCC considers the market power of Apple and Google is highly likely to mean that the commission rates are higher than otherwise would be the case, it is difficult to know by how much. There are a couple of reasons for this.

First, it is difficult to predict the level of charges a mobile ecosystem is likely to impose in the absence of market power. This is particularly the case given charges for the use of a mobile ecosystem are, in the main, not cost-based. For some costs, such as the costs of developing

¹³ Apple, [App Store Small Business Program](#), accessed 24 March 2021; S Samat, 'Boosting developer success on Google Play', *Android Developers Blog*, 16 March 2021, accessed 24 March 2021.

and maintaining mobile operating systems, there may be no direct revenue source. These costs are common to a range of services provided by a mobile ecosystem. Moreover, in setting charges, operators of mobile ecosystems take into consideration the effect on the overall use of the system. This is made complex by the significant interdependencies between different users of mobile ecosystems. For instance, setting commission rates for in-app payments involves taking into account the likely reactions of both consumers and app developers. While this is the case, the ACCC notes that Apple and Google both achieve substantial revenues from developer fees and in-app commissions and these revenues are likely to be substantially larger than the direct costs of their respective app marketplaces.

Second, there are no clear benchmarks with which the commission rates can be compared. While Apple has highlighted similarities between commissions charged on the App Store and those charged on other app and games marketplaces, it is not compelling evidence as to what commission rates might be in the absence of its market power. It is quite possible that the commission rates set by Apple and Google are used as 'market' benchmarks and replicated by other app or games marketplaces.

The ACCC notes that Apple and Google's in-app payment requirements, including the level of the commission, are the subject of litigation by Epic Games in a number of jurisdictions including the United States, the United Kingdom and Australia. The CMA, the European Commission and the Netherlands Consumers and Markets Authority have also announced investigations into in-app purchasing rules put in place by Apple.

The ACCC notes calls for measures that would require Apple and Google to unbundle their in-app payment systems from their respective app marketplaces to allow third parties to provide the payment service. A less disruptive measure may be to allow apps to inform their users of alternative off-app payment options. This would provide greater choice and potentially lower prices to consumers and allow app developers greater scope to innovate.

Broad proposals put forward by the CMA and the European Commission seek to address both the cause and consequences of the market power held by digital platforms in a range of markets. These include potential provisions that would likely prevent app marketplaces (and other platforms reaching particular thresholds) from putting in place restrictions that would prevent apps from informing users of alternative off-app payment options.

The ACCC will continue to consider the competition concerns raised in relation to Apple and Google's in-app payment policies during the course of the DPSI, as well as potential regulatory measures that may address these concerns. At this point in the DPSI, the ACCC has identified the following as a potentially effective and proportionate measure to address the concerns identified.

Potential measure to address inadequate payment option information and limitations on developers

App developers should not be restricted from providing users with information about alternative payment options. This would provide greater choice and potentially lower prices to consumers and allow app developers greater scope to innovate.

Harmful apps and consumer complaints handling

Addressing the risk of harmful apps

The widespread use of mobile apps by consumers attracts those seeking to scam or otherwise harm consumers through the use of malicious or exploitative apps.

Apple and Google's app review functions provide important protections for consumers and the ACCC recognises that in comparison to alternative sources of apps, apps downloaded from the Play Store and the App Store are far less likely to harm consumers or their devices.

Apple and Google also promote the view that strict oversight of their app marketplaces is fundamental to their ability to provide consumers with safe platforms for accessing apps.

However, consumer feedback and analysis of app marketplace reviews suggests apps with the potential to harm consumers continue to be present on both app marketplaces.

The apparent availability of harmful apps that the ACCC considers consumers may reasonably expect to have been identified through initial marketplace review and ongoing surveillance processes indicates Apple and Google's existing processes fail to adequately protect consumers.

In the ACCC's view, Apple and Google could do more to protect app users, including children who may be exposed to age-inappropriate apps.

Potential measure to address the risks of malicious, exploitative or otherwise harmful apps

The ACCC considers that app marketplaces should do more to address the risks associated with harmful or malicious apps (such as subscription traps or real prize scams). While both Apple and Google have publicly stated their commitment to protect consumers from harmful apps, and both have policies in place that are intended to facilitate this, the ACCC considers that Apple and Google should take steps to more proactively monitor those apps which have made it through their review processes and are available on their app marketplaces for continued compliance with their marketplace policies.

There appear to be a number of ways Apple and Google could potentially do this, including through their monitoring of consumer app reviews and the implementation of a process for active consideration and intervention if certain triggers are met (based on, for example, the substantiality or duration of non-compliance, or the numbers of consumers affected).

Continued concerns with the tracking of consumers through apps

The ACCC remains concerned with the tracking of consumers through apps. Many consumers express strong preferences for limitations on tracking, yet the data practices of apps available on the App Store and Play Store often do not align with the those preferences (as discussed in chapter 7). In the ACCC's view, while Apple in particular is taking positive steps to better protect the privacy of app users, there are some key limitations in both Apple and Google's policies and processes pertaining to the data practices of app developers and their third-party partners.

The ACCC continues to support the *DPI Final Report* recommendations regarding amending the *Competition and Consumer Act 2010* to prohibit unfair contract terms (recommendation 20) and certain unfair trading practices (recommendation 21) which will benefit the many consumers who use apps.

App marketplace complaints handling processes may not be adequate

The ACCC considers that consumers must have adequate access to avenues for redress from app marketplaces for losses caused by malicious apps, low quality apps, unauthorised billing issues and where they are otherwise entitled to a remedy under the Australian Consumer Law (ACL). This includes the ability to escalate their complaints to an external

body if they are not satisfied with the outcome of the app marketplace's dispute resolution processes.

In the ACCC's view, Apple and Google are not currently achieving a balance that best serves their users; between providing streamlined, consistent processes for consumer complaints on the one hand, and supporting developers to fulfil the complaints handling functions required of them by the marketplaces on the other.

The ACCC continues to support the *DPI Final Report* recommendations regarding internal dispute resolution mechanisms (recommendation 22) and the establishment of an ombudsman scheme to resolve complaints and disputes with digital platforms (recommendation 23) In addition to addressing key concerns raised by third-party app developers about the inadequate avenues to resolve disputes with app marketplaces (as discussed above), these recommendations could also cover complaints and disputes from consumers of apps, including in relation to scams and the removal of scam content. Applying these dispute resolution proposals to app marketplaces would help address deficiencies in the app marketplace dispute resolution mechanisms currently available to consumers.

Overseas developments and the importance of international cooperation

The large digital platforms covered by the DPSI, including those considered in this Report, operate globally.

The global activities of these platforms and the critical role they perform in the economy, and society more broadly, has meant competition and consumer agencies around the world are investigating their activities, and in many cases proposing policies that address the consequences of their market power and potential consumer harm.

Key developments include the recent amendments to the German Competition Act that puts in place a series of per-se prohibitions on those platforms that are designated to have 'paramount significance for competition across markets'.¹⁴ These prohibitions include banning self-preferencing that, for example, is likely to include self preferencing achieved via the pre-installation of proprietary apps.

The changes to German competition law are part of a broader shift in overseas jurisdictions to address the challenges posed by fast evolving digital markets by initiating legislative change and sit alongside the European Commission's draft Digital Markets Act.¹⁵ This would place a series of ex ante rules on large digital platforms which act as 'gatekeepers' between businesses and users, aiming to prevent them unfairly benefiting from their strategically important positions and the UK Competition and Market Authority's proposals for codes of conduct to apply to those digital platforms which occupy 'strategic market status'.¹⁶

In addition, far-reaching options for legislative reform have been set out in the *US House Report on Competition in Digital Markets*,¹⁷ and there are ongoing hearings by both the House Judiciary Subcommittee on Antitrust, Commercial and Administrative Law,¹⁸ and the Senate Judiciary Subcommittee on Competition Policy, Antitrust, and Consumer Rights, into

¹⁴ D'Kart, [German Act against Restraints of Competition \(Unofficial translation\)](#), 14 January 2021; P Bongartz, 'Happy New GWBI', *D'Kart Antitrust Blog*, 14 January 2021, accessed 24 March 2021.

¹⁵ European Commission, [Statement by Executive Vice-President Vestager on the Commission proposal on new rules for digital platforms](#), 15 December 2020, accessed 24 March 2021; European Commission, [The Digital Markets Act: Ensuring fair and open digital markets](#), accessed 24 March 2021.

¹⁶ CMA, [A new pro-competition regime for digital markets: Advice of the Digital Markets Taskforce](#), 8 December 2020.

¹⁷ 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.

¹⁸ See, for example, Subcommittee on Antitrust, Commercial and Administrative Law, [Reviving Competition, Part 1: Proposals to Address Gatekeeper Power and Lower Barriers to Entry Online](#), 24 February 2021, accessed 24 March 2021.

issues raised by digital platforms.¹⁹ Japan has also introduced laws requiring specified digital platforms to increase transparency and increase fairness and the South Korean Fair Trade Commission (KFTC) has proposed reform aimed at regulating dominant online platform operators and increasing fairness in online platform transactions.²⁰

The ACCC is closely following legislative reform in this area and engaging with our overseas counterparts.

This Report, which focuses on one particular type of digital platform service, app marketplaces, aims to contribute to the international consideration of the competition and consumer issues associated with digital platforms and builds on the ACCC's *First DPSI Interim Report* and the *DPI Final Report*. In setting out its findings and potential measures in this interim Report, the ACCC has sought to highlight those areas that require redress by digital platforms.

As set out above, the ACCC will continue to explore during the course of the five-year DPSI these issues and developments in the relevant markets including steps taken by digital platforms to address the concerns identified. The ACCC's consideration will also be informed by overseas learning and proposals. In addition to important benefits in sharing knowledge and experiences, the ACCC also recognises the value of greater regulatory coherence in addressing the competition and consumer issues associated with digital platforms.

Measures to address competition and consumer issues in app marketplaces

DPI recommendations

Four recommendations from the *DPI Final Report* are particularly relevant to the concerns identified in this Report.

Recommendations 20 and 21 – Prohibition of unfair contract terms and certain unfair trading terms.

Recommendations 22 and 23 – Internal dispute resolution mechanisms and an ombudsman scheme to resolve disputes.

The ACCC continues to support these recommendations and the applicability of these proposals to app developer and consumer interactions with Apple and Google's app marketplaces. See chapter 3 and chapter 6 for discussion of app developer and consumer issues respectively, and chapter 7 for discussion of Apple and Google's data practices and of apps available on the App Store and Play Store.

Potential measures

The ACCC has further concerns relating to outcomes for both app developers and consumers arising from Apple and Google's regulation of access to the app marketplaces.

The ACCC has set out as potential measures in this Report the actions needed to reduce harms arising from Apple and Google's freedom to set rules for their respective marketplaces. The ACCC will continue to monitor and explore issues identified in this Report as well as broader issues that arise when digital platforms occupy critical gatekeeper roles and, at the same time, compete with those businesses that rely on access to gatekeeper platforms. The ACCC will revisit these concerns in a later interim report and, as part of this

¹⁹ Apple Insider Staff, '[Sen. Amy Klobuchar plans to hold antitrust subcommittee hearings on App Store](#)', *Apple Insider*, 11 March 2021, accessed 24 March 2021.

²⁰ K Toda, '[Japan: Latest Developments On The Regulation Of Digital Platformers From A Competition Law Perspective](#)', *Mondaq*, 8 July 2020, accessed 24 March 2021; SY Jung, '[Law to Be Enacted for Fair Online Platform Transactions](#)', *Business Korea*, 29 September 2020, accessed 24 March 2021.

process, consider overseas developments and whether there is a need for regulation to address the concerns identified.

The potential measures to address the concerns identified in this Report are:

Potential measure 1: to address inadequate payment option information and limitations on developers (chapter 4)

There is a need for greater awareness about the payment options available to consumers through an obligation on marketplaces to allow developers to provide users with information about alternative payment options.

Potential measure 2: to increase transparency and address risk of self-preferencing in app marketplace discoverability and display (chapter 5)

There is a need for greater transparency about key algorithms and processes determining discoverability including impending changes to the key parameters used by algorithms and editorial processes to enable app developers to adapt in a timely way.

Potential measure 3: to provide an option for consumers to rate and review first-party apps (chapter 5)

To enable third party apps to compete on their merits with first-party apps and ensure informed consumer choice, there is a need for consumers to be able to rate and write reviews on all apps put on the App Store by Apple and on the Play Store by Google.

Potential measure 4: to provide for greater choice of default apps for consumers (chapter 5)

There is a need for consumers to have more choice through an ability to change any pre-installed default app on their device that is not a core phone feature. This would provide consumers with more control to choose the app that best meets their needs, and promote more robust competition in downstream markets for apps.

Potential measure 5: to address the risks of malicious, exploitative or otherwise harmful apps (chapter 6)

The ACCC considers that app marketplaces should do more to address the risks associated with harmful or malicious apps (such as subscription traps or real prize scams). While both Apple and Google have publicly stated their commitment to protect consumers from harmful apps, and both have policies in place that are intended to facilitate this, the ACCC considers that Apple and Google should take steps to more proactively monitor those apps which have made it through their review processes and are available on their app marketplaces for continued compliance with their marketplace policies.

There appear to be a number of ways Apple and Google could potentially do this, including through their monitoring of consumer app reviews and the implementation of a process for active consideration and intervention if certain triggers are met (based on, for example, the substantiality or duration of non-compliance, or the numbers of consumers affected).

Potential measure 6: to address the risk of misuse of commercially sensitive information (chapter 7)

There is a need for information collected by Apple and Google in their capacity as app marketplace operators to be ring-fenced from their other operations and business decisions. This would minimise the risk of this information being used to provide Apple and Google with an unfair competitive advantage over third-party app developers in downstream markets for apps.

Introduction

This is the second interim report (Report) provided to the Australian Government by the Australian Competition and Consumer Commission (ACCC) as part of the five-year inquiry into the supply of digital platform services (the DPSI). Further information, including the Ministerial Direction for the Inquiry and information about the focus of the third interim report due 30 September 2021 can be found [here](#).

This Report focuses on the operation of mobile app marketplaces in Australia, and the experiences of Australian mobile app developers and mobile app users.

This Report is structured as follows:

- **Chapter 1** provides an overview of mobile apps and app marketplaces in Australia.
- **Chapter 2** sets out the ACCC's assessment of the extent to which the App Store and the Play Store are constrained by competition.
- **Chapter 3** discusses the terms put in place by each of Apple and Google which govern app developers' access to their respective app marketplaces.
- **Chapter 4** discusses the specific terms put in place by each of Apple and Google relating to app payments.
- **Chapter 5** explores the discoverability and display of apps, and the impact on competition and for consumers.
- **Chapter 6** discusses the malicious targeting of consumers through apps and the adequacy of complaints handling measures.
- **Chapter 7** provides an overview of the data practices of Apple and Google and the impact on competition and consumers.

1. Overview of mobile apps and app marketplaces

- Smartphones are now the most popular device used by Australian consumers to access the internet and online activities.
- The number and variety of apps available to Australian consumers continues to grow, with social media, entertainment and communication apps the most commonly used.
- Apps are typically designed to run on a specific mobile operating system (OS) and must interact with the OS in order to function. Apple (iOS) and Google (Android) are the predominant mobile OS providers in Australia.
- Apps are predominately distributed on app marketplaces run by Apple and Google, the App Store and the Play Store, respectively. Worldwide, the App Store offers approximately two million apps,²¹ and the Play Store approximately three million apps.²²
- App marketplaces benefit consumers by providing secure and accessible platforms to navigate and browse the multitude of apps available. App marketplaces benefit developers by reducing the costs and barriers of reaching a large consumer audience.

This chapter provides an overview of the use of smartphones, apps and app marketplaces in Australia and the benefits of app marketplaces for consumers and app developers, and is structured as follows:

- **Section 1.1** considers the rise of smartphones and apps in Australia.
- **Section 1.2** outlines the mobile operating systems and app distribution in Australia.
- **Section 1.3** discusses the benefits of app marketplaces for consumers and app developers.

1.1. The rise of smartphones and apps in Australia

Smartphones are increasingly integral to the lives of Australians. Advances in technology have led to smartphones that offer many of the capabilities of a personal computer within the convenience of a small, portable device.

Not only do most Australians now have access to a smartphone (92% of Australian adults),²³ but they increasingly prefer to use their smartphones rather than laptops or computers to carry out various tasks,²⁴ and access the internet.²⁵ As outlined in box 1.1, these activities are typically carried out through apps.

²¹ Statista estimates that as of Q4 2020, there were almost 2.09 million available apps for iOS in the App Store. See Statista, [Number of apps available in leading app stores as of 4th quarter 2020](#), accessed 24 March 2021. Apple submits that there are 1.8 million apps available on the App Store. See Apple, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 2 October 2020, p 1.

²² AppBrain estimates there are 2,992,327 Android apps on Google Play as of 23 March 2021. See AppBrain, [Number of Android apps on Google Play](#), accessed 24 March 2021.

²³ In 2020, 92% of Australian adults (18-75 years) had access to a smartphone, compared to 76% in 2013. See Deloitte Australia, [Digital Consumer Trends 2020 – Australian edition](#), 2020, pp 4, 18.

²⁴ Tasks where respondents preferred to use a phone rather than a laptop include online search, watching short videos, checking bank balances, video calls, reading the news, playing games, checking social networks. See Deloitte Australia, [Digital Consumer Trends 2020 - Australian edition](#), 2020, p 18.

²⁵ The Australian Communications and Media Authority (ACMA) found that mobile phones were the most popular device used to access the internet with 91% of Australian adults having accessed the internet from their mobile phone in the 6 months to June 2020, up 4% from the previous year's reporting period. See ACMA, [Trends in online behaviour and technology usage: ACMA consumer survey 2020](#), September 2020, p 4.

Box 1.1: What are apps?

For the purposes of this Report, apps refer to software applications used on a device, such as a smartphone, which are downloaded from an app marketplace.²⁶ Apps are used to provide a wide range of goods and services, including social media, games, entertainment, health and fitness, and facilitating the purchasing of physical services, like food delivery and rideshare.

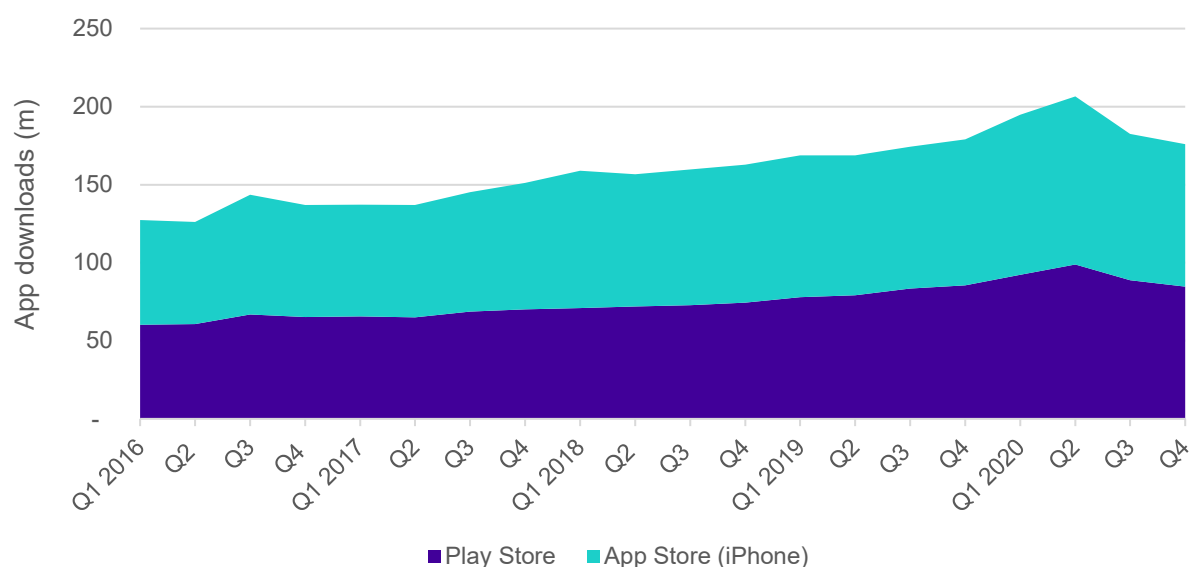
There are a variety of reasons for businesses to choose to develop an app. For example, some apps facilitate communication between businesses and their customers, (as with banking apps and apps used by governments service providers) while other apps are designed to facilitate transactions with consumers to provide goods and services.

Apps may be offered to consumers as:

- **Paid apps** – apps that require a one-off payment in order to access or use the app in full.
- **'Free' (zero monetary price) apps** – apps that consumers do not have to directly pay to use. Many of these 'free' apps (but not all) generate revenue from the collection and use of user data and/or by serving advertisements to users.
- **'Free' apps with in-app payments** – apps that are free to download and use, but require 'in-app payments' to access additional features, content or functionality. These payments can be one-off, or a recurring payment for continuing access (such as subscription apps). These payments are discussed in more detail in chapter 4.

Over time, the number of apps available to consumers has increased significantly, and the number of apps downloaded by Australian consumers has also grown over time, as shown in figure 1.1.

Figure 1.1: Number of app downloads in Australia, January 2016 to December 2020

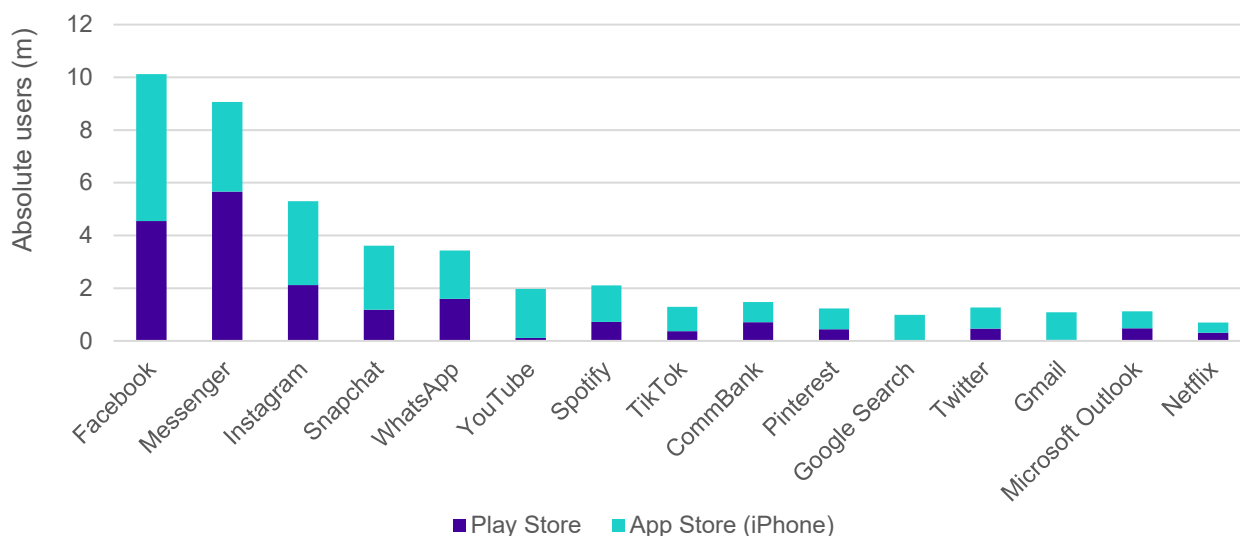


Source: Sensor Tower data.

According to Sensor Tower, the top three apps in Australia by daily active users in January 2021, across both the Play Store and the App Store (for iPhone), were Facebook, Facebook Messenger and Instagram, as shown in figure 1.2 below.

²⁶ In the Report, references and discussion about apps predominately relates to apps downloaded from an app marketplace, and may not necessarily apply to other types of apps, such as web apps. Where the Report refers to other types of apps, such as web apps, this will be made clear. As discussed in chapter 2, web apps are internet enabled apps that are accessible via web browsers on smartphone devices like a regular webpage.

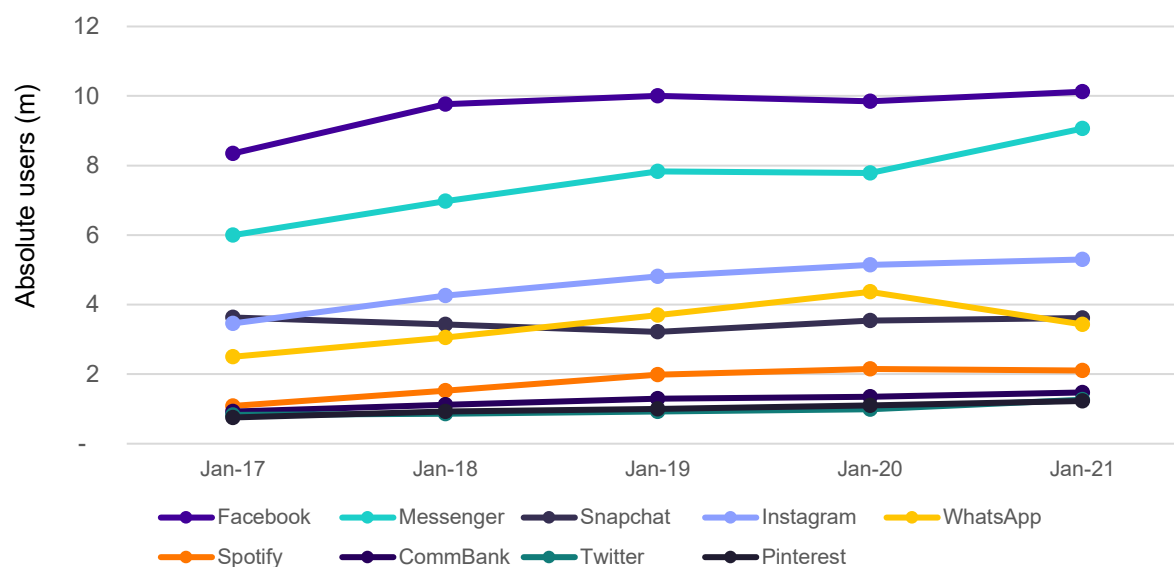
Figure 1.2: Most popular apps in Australia by daily active users in January 2021²⁷



Source: Sensor Tower data.

The popularity of these apps in Australia has been relatively consistent over time, as shown in figure 1.3. In the last five years, nine apps have featured in the ‘top 15 apps’ by daily active users in January each year for the Play Store and the App Store (for iPhone).

Figure 1.3: Select top apps in Australia by daily active users in January, 2017 to 2021²⁸



Source: ACCC analysis using Sensor Tower data.

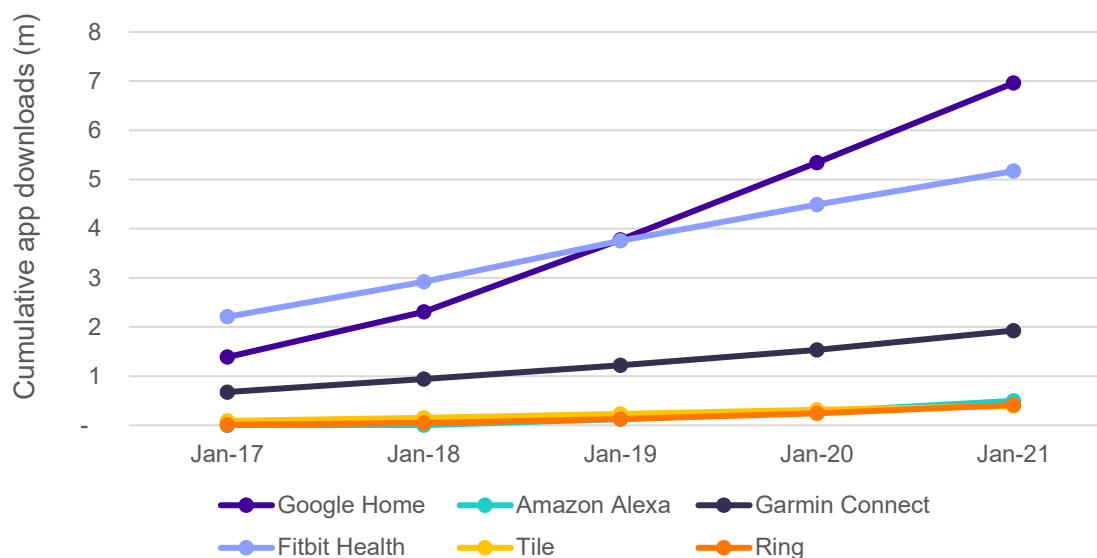
In the future, apps may become even more important in daily life as consumers increasingly interact with the world around them through their smartphones, such as to control devices

²⁷ This chart captures the daily active users of apps where the app was downloaded from the App Store or Play Store, and does not capture the number of users where an app comes pre-installed on a device, such as some Google apps (Gmail, YouTube, Google Search), on many Android smartphones. This chart is based on Sensor Tower data.

²⁸ This chart reflects apps that featured in the top 15 apps by daily active users in January for each year listed. The chart does not reflect the ranking of the app within the top apps, but only that it fell within the top 15 each year. The figures reflect combined active users for the Play Store and the App Store (for iPhone devices only).

connected through the Internet of Things (IoT).²⁹ In Australia, the number of downloads of IoT-related apps such as Google Home, Amazon Alexa, Tile, Ring, Fitbit and Garmin Connect in the last five years is shown in figure 1.4.

Figure 1.4: Example of IoT-related app downloads in Australia, January 2017 to January 2021³⁰



Source: ACCC analysis using Sensor Tower data.

1.2. Mobile operating systems and app marketplaces

Mobile apps work in conjunction with the operating system (OS) running on the device on which they are installed. Therefore mobile apps must be designed and built to run on a specific OS. The OS operates in a similar way to operating systems on desktop or laptop computers – controlling the hardware and software on a mobile device – including access to the device’s camera, GPS, phone features and internet. More information on mobile OS is set out in chapter 2.

Apple (iOS) and Google (Android) are effectively the only mobile OS providers in Australia and globally (excluding China). Together, Apple and Google have close to 100% of the mobile OS market worldwide, and in Australia, Apple and Google each have around 50% of the mobile OS market.³¹ Apple and Google’s respective mobile OS are discussed further below and in chapter 2.

Mobile apps are predominately distributed on app marketplaces which are digital storefronts that provide a centralised distribution platform for developers to offer and distribute their apps, and for consumers to discover, download, and update apps. Apple and Google are the predominant app marketplace operators, offering the App Store and the Play Store, respectively. These app marketplaces are discussed further below and the level of the competition they face is discussed in chapter 2.

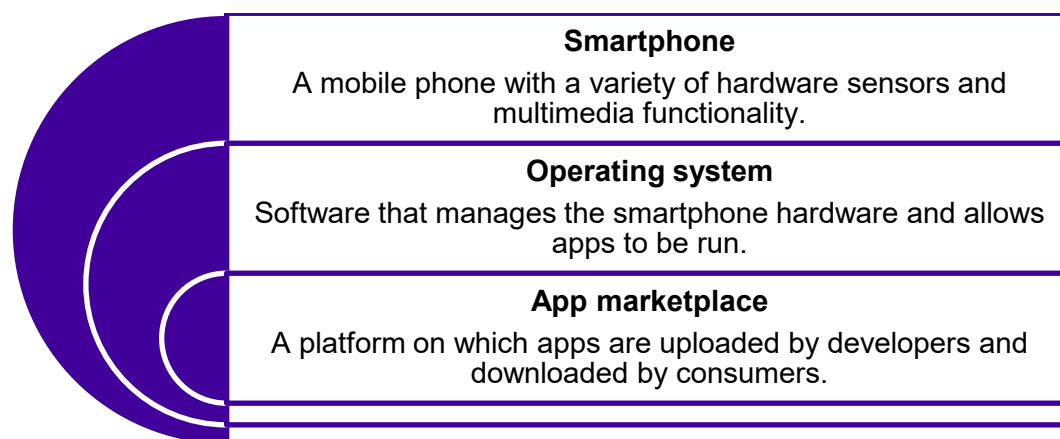
The relationship between smartphones, operating systems and the app marketplaces is illustrated in figure 1.5 below.

²⁹ App Annie, [The State of Mobile 2020](#), 2020, p 10.

³⁰ The apps shown were selected by the ACCC as examples of IoT apps.

³¹ Kantar reports estimated smartphone sales shares of around 54% for Android OS and 46% for iOS for the three months ending December 2020. See Kantar, [Smartphone OS market share](#), 2020, accessed 24 March 2021. StatCounter reports estimated mobile OS shares of 54% for iOS and 46% for Android OS for December 2020, based on mobile OS shares of webpage views. See StatCounter, [Mobile operating system market share Australia](#), 2021, accessed 24 March 2021.

Figure 1.5: Layers relied on by an app marketplace



1.2.1. Apple iOS and the App Store

Apple is responsible for the operating system for iPhone and iPad devices – iOS. Apple’s iOS is only available for and compatible with these devices and Apple does not allow alternative OS on its devices.

Apple’s iOS is ‘closed source’. Its contents and code are not published or directly available to third-party app developers. Apple maintains complete control over iOS and has the ability to impose restrictions on how apps can interact with iOS. Apple provides a range of software and tools to third-party app developers to enable them to build apps for iOS, such as Xcode (to write apps),³² Swift (to write code),³³ and TestFlight (to test apps before release).³⁴

Third-party app developers are bound by a number of agreements and guidelines about how they can build and distribute apps for iOS, which are discussed in chapter 3.

Apps are distributed through Apple’s official app marketplace for iOS – the App Store – which is pre-installed on all iOS devices (along with other Apple first-party apps, as discussed in chapter 5). The App Store started with 500 apps in 2008 and has grown exponentially,³⁵ now offering approximately two million apps.³⁶ Developers can only distribute apps for iOS through Apple’s App Store and there is no alternative app marketplace for iOS.

1.2.2. Google Android and the Play Store

Google is responsible for the overall direction of Android as a platform and product, and oversees the development of the core Android open source platform.³⁷

In contrast to iOS, Android is, in principle, ‘open source’. Google publishes the source code for anyone to access and modify as they wish, for any kind of device.³⁸ Android is not linked

³² Apple, [Xcode](#), *Apple Developer*, accessed 24 March 2021.

³³ Apple, [Swift](#), *Apple Developer*, accessed 24 March 2021.

³⁴ Apple, [TestFlight](#), *Apple Developer*, accessed 24 March 2021.

³⁵ Apple, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 2 October 2020, p 4.

³⁶ Statista estimates that as of Q4 2020, there were almost 2.09 million available apps for iOS in the App Store. See Statista, [Number of apps available in leading app stores as of 4th quarter 2020](#), accessed 24 March 2021. Apple submits that there are 1.8 million apps available on the App Store. See Apple, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 2 October 2020, p 1.

³⁷ Android Source, [Frequently Asked Questions](#), 2 March 2021, accessed 24 March 2021.

³⁸ Modified versions of the published source code are called ‘Android forks’. However, Google is able to control the Android ecosystem by maintaining a consistent single version of Android, across the vast majority of Android devices, under anti-forking agreements. These agreements broadly prohibit device manufacturers from taking ‘any actions that may cause or result in the fragmentation of Android’, as well as forbidding distribution of Android versions that do not comply with Google’s standards as set out in the Android Compatibility Definition Document. See Android Source, [Android](#)

to a particular hardware, and is used by a number of device manufacturers such as Samsung, Amazon, and Huawei in their respective smartphones and other mobile devices. However, similar to iOS, third-party app developers are bound by a number of agreements and guidelines about how they can build and distribute apps for Android, which are discussed in chapter 3.

Google owns and operates the official app marketplace for Android – the Play Store – which is pre-installed on the vast majority of Android devices (along with other Google first-party apps, as discussed in chapter 5). The Play Store launched in 2008 (under the name Android Market) and has grown over time, now offering approximately three million apps worldwide.³⁹ Although there are alternative third-party app marketplaces for Android, discussed further below, and there is no requirement that Android apps must come from the Play Store, Google does not allow third-party app marketplaces to be downloaded from the Play Store.

1.2.3. Alternative ways for consumers to install mobile apps

There are limited alternative distribution channels for mobile apps beyond the App Store and the Play Store.

While there are alternative app marketplaces for Android, such as the Amazon Appstore for Android,⁴⁰ or the Samsung Galaxy Store,⁴¹ these have significantly fewer apps than the Play Store and are only available on specific devices. There are no alternative app marketplaces for iOS.

Beyond app marketplaces, there are few options for consumers to download and install apps, and these are technically difficult and unlikely to be undertaken by most smartphone users. Alternative options for app distribution including the competitive impact of other app marketplaces on the Play Store and the App Store are discussed in chapter 2.

1.3. Benefits of app marketplaces for consumers and app developers

App marketplaces provide benefits to both consumers and app developers. They offer a secure and easily accessible way for consumers to navigate and browse the millions of available apps, and help them find and install the apps that best meet their needs. For developers, particularly smaller developers, app marketplaces (and app development tools) help to reduce barriers and costs, and provide access to a large market of potential consumers.

The value of an app marketplace to consumers is greater the more apps and app choice that the marketplace offers and, similarly, app developers benefit the more consumers use the marketplace.⁴²

1.3.1. Consumers

Both Apple and Google seek to create a positive user experience and help consumers navigate their marketplaces by curating apps and offering discovery tools, such as ‘popular app’ charts, editorial features and a search function within the marketplace. These tools are discussed further in chapter 5.

[Compatibility Definition Document](#), 8 September 2020, accessed 24 March 2021. This is also discussed further in chapter 2.

³⁹ AppBrain estimates there are 2,992,327 Android apps on Google Play as of 23 March 2021. See AppBrain, [Number of Android apps on Google Play](#), accessed 24 March 2021.

⁴⁰ Amazon, [Amazon Appstore App For Android](#), accessed 24 March 2021.

⁴¹ Samsung, [Galaxy Store](#), accessed 24 March 2021.

⁴² These cross side network effects of two-sided markets have competition effects that are discussed in chapter 2.

Apple,⁴³ and Google,⁴⁴ also each take active measures to ensure a safe and secure platform for consumers by vetting apps for malware or other malicious content, and provide some avenues for recourse should an app not meet a consumer's expectations. Apple, in particular, emphasises the security and privacy of its platform and differentiates its product by promoting these features.

Notwithstanding the convenience and benefits that apps in general provide consumers, a number of apps can lead to consumer harm, particularly for more vulnerable consumers. Apple and Google's steps to safeguard consumers against these types of apps are discussed in chapter 6.

1.3.2. App developers

App marketplaces benefit developers, particularly small and/or new developers, by providing a platform that reaches a large audience with relatively minimal investment.⁴⁵ Apple and Google also have incentives to offer a positive experience for app developers, as these developers are critical to the success of the marketplace and its ability to offer diverse and innovative apps to attract consumers.

The marketplaces also help developers increase their speed to market and distribution of apps, and benefit developers as they have built-in consumer trust and security.⁴⁶ Some developers credit their ability to commercialise to the existence of the app marketplaces, as one developer expressed in response to the ACCC's App Developer Questionnaire:

The app store is a valuable way to be able to distribute apps. I do not have the resources to manage distribution of an app, payment and licensing systems, ensuring security of the apps users download. The app store does this for me.⁴⁷

Apple and Google both also provide developers with access to various tools and resources to assist them in developing, publishing, monetising, and marketing their apps through the App Store Connect,⁴⁸ and Google Play Console,⁴⁹ respectively. Developers also benefit from Apple and Google's role in managing and maintaining various regulatory compliance requirements through the app marketplace.⁵⁰

However, some developers have raised concerns with how the app marketplaces operate, such as Apple and Google's setting and enforcing of terms (discussed in chapter 3) including app payments (discussed in chapter 4), the potential for self-preferencing through discovery tools (discussed in chapter 5), and the use of information collected through the app marketplace (discussed in chapter 7).

⁴³ 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 97.

⁴⁴ Google, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 19 October 2020, p 7.

⁴⁵ Apple, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 2 October 2020, p 4.

⁴⁶ ACCC, [App marketplaces report – App developer questionnaire responses](#), 27 November 2020, response 66.

⁴⁷ ACCC, [App marketplaces report – App developer questionnaire responses](#), 27 November 2020, response 6.

⁴⁸ Apple, [App Store Connect](#), accessed 24 March 2021.

⁴⁹ Google, [Google Play Console](#), accessed 24 March 2021.

⁵⁰ Google, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 19 October 2020, p 6.

2. Competition Assessment

- The duopoly nature of the market for mobile operating systems and the significant barriers to entry and expansion provide each of Apple and Google significant market power in the supply of mobile operating systems in Australia.
- Apple and Google face limited competitive constraints in mobile app distribution. The lack of strong competitive constraints faced by Apple and Google provides each with market power in mobile app distribution in Australia and the ACCC considers it likely that this market power is significant. This market power particularly affects the dealings of app developers with Apple and Google in Australia.
- iOS users and app developers wishing to access iOS users have very limited choice but to use the App Store. Moreover, Apple's terms of access to the App Store make the emergence of alternatives highly unlikely.
- Some Android users and app developers wishing to access Android users have potential alternatives to the Play Store given alternative app marketplaces can be installed on Android devices. However, these app marketplaces face significant impediments to attracting users and app developers given the Play Store is commonly pre-installed on Android devices and the advantages of strong network effects and economies of scale enjoyed by the Play Store.
- While the App Store and Play Store may place some competitive constraints on one another, these constraints are limited by:
 - the costs incurred by users in switching mobile operating systems; which would involve switching their mobile device
 - the need for many app developers to access both iOS and Android users.
- The competitive constraints faced by Apple and Google in mobile app distribution are unlikely to substantially increase at least in the short- to medium-term.

This chapter sets out the ACCC's views regarding the extent to which the App Store and the Play Store are constrained by competition. It is structured as follows.

- **Section 2.1** sets out the scope of the ACCC's competition assessment.
- **Section 2.2** explains the links between mobile operating systems, apps and app marketplaces.
- **Sections 2.3 and 2.4** discuss the competitive constraints on the app marketplaces of Apple and Google respectively.
- **Section 2.5** summarises the competition assessment.

2.1. Scope of ACCC's competition assessment

The ACCC's competition assessment focuses on the competitive constraints faced by the App Store and Play Store in mobile app distribution. The App Store and Play Store are the most significant app marketplace platforms in Australia, with estimated 2020 app developer revenues (net of commission paid to the app marketplaces) in Australia, of around AUD1.2 billion and AUD0.6 billion respectively.⁵¹

App marketplaces are multi-sided platforms. They bring together different types of users that interact via the platform. The number of users on one side of the platform (for example, consumers) increases the value of the platform to other types of users (for example, app developers). Recognising the multi-sided nature of these platforms, the ACCC has been careful to take into account the competitive constraint provided by both consumers and app developers to any attempts by the App Store or the Play Store to exercise market power.

In undertaking this competition assessment, the ACCC has not endeavoured to formally define the market(s) in which the App Store and the Play Store participate. Rather, we have sought to identify and assess the alternatives or substitutes available to consumers and app developers, and to assess the barriers to entry and expansion faced by providers of these possible alternatives.

To the extent the competitive constraints provided by actual or potential rivals are ineffective, and to the extent that the competitive constraints the App Store and Play Store impose on each other are not strong, then these two app marketplaces are likely to have market power, particularly in their dealings with app developers.

Australian law does not prohibit a firm from possessing a substantial degree of market power. Nor does it prohibit a firm with a substantial degree of market power from 'out-competing' its rivals by using superior skills and efficiency to win customers at the expense of firms that are less skilful or less efficient. This conduct is part of the competitive process. It drives firms to develop and offer products that are more attractive to consumers, and should not be deterred.

However, it is illegal for a firm with substantial market power to damage this competitive process by preventing or deterring rivals, or potential rivals, from competing on their merits. That is, a firm with substantial market power could maintain or advance its position by restricting or undermining its rivals' ability to compete, rather than by offering a more attractive product.

It is also important to note that the Ministerial Direction for the DPSI (see Appendix A) do not require the ACCC to consider or form a view as to whether a digital platform is misusing market power, but to consider more broadly the competitive conditions in the supply of digital platform services and the market power of digital platform service providers, such as the leading app marketplaces.

2.2. Mobile operating systems, apps and app marketplaces

2.2.1. Role of the mobile operating system

Smart mobile devices incorporate many of the capabilities of a personal computer (PC) within a mobile device. Similar to a PC, the operating system (OS) is a key component of mobile devices. As noted in chapter 1, the OS is system software that manages and controls the hardware and other software on a mobile device, including access to such features as

⁵¹ ACCC AUD estimate, using Sensor Tower USD estimates and an estimated 2020 average exchange rate of AUD1 = USD0.6906. Exchange rate source: Australian Taxation Office, [Foreign currency exchange rates for the calendar year ending 31 December 2020](#), accessed 24 March 2021.

the device's camera, GPS, phone, wireless network, internet access etc. It also translates user commands into responses by the device and other software.

Consumers can do many things using just the basic functionality provided by the hardware features controlled by the OS. However, many users value software applications (apps) that use aspects of the hardware and/or access to the internet or cloud to enhance the functionality of their devices. Users can install this software to access digital content or services, share content, play games, use social media, or make transactions for physical goods and services.

As noted in chapter 1, mobile apps need to interact with the mobile OS to access the capabilities of the hardware and to combine those capabilities with internet or cloud access. The need for apps to interact with the OS gives OS owners or controllers considerable influence over apps and app marketplaces.

2.2.2. iOS and the App Store

For apps to work on an Apple mobile device, the software has to interact with iOS. Apple controls and limits this interaction. The iOS source code is closed source, meaning that its contents and code are not published, or directly available to app developers. Instead, Apple provides software and tools to app developers that allow them to write software that interacts with iOS without those developers actually seeing the iOS source code.

Apple provides app developers with access to these tools via Apple Developer Agreements, discussed further in chapter 3. These contracts allow app developers to access the tools on the condition that they agree to only distribute their iOS compatible apps through the App Store. This is how Apple maintains a single app marketplace on its OS. It reflects the tight link between Apple's control of the OS and control over the app marketplaces available on its OS.

2.2.3. Android and the Play Store

The connection between the Android OS (Android) and the Play Store is more complex than for iOS and the App Store.

Android is open source. This means that Google publishes the source code, and anyone can access and modify the published source code. Modified versions of the published source code are called 'Android forks'.

The Play Store is Google's app marketplace for the Android OS. However, third-party app marketplaces are also possible on Android and there is no requirement that Android apps must be acquired using the Play Store. Unlike iOS apps, Android apps can be downloaded directly from the developer's website or may be obtained from a third-party app marketplace.

Despite Android being open source and the Play Store not being the exclusive app marketplace on Android, it is nevertheless the case that the Android OS has many characteristics that are similar to a closed source OS. For example, a single consistent version of Android ('Google Android'),⁵² set by Google is installed on the vast majority of Android mobile devices. A key reason for this is Google's use of anti-forking agreements.⁵³

⁵² 'Google Android' here refers to versions of Android that meet Google-controlled technical standards. Versions of Android that do not meet these standards are referred to as 'Android forks'. 'Google Android' and 'Android forks' are collectively referred to as 'Android'.

⁵³ There are two types of anti-forking agreements in operation. Before 2017, Google required distributors to sign Anti-Fragmentation Agreements (AFAs). In 2017, while being investigated by the European Commission, Google started to shift from AFAs to new Android Compatibility Commitments (ACCs). According to a recent DOJ court filing, ACCs are marginally less onerous than AFAs because they allow manufacturers to build devices or components for third parties to sell to consumers, even if those devices or components do not comply with Google's technical standards. Both ACCs and AFAs, however, prohibit signatories from manufacturing Android forks of their own, distributing devices with Android forks

The US Department of Justice (DOJ) has submitted in its recent court filing that these agreements:

- broadly prohibit manufacturers of Google Android mobile devices from taking 'any actions that may cause or result in the fragmentation of Android';⁵⁴ and
- specifically forbid Google Android mobile device manufacturers from developing or distributing versions of Android that do not comply with Google-controlled technical standards, as defined in its Android Compatibility Definition Document.⁵⁵

These agreements help Google maintain a single consistent version of Android across most devices.⁵⁶

Another characteristic is that the Play Store is pre-installed on the vast majority of Android devices,⁵⁷ and has prominent placement on most Android devices. There are a number of reasons for this.

First, device manufacturers interested in pre-installing Google apps or the Play Store must sign a Mobile Application Distribution Agreement (MADA) after signing an anti-forking agreement. According to the DOJ, a license to distribute devices with must-have proprietary Google apps and application programming interfaces (APIs; the set of technical specifications that enable software applications to communicate with each other, operating systems, and hardware) is provided only through the MADA pre-installation agreements,⁵⁸ which requires device manufacturers to pre-install a full suite of apps if they wish to pre-install any Google app, including the Play Store.⁵⁹

The pre-installation of the Play Store on the vast majority of Android devices is critical in assessing its market power, and it often results in the Play Store being the only app marketplace on an Android device. The popularity of Google's first-party apps (including the Play Store and Google Search) and the desire of many consumers to have a device that offers these 'out of the box', results in most device manufacturers using Google's version of the Android OS,⁶⁰ and presumably accepting the MADA, and pre-installing the Play Store on the device home screen.

or using their powerful brands to market forks on behalf of third parties. See *US Department of Justice v Google LLC*, [Complaint filed in the US District Court for the District of Columbia](#), 20 October 2020, p 22, paras 69–70.

⁵⁴ *US Department of Justice v Google LLC*, [Complaint filed in the US District Court for the District of Columbia](#), 20 October 2020, p 22, para 67. Google Android here refers to versions of Android that comply with Google's compatibility requirements. The term Google Android therefore excludes Android forks.

⁵⁵ *US Department of Justice v Google LLC*, [Complaint filed in the US District Court for the District of Columbia](#), 20 October 2020, p 22, para 68.

⁵⁶ Amazon is a notable device manufacturer using an 'Android fork'. The Amazon Fire OS forgoes access to the Play Store and has limited Google apps. See C Faulkner, '[How to get Google apps on an Amazon Fire tablet](#)', *The Verge*, 8 July 2019, accessed 24 March 2021. Device manufacturers supplying to China may also use Android forks as many Google apps are banned there.

⁵⁷ European Commission, [Commission Decision, Case AT.40099 – Google Android](#), 18 July 2018, para 596.

⁵⁸ *US Department of Justice v Google LLC*, [Complaint filed in the US District Court for the District of Columbia](#), 20 October 2020, p 23, para 72.

⁵⁹ *US Department of Justice v Google LLC*, [Complaint filed in the US District Court for the District of Columbia](#), 20 October 2020, p 23, para 76.

⁶⁰ Google Android's worldwide (excluding China) share of licensable smart mobile device OS was 96.4% in 2016. See European Commission, [Commission Decision, Case AT.40099 – Google Android](#), 18 July 2018, para 446.

Second, Google does not allow alternative app marketplaces to be downloaded from the Play Store.⁶¹ This means a key channel is not available for distribution or marketing of alternative app marketplaces. Instead, alternative app marketplaces must be:

- pre-installed by device manufacturers, or
- downloaded manually from the internet.

In relation to the second option, this will typically require customers to change security settings which many consumers are likely to be uncomfortable with.

Device manufacturers can pre-install their own app marketplace and some of them, such as Samsung, do so. However, these alternative app marketplaces will typically be less prominent than the Play Store due to the home screen placement of the Play Store.

As a result, other app marketplaces are not widely pre-installed on devices and other app marketplaces are not widely installed later by consumers.

2.2.4. Mobile operating system as a multi-sided platform

Each mobile OS is a multi-sided platform and is critical to the mobile device ecosystem.

The Android OS is a platform where three types of users interact with each other:

- Manufacturers of mobile devices, using the OS as a component of the mobile devices they manufacture.⁶²
- Consumers of mobile devices, where the OS acts as a 'controller' between software they want to use (mostly apps) and the device.
- App developers, using the OS as a way to access consumers seeking extra software for their device.

Cross-side network effects operate on the Android OS. A cross-side network effect operates if an increase in the number of users on one side of the platform affects the value of the service to users on other sides of the platform.

Cross-side network effects are particularly prevalent between consumers on a mobile OS and app developers. The more consumers using the Android OS, the greater the potential market available to app developers on that OS. To the extent this enables app developers to attract more users, it is likely to increase the returns app developers achieve from making their apps available on the OS.

These network effects mean larger platforms have a competitive advantage in attracting app developers. Given an app developer incurs upfront costs in setting up an app on a particular OS, they may have more incentive to develop an app for an OS with more users. This is because the app developer will be able to spread the upfront costs over more users and, all else being equal, achieve higher profits per user.

There is also a cross-side network effect in the opposite direction on the Android OS. The more apps available on the Android OS, or the greater the variety of apps that are available, the greater the value for consumers on the Android OS.

The developer/consumer dynamic is not the only source of cross-side network effects on the Android OS. App developers may also benefit from more manufacturers making devices for

⁶¹ Google states 'You may not use Google Play to distribute or make available any Product that has a purpose that facilitates the distribution of software applications and games for use on Android devices outside of Google Play.' See Google, [Google Play Developer Distribution Agreement](#), 15 April 2019, accessed 24 March 2021, para 4.5.

⁶² Google does manufacture some mobile devices of its own.

the Android OS as that is likely to lead to more consumers on the OS. Device manufacturers also benefit from having more app developers on the Android OS as it is likely to increase the demand for their devices.

The Apple iOS platform has similar dynamics. The main difference is that all devices running on iOS are Apple devices which reduces iOS to a two-sided platform, with consumers using Apple mobile devices and app developers as the parties on the two sides.

2.2.5. Market power in mobile operating systems

While they may place some constraint on each other, the duopoly nature of the market for mobile OS and the significant barriers to entry and expansion provide each of Apple and Google significant market power in the supply of mobile OS in Australia.

iOS and Android are the two predominant mobile OS. They share almost 100% of the mobile OS market worldwide.⁶³ Android represents over 95% of licensable mobile OS for smartphones and tablets in the United States and accounts for over 70% of all mobile device usage worldwide.⁶⁴ Apple's iOS, which is not licensable by device manufacturers, is the only other mobile OS with significant market share in the United States.⁶⁵ In Australia, Apple and Google each have around 50% of the mobile OS market.⁶⁶

There are significant barriers to entry and expansion in mobile OS, including:

- The high cost and time to develop a mobile OS. The investment costs in research and development to bring a mobile OS to the market are significant, as are the ongoing costs of developing and incorporating new features in the OS.
- Strong cross-side network effects making it difficult to attract app developers. App developers are strongly attracted to the large consumer bases of Android and iOS. Enticing app developers to develop apps for a new OS is likely to be difficult as:
 - many developers have limited resources and tend to prioritise efforts towards platforms with the most consumers
 - conversion of apps to a new and unfamiliar OS has costs.
- Device manufacturers are likely to be reluctant to switch to a new OS, due to the costs of switching away from their existing setup using Android. Some device manufacturers make substantial investments to integrate an OS with their device.⁶⁷ Device manufacturers also want an OS with a large number of consumers.
- There is considerable consumer loyalty to existing OS, in part due to the switching costs consumers face.

The development costs and the need to enter with scale on more than one side of the platform at once (or with particularly high scale on the consumer side), combined with the

⁶³ See, for example, European Commission, [Commission Decision, Case AT.40099 – Google Android](#), 18 July 2018, para 448; StatCounter, [Mobile operating system market share worldwide - February 2021](#), February 2021, accessed 24 March 2021; International Data Corporation, [Smartphone market share](#), 15 December 2020, accessed 24 March 2021.

⁶⁴ *US Department of Justice v Google LLC*, [Complaint filed in the US District Court for the District of Columbia](#), 20 October 2020, p 21, para 64.

⁶⁵ *US Department of Justice v Google LLC*, [Complaint filed in the US District Court for the District of Columbia](#), 20 October 2020, p 21, para 64.

⁶⁶ Kantar reports estimated smartphone sales shares of around 54% for Android OS and 46% for iOS for the three months ending December 2020. See Kantar, [Smartphone OS market share](#), 2020, accessed 24 March 2021. StatCounter reports estimated mobile OS shares of 54% for iOS and 46% for Android OS for December 2020, based on mobile OS shares of webpage views. See StatCounter, [Mobile operating system market share Australia](#), 2021, accessed 24 March 2021.

⁶⁷ Sony has estimated that the initial development cost 'to implement the Android OS on our devices was approximately 50 million Euro, with lead time of 1.5 to two years.' See European Commission, [Commission Decision, Case AT.40099 – Google Android](#), 18 July 2018, para 470.

prospect of competing against entrenched incumbents make for formidable barriers to mobile OS entry. It is not surprising that other major companies have exited from this market.⁶⁸

2.2.6. Alternatives to app marketplaces

While app marketplaces are the primary distribution channel for apps, consumers can access apps in a number of other ways.

On mobile devices

In theory, app developers can use alternatives to app marketplaces to distribute their apps, such as by sideloading, pre-installing or through web apps. In practice, these options are not available to all consumers, are not popular with most consumers and are technically difficult.

Sideloading

Sideloading refers to the installation of apps directly from a website without using an app marketplace.⁶⁹ Sideloading is not a realistic or attractive possibility for the majority of consumers.

Sideloading on iOS, is limited to tech-savvy consumers and those prepared to violate Apple's terms of use.⁷⁰ Tech-savvy consumers can download applications from outside the App Store by getting root access to iOS. This is in violation of Apple's terms of use and risks making the consumer's device less secure.

While easier than for iOS, sideloading on Android is not a real option for many consumers. While permitted on Android, sideloading requires lowering Android's security settings, which generates warnings about making the device less secure, and is likely to deter many consumers.⁷¹

Pre-installing

Android device manufacturers can and do pre-install their own apps or apps from third-party developers on their devices. As noted by the Netherlands Authority for Consumers & Markets (ACM), device manufacturers are reluctant to pre-install many apps from third-party developers.⁷² The ACCC understands that this is because consumers view pre-installation of many third-party apps negatively. The app developers the ACM spoke with indicated that it is costly to have their apps pre-installed on a device.⁷³

In addition to paying any fees to the device manufacturers, an app developer also faces the cost of negotiating these arrangements with individual device manufacturers. To access the same number of consumers that are accessible through the Play Store, an app developer would need to arrange a significant number of agreements with Android device manufacturers.

⁶⁸ For example, Microsoft ended support for its smartphone operating system Windows 10 Mobile in 2019. See Peter, ['Saying goodbye to Windows 10 Mobile: Microsoft ends support for its mobile OS'](#), *GSMarena*, 10 December 2019, accessed 24 March 2021. This followed several years of small and declining market shares. Microsoft offered a closed OS and its initial business model included charging device manufacturers for its use. It was reported to be behind in attracting third-party app developers. See V Savov, ['Windows Phone was a glorious failure'](#), *The Verge*, 10 October 2017, accessed 24 March 2021; D Ranger, ['What if Microsoft had invented Android?'](#), *ZDNet*, 7 July 2019, accessed 24 March 2021.

⁶⁹ European Commission, [Commission Decision, Case AT.40099 – Google Android](#), 18 July 2018, para 271.

⁷⁰ ACM, [Market study into mobile app stores](#), 11 April 2019, pp 45–46.

⁷¹ ACM, [Market study into mobile app stores](#), 11 April 2019, pp 46–47.

⁷² ACM, [Market study into mobile app stores](#), 11 April 2019, p 50.

⁷³ ACM, [Market study into mobile app stores](#), 11 April 2019, p 50.

In practice, pre-installation only occurs for a small number of third-party apps, and only on Android devices. The only significant pre-installation of a non-first-party app by Apple was for Google Maps. This pre-installation ceased with the release of the iPhone 6.

Web apps and websites

Web apps are internet-enabled apps that are accessible via the web browsers of mobile devices like a regular webpage. They have more functions than a regular webpage, including opportunities for interactions, partially operating offline, and providing push notifications (Android only).⁷⁴ Web apps are available to all consumers, regardless of whether they use an iOS or Android device, and are not subject to review by any app marketplace.

In the context of distribution alternatives within the iOS ecosystem, Apple submits that users can use the web to purchase and consume digital content or services on individual websites:

Even if a user only owns iOS-based devices, distribution is far from limited to the Apple App Store because developers have multiple alternative channels to reach that user. The whole web is available to them, and iOS devices have unrestricted and uncontrolled access to it. One common approach is for users to purchase and consume digital content or services on a website.⁷⁵

Apple submits that web apps are becoming increasingly popular:

Web browsers are used not only as a distribution portal, but also as platforms themselves, hosting 'progressive web applications' (PWAs) that eliminate the need to download a developer's app through the App Store (or other means) at all. PWAs are increasingly available for and through mobile-based browsers and devices, including on iOS. PWAs are apps that are built using common web technology like HTML 5, but have the look, feel and functionality of a native app. They can even have an app icon that resides on the device home screen. Web apps are becoming increasingly popular. Companies such as Amazon, Google, Starbucks, Pinterest, Uber and the FT use web apps. Amazon, for example, has just launched its Luna mobile gaming service as a web app. Microsoft and Google are also launching gaming apps on iOS via web apps. The developer of the Telegram messaging app has also recently stated that it is working on a rich web app for iOS devices.⁷⁶

The ACCC received submissions from other parties on the use of web apps and websites as alternatives to native apps.

Match Group submitted that:

When compared with native mobile apps, websites and web apps provide inferior performance, prolonged load instances and restricted access to the device's hardware (for example, camera, microphone, GPS and other sensors). Websites and web apps do not support features (including gesture-based features) such as the SWIPE feature, which is crucial for Tinder. Furthermore, webpages and web apps have no centralised point of distribution (like an app marketplace). Finally, tracking and data collection on web-apps is more limited than on mobile apps.⁷⁷

Australian Business Software Industry Association, in comparing web versions of apps to mobile apps, submitted that:

⁷⁴ ACM, [Market study into mobile app stores](#), 11 April 2019, p 42.

⁷⁵ Apple, [Submission to ACCC Digital Platform Services Inquiry Second Interim Report](#), 10 February 2021, p 3.

⁷⁶ Apple, [Submission to ACCC Digital Platform Services Inquiry Second Interim Report](#), 10 February 2021, p 3.

⁷⁷ Match Group, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 16 October 2020, p 8.

The delivery of apps on mobile devices offers a more seamless user experience. While the web version of an app may offer the same level of services on a mobile browser, it will require these browsers to have certain functionalities that are either not normally available or not available at all. Additionally, the more complex the functions, the less capable it is as a substitute to a mobile-version of the app.⁷⁸

The ACCC's consideration of websites and web apps follows.

Consumers do access content on their mobile devices via the internet. However, the vast majority of the time that users spend online on mobile devices involves using apps. Around 90% of time spent on mobile is reported to be spent on apps, across a range of countries.⁷⁹ Some of the reported web usage is likely to be for one time, infrequent or irregular access to websites that hasn't warranted a consumer to obtain an app or for which no app may be available. This kind of usage is unlikely to be viewed as a close substitute for apps by consumers.

Native apps typically provide a different and expanded experience for users beyond simply accessing a website. The App Store Review Guidelines push for this, with apps submitted to the App Store expected to go beyond what is simply available on a website, saying 'Your app should include features, content, and UI that elevate it beyond a repackaged website.'⁸⁰

PWA are web apps that provide some functionality beyond a basic website but fall short of the functionality of native apps. PWAs appear to have no precise common definition. They are apps created with web technologies that can operate directly inside a browser similar to any website or they can operate in a more 'standalone' mode, appearing as an app installed on the device.

PWAs can work offline by saving (caching) material from the underlying website onto the device. Such caching can increase the speed of downloading a page within the PWA and decrease the need for later data transfer, including potentially allowing full offline operation.⁸¹

PWAs may be unable to access or fully access functions of the hardware or OS. This is for two main reasons. One is that consumers may need to permit the PWA to access certain features and they may choose not to due to security concerns.⁸² Another is that PWAs may be limited by what the device manufacturer, OS or browser developer permit access to or support. For example, PWA support on iOS is only provided for the Safari browser and not for other browsers.⁸³ Several APIs are reported to be unavailable on Safari.⁸⁴ iOS is reported to lack PWA support for push notifications and background syncing, both options available in native apps.⁸⁵ iOS is also reported to purge PWA cached content where the PWA is not installed on the home screen and is not used for a period of time.⁸⁶

⁷⁸ Australian Business Software Industry Association, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 2 October 2020, p 5.

⁷⁹ K Lewis and A Sangalli, '[Global State of Mobile](#)', *ComScore*, 10 November 2020, p 5.

⁸⁰ Apple, [App Store Review Guidelines](#), 1 February 2021, accessed 24 March 2021, para 4.2.

⁸¹ S Saltis, '[What is a Progressive Web App? \(And do you need one\)](#)', *CoreDNA*, 10 February 2021, accessed 24 March 2021.

⁸² S Saltis, '[What is a Progressive Web App? \(And do you need one\)](#)', *CoreDNA*, 10 February 2021, accessed 24 March 2021.

⁸³ M Firtman, '[Progressive Web Apps in 2021](#)', *Firt.Dev*, 6 January 2021, accessed 24 March 2021.

⁸⁴ M Firtman, '[Progressive Web Apps in 2021](#)', *Firt.Dev*, 6 January 2021, accessed 24 March 2021.

⁸⁵ C Love, '[Progressive Web Applications \(PWA\) on iOS 13 & 14 Provide a Rich Channel to Reach Customers Despite the Platform Limitations](#)', *Love2Dev*, 9 January 2021, accessed 24 March 2021.

⁸⁶ C Love, '[Progressive Web Applications \(PWA\) on iOS 13 & 14 Provide a Rich Channel to Reach Customers Despite the Platform Limitations](#)', *Love2Dev*, 9 January 2021, accessed 24 March 2021.

While some mobile gaming apps in the form of PWAs have been announced, the ACCC notes that Amazon's Luna is not in full release,⁸⁷ and Microsoft's xCloud is not yet publicly released as a web app.⁸⁸ There is little evidence on the performance of these PWA game apps from a consumer's perspective.

Ultimately, native apps appear to benefit in performance from tighter integration with the OS and hardware. They provide a richer user experience and provide better access to the mobile device's OS and hardware features such as camera, microphone, GPS, sensors and swipe based controls. Web sites and web apps do not have the same level of centralised distribution and discoverability as native apps. Users are overwhelmingly choosing to spend time with native apps over websites and web apps.

Based on the information available and submitted, the ACCC's view is that web sites and web apps are not significant or effective alternatives to the App Store and the Play Store for consumers using mobile devices.

On fixed devices

Fixed devices provide an alternative way for consumers to connect to the internet, access digital media content and play games. Where consumers own a PC, TV or gaming console, they have an alternative way to access some of the services provided by mobile apps, usually in the home.⁸⁹

For some activities, some consumers may find using fixed devices to be a substitute for using apps on mobile devices. However, consumer time is increasingly spent on mobile devices and many activities that use mobile apps inherently rely on mobility. As a result, fixed devices appear to provide a weak and weakening constraint on a broad range of mobile apps.

One activity where consumers use both fixed devices and mobile apps extensively is playing games. Games such as Battle Royales, shooters, simulators, action, role playing games, sports or fighting games have historically been played on PCs, game consoles or handheld consoles. Increasingly, these games have become available and popular on mobile device apps. Games are a very important revenue source for app marketplaces, representing around 75% of the total worldwide consumer spend across the combination of the App Store and the Play Store in 2018.⁹⁰

Fixed devices offer consumers a superior experience to mobile devices for many games. As a result, many consumers are likely to use a fixed device over a mobile device to play the games when this is an option. While this is the case, there are reasons to believe that consumers do not consider these devices as close substitutes.

First, the use of mobile devices to play many games is likely to occur when the user does not have access to a fixed device. At these times, fixed devices are not a substitute for apps on mobile devices even if there is some scope for consumers to delay playing a game until they are at home.

⁸⁷ N Fernandez, '[Amazon Luna: Everything you need to know about Amazon's cloud gaming service](#)', *Android Authority*, 23 February 2021, accessed 24 March 2021.

⁸⁸ B Lovejoy, '[Microsoft "very close" to public preview of xCloud games on iPhones and iPads](#)', *9to5Mac*, 15 February 2021, accessed 24 March 2021.

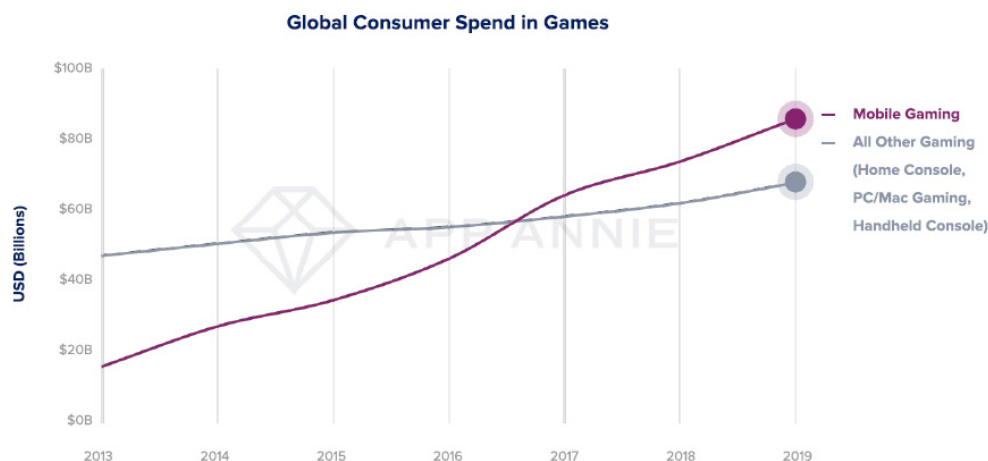
⁸⁹ Here PCs includes laptops. While they offer a degree of mobility and are used outside the home, laptops do not offer the same degree of mobility or potential to be carried by the consumer almost all of the time as mobile phones do.

⁹⁰ App Annie and International Data Corporation, '[Gaming Spotlight 2018 Review](#)', March 2019, p 8. The ACCC estimates the equivalent figure for Australia for 2020 to be 66%, using Sensor Tower data.

Second, it appears that consumers are increasingly using the apps on mobile devices to play games. Figure 2.1 below indicates that global expenditure on mobile gaming is growing rapidly and recently surpassed expenditure on fixed gaming.

Based on the information available it does not appear that using fixed devices is a close substitute for using apps on mobile devices.

Figure 2.1: Global consumer spend in Games, 2013 to 2019



Note: Other Gaming data from IDC; 2019 data for other gaming is projected, Mobile Gaming data is iOS, Google Play, Third-Party Android in China combined

Source: App Annie, [The State of Mobile](#) 2020, p 13.

2.3. Competitive constraints on the Play Store

There are four sources of competitive constraint, or potential competitive constraint, on the Play Store.

The first is the App Store.⁹¹ Consumers dissatisfied with the apps available through the Play Store have the option to switch to the App Store. Similarly, some app developers have a choice between making their apps available on the Play Store or on the App Store.

The second are the options, or potential options, for consumers and app developers that use the Android OS to bypass app marketplaces. As noted above, this includes sideloading, pre-installation of third-party apps and the use of web apps. As also noted above, these options are at best weak alternatives to accessing apps through app marketplaces. As a result, these options provide little competitive constraint on app marketplaces, including the Play Store.

The third potential constraint is from fixed devices (and the marketplaces associated with those devices). While key applications such as gaming are accessible to consumers on both fixed and mobile devices, from the information available it does not appear fixed devices provide a strong constraint on the Play Store.

The fourth source of competitive constraint are other app marketplaces available on the Android OS.

⁹¹ We do not consider there to be any appreciable constraint provided by app marketplaces on Blackberry OS. We are also not aware of any significant examples of app marketplaces on non-Android licensable mobile OS.

The constraint on the Play Store imposed by the App Store is examined next. This is followed by an examination of the competitive constraints imposed by other app marketplaces on the Android OS.

2.3.1. Does the App Store impose a competitive constraint on the Play Store?

The Play Store and the App Store are the two largest mobile app marketplaces operating in Australia. As noted above, consumers dissatisfied with the apps available through the Play Store have the option of switching to the App Store (subject to the points discussed below). Similarly, app developers have a choice between making their apps available on the Play Store or the App Store.

Single-homing by consumers

Consumers who wish to switch from using the Play Store to the App Store must switch from using an Android mobile device to an Apple mobile device (for example, a smartphone or a tablet).

Given the cost of owning multiple mobile devices and the inconvenience of operating across multiple OS, most consumers single-home. That is, they own an Apple mobile device or an Android mobile device, but not both. This is particularly the case for smartphones.

An exception to this is consumers who have an Android smartphone and an Apple iPad or vice versa. These consumers can more readily switch between using the Play Store to the App Store without the need to purchase another device. While this is the case, the scope for this substitution is limited to circumstances where the consumer has easy access to both their smartphone and a tablet of the alternative mobile OS.

Overall, it appears unlikely that the availability of the App Store to the relatively small number of multi-homing consumers would provide a competitive constraint on the Play Store.

Multi-homing by developers

If most developers offer their apps on both the Play Store and the App Store (that is, they multi-home), it would suggest that the Play Store and the App Store do not provide much constraint on one another as developers are not choosing one app marketplace over the other.

ACCC analysis of Sensor Tower data on apps available in Australia indicates that around 90% or more of the top 100 apps available in Australia in each of the App Store and the Play Store, were also available in the other app marketplace.⁹² The European Commission's Google Android decision reported on a study which found multi-homing by the top 100 app developers to be at over 90%.⁹³ These analyses suggest that producers of the most popular apps develop those apps for both marketplaces and as a result consumers can find the most popular apps on either app marketplace.

There are a number of reasons why app developers multi-home.

One is to access the broadest group of smartphone users as possible. In Australia, around 50% of smartphone users use an Apple smartphone and around 50% of users use an Android smartphone,⁹⁴ and as discussed earlier it appears likely that few use both. As result,

⁹² The ACCC analysis involved screening the Sensor Tower data to include only apps available in Australia. The Top 100 apps in 2020 in each marketplace by Australian count of free downloads and by Australian revenue were examined. Apps in the App Store and the Play Store were matched using Sensor Tower's Unified App ID. 89 of the top 100 apps on the Play Store by free download count, and 98 of the top 100 by revenue, were also on the App Store. 99 of the top 100 apps by free download on the App Store, and 99 of the top 100 by revenue, were also available on the Play Store.

⁹³ European Commission, [Commission Decision, Case AT.40099 – Google Android](#), 18 July 2018, para 555.

⁹⁴ Kantar reports estimated smartphone sales shares of around 54% for Android OS and 46% for iOS for the three months ending December 2020. See Kantar, [Smartphone OS market share](#), 2020, accessed 24 March 2021. StatCounter reports

in order for an app developer to reach more than 50% of smartphone users in Australia they need to be accessible through the Play Store and the App Store. While many app developers may initially single-home, the more popular apps have strong commercial incentives to multi-home in order to reach the broadest group of smartphone users as possible.

The commercial imperative to multi-home is particularly important for apps that facilitate the matching of buyers and sellers or users with similar interests. These services are far more valuable the larger the proportion of smartphone users that can assess the service. As Match Group have explained:

Apps which benefit substantially from direct network effects need to offer apps on both Apple's App Store and Google's Play Store, or else the service offered in the app would be far less valuable to consumers. For example, users of Tinder (a Match online dating product) want to connect with any potential match irrespective of the operating system or make of their mobile device.⁹⁵

While many developers multi-home, many do not. There are a number of reasons why a developer may choose to offer their apps through either the App Store or the Play Store, but not both.⁹⁶

Some developers single-home to avoid incurring the cost of making their app compatible with multiple OS. For developer apps entering at small scale these costs may be significant.⁹⁷ While the Play Store and the App Store are likely to compete for these app developers, the advantage they may gain by attracting nascent apps may be short-lived because if an app prospers, it will eventually move to both platforms.

Some apps may be more attractive to some types of smartphone users than others. To the extent an app is more likely to be attractive to Android smartphone users than Apple users, the app developer may solely focus on the former. For these apps, the App Store may not be a close substitute for the Play Store.

Some developers primarily target particular geographic areas dominated by Android. As a result, they may choose to develop their app solely for Android. For these apps, the App Store may not be a close substitute for the Play Store. While there may be many such geographical areas around the world, particularly in lower income areas, this is likely to be less of an issue in Australia.

Likely reaction of developers and consumers to an exercise of market power by the Play Store

In order to assess the competitive constraint that the App Store may place on the Play Store it is helpful to think about the degree to which developers and consumers are likely switch to the App Store in response to an exercise of market power by the Play Store. For example, consider the likely reaction of developers or consumers to a small but significant non-transitory increase in the commission rate charged by the Play Store for payments made by consumers for digital services acquired through apps (in-app payments).

estimated mobile OS shares of 54% for iOS and 46% for Android OS for December 2020, based on mobile OS shares of webpage views. See StatCounter, [Mobile operating system market share Australia](#), 2021, accessed 24 March 2021.

⁹⁵ Match Group, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 16 October 2020, p 6.

⁹⁶ There are also some apps developed specifically by device manufacturers for their device.

⁹⁷ One estimate of development costs suggests a low end of USD30,000. It suggests most quality apps cost between USD100,000 and USD1m. See K Yarmosh, '[How much does an app cost in 2021: A massive review of pricing and other budget considerations](#)', *Savvy Apps*, 23 February 2021, accessed 24 March 2021. Another estimated price range is USD10,000 – USD230,000+, for one platform, with an average of USD60,000. See M Redka, '[How much does it cost to make an app in 2021?](#)', *MLSDev*, 29 January 2021, accessed 24 March 2021. For more entry level apps a USD10,000 to USD100,000 range may be typical. See I Blair, '[App development costs: \\$1,000 app vs. \\$10,000 app vs \\$100,000 app \(What's the difference?\)](#)', *BuildFire*, accessed 24 March 2021.

Likely reaction of developers

A small increase in the Play Store commission rate is unlikely to cause many developers to switch from the Play Store to the App Store.

As noted above, many app developers have strong commercial incentives to reach the broadest group of mobile device users as possible. Given many consumers single-home on these devices, for these app developers the App Store and the Play Store are not substitutes.

Moreover, the developers that single-home on the Play Store do so for a reason. For example, they may limit their app to the Play Store to target particular types of mobile device users. Switching from the Play Store to the App Store will likely cause the app developer to lose most of their existing customers (who single-home on Android mobile devices) with uncertain prospects of replacing them with iOS mobile device users once they switch to the App Store. Moreover, once an app is developed for the Play Store, the cost to maintain it on that platform is relatively small,⁹⁸ further reducing the likelihood of developers walking away from the Play Store in response to a small increase in the Play Store commission rate.

For a new entrant app developer who may, at least initially, select one mobile OS over the other, a small increase in the Play Store commission rate may lead them to opt for iOS over Android. However, as discussed above, if the app ends up being popular, its developer is likely to add it to the Play Store eventually anyway, to access Android consumers.

Likely reaction of consumers

While consumers do not directly pay for using the Play Store, they nevertheless may be affected by a small increase in its commission rate. For app developers on the Play Store, the commission is a cost of doing business. Like other costs, one would expect app developers to recover at least some of these costs from users of their apps.

Suppose an app developer fully passed on to its users the increase in the commission rate charged by the Play Store. The issue is whether this is likely to cause many consumers to switch from the Play Store to the App Store. The ACCC's view is that this is unlikely.

For most consumers, switching to the App Store would involve incurring the cost of purchasing an Apple iPhone or iPad and adapting to a new mobile ecosystem. This may be a significant cost relative to the cost of a small increase in commission rate. For most consumers their expenditure on apps is likely to be small relative to the price of an iPhone. The EC Google Android decision referred to an article suggesting Android users spent an average of USD5 per year on apps in 2014, a small amount compared with the price of an iPhone starting at several hundred dollars.⁹⁹ US iPhone users spent an average of around USD100 per year on in-app payments and premium (paid) app downloads in 2019, according to Sensor Tower.¹⁰⁰ This is roughly equivalent to a single basic annual Netflix subscription (USD9 per month).

Moreover, when deciding between an Android device and an iOS device, consumers typically consider a variety of attributes of the devices in addition to availability of apps and how much they are likely to pay for them. When purchasing a mobile device, consumers

⁹⁸ One Australian app developer's estimate for annual maintenance costs is 10–20% of the initial app development cost. See Itomic, [How much does a Mobile App cost to Build?](#), accessed 24 March 2021. Some overseas app developers suggest either 20% or 15–20%. See, for example, T Moore, [What's the cost to maintain an app?](#), *App Press*, accessed 24 March 2021; T Delly, [How much should my app maintenance cost?](#), *Fyresite*, 16 January 2020, accessed 24 March 2021; Aparna, [How much does app maintenance cost in 2021?](#), *Mobile App Daily*, 22 January 2021, accessed 24 March 2021.

⁹⁹ European Commission, [Commission Decision, Case AT.40099 – Google Android](#), 18 July 2018, para 287, referring to P Elmer-DeWitt, [Apple's users spend 4X as much as Google's](#), *Fortune*, 27 June 2014, accessed 24 March 2021.

¹⁰⁰ R Nelson, [U.S. iPhone users spent an average of \\$100 on apps in 2019, up 27% from 2018](#), *Sensor Tower*, 25 March 2020, accessed 24 March 2021.

would be expected to choose based on the value they expect to receive from the hardware, the OS and from the apps available for that particular OS. For many consumers the price associated with their use of apps may have a limited effect on this decision.

ACCC calculations using market research data obtained during the DPSI suggest that less than 15% of Australian consumers considered apps to be one of the main criteria for choosing their smartphone purchased for personal use.¹⁰¹ While this is the case, there may be a small number of consumers who do choose between iOS and Android on the basis of the apps available on the app marketplaces, and how much they pay to subscribe and use the apps. For these consumers a small increase in the Play Store commission rate may matter.

Competitive constraints arising from competing mobile ecosystems

A small increase in commission rates is unlikely to cause a substantial reaction by consumers to shift from the Play Store to the App Store. However, those arguments are mostly based on a device level analysis. There are further effects at the ecosystem level, reflecting that:

- consumers sometimes switch entire ecosystems
- even a small shift from Android devices to iOS devices may be significant because of its effects on the broader ecosystem.

Over an extended period consumers purchase new devices, and each of those purchases represents a potential for shifting between Android devices and iOS devices, and their associated ecosystems. Many consumers may consider purchasing new mobile phones on a regular basis as many mobile phone contracts have a two-year term.

The constraint from competing ecosystems can be analysed based on two questions:

- If the Play Store exercised market power how many customers would switch from the Android ecosystem to the Apple ecosystem?
- When customers switch ecosystems how much is Google likely to lose?

On the first question, customers appear to have a high degree of OS loyalty. The ACCC estimates using market research obtained during the DPSI that in recent years around two thirds of Australian smartphone purchases were repeat purchases of the same OS, with the remainder being consumers either new to smartphones or moving from another OS.¹⁰² Over 80% of previous smartphone owners remained with their existing OS when buying a new smartphone, similar to levels of loyalty reported in overseas surveys.¹⁰³

When smartphones were emerging, a higher proportion of consumers were first time purchasers of smartphones. However, as smartphones have become relatively well established, more consumers have now used one or both of the Apple or Android mobile ecosystems. Previous use of a mobile ecosystem can increase 'stickiness' to that ecosystem due to:

- the inability to transfer apps purchased on the respective app marketplaces between ecosystems

¹⁰¹ Information provided to the ACCC

¹⁰² Information provided to the ACCC.

¹⁰³ See, for example, J Rossignol, '[CIRP says iOS Loyalty "Hit the Highest Levels We've Ever Measured" Last Quarter](#)', *MacRumors*, 28 January 2019, accessed 24 March 2021; C Henry, '[iPhone Users Have Most Brand Loyalty](#)', *The Mac Observer*, 21 August 2019, accessed 24 March 2021; M Armstrong, '[Most iPhone Users Never Look Back](#)', *Statista*, 22 May 2017, accessed 24 March 2021.

- subscription and purchase-based services associated with the platforms and commitment/loyalty to those, for example, Apple Music or YouTube Music, which may have elements (such as playlists) that are not easily transferred between ecosystems
- additional linked hardware and loyalty/commitment to those (a broader digital ecosystem) – iPads, Mac computers, Apple TV, Apple Watch, Nest Hub, Chromebooks, Pixel buds, Chromecast with Google TV.

Match Group have submitted that rates of switching between mobile devices with different OS (and therefore app marketplaces) are low due to the following, among other reasons:

High switching costs: users would need to re-download and repurchase the app (unless they can use the app developer's own payment systems), and need to overcome substantial sunk costs in paid software and/or digital content tied to the existing app marketplace they use. In addition, there are significant personal and financial costs involved with migrating data between mobile operating systems. Information saved within a mobile operating system includes passwords, contact details, communication history and personal details within apps (including payment details and shipping addresses).

Learning costs: there are also significant time and learning costs in new users becoming familiar and efficient with another smart mobile operating system's interface and features. The prospect of high switching costs contributes to a user spending more time on the same device and, on average, a smart mobile device user will use the same device for several years. This further disincentivises switching to a device with a different operating system.

Integration/interoperability costs: switching costs are increasingly becoming magnified by the fact that, while consumers do not often multi-home the same type of device (eg, owning multiple mobile phones), they do often purchase interoperable devices within the same ecosystem (ie, running the same operating system). For example, in Australia, iPads account for approximately 83% of tablets sold, which suggests that most users of iPhones that also have a tablet would use an iPad. In addition, products such as smart watches and wireless earbuds generally work better with mobile phones produced by the same manufacturer. This acts as a further disincentive to switch device brands and operating software.¹⁰⁴

... Consumers often commit to a platform ecosystem on a household (eg, family) or user group (eg, workplace) basis where the entire group runs devices using the same platform ecosystem to take advantage of different benefits. For example, family members may be able to access content purchased by other family members (including songs, movies, TV, cloud storage, books and apps through, for example, Apple's 'Family Sharing' service). Additionally, certain features (eg, FaceTime or AirDrop on Apple devices) only function between Apple devices.¹⁰⁵

On the second question, a small shift from Android devices to iOS devices may significantly affect the profitability of Google. The ACCC does not have information to accurately measure the loss of profits that Google may suffer as a result of due to users migrating from the Android mobile ecosystem to the Apple mobile ecosystem. A number of factors are likely to be relevant including the lost profits from the Play Store and benefits to Google from having Google Search and other Google apps on Android devices. Further, given that Google pays Apple to set Google Search as the default search service on the Safari browser,¹⁰⁶ it is possible it will incur extra payments in the event users migrate from Android

¹⁰⁴ Match Group, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 16 October 2020, p 7.

¹⁰⁵ Match Group, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 16 October 2020, p 11.

¹⁰⁶ *US Department of Justice v Google LLC*, [Complaint filed in the US District Court for the District of Columbia](#), 20 October 2020, p 37, para 118.

to iOS. Moreover, the loss of profits may be long-lived given the potential for the users who migrate to remain with Apple for a period of time.

While the loss of profits that Google may incur as a result of a consumer switching ecosystem are uncertain, it is unlikely to matter much. As noted above, an attempt by Google to exercise market power through the Play Store is unlikely to cause many consumers to shift to the App Store. As a result, the ACCC considers it is unlikely that the App Store places a significant competitive constraint on the Play Store.

2.3.2. Does the potential availability of other app marketplaces on Android devices provide a competitive constraint on the Play Store?

As noted above, a second potentially significant competitive constraint on the Play Store are the other app marketplaces available on the Android OS.

The Play Store is pre-installed on the vast majority of Android mobile devices.¹⁰⁷ Google permits other app marketplaces to be downloaded and installed on Android. Some device manufacturers (such as Samsung) pre-install their own Android app marketplace. Device manufacturers also pre-install some device-specific apps.

Use of app marketplaces by Android users

Android app marketplaces are a potential source of constraint on the Play Store. However, they offer fewer apps than the Play Store and distribute apps to a much smaller proportion of Android devices.¹⁰⁸ As a result, more than 90% of apps on Android devices are downloaded through the Play Store.¹⁰⁹ This follows a significant period during which the Play Store was the only significant app marketplace for Android downloads.¹¹⁰ This suggests that other Android app marketplaces may place little competitive constraint on the Play Store.

Dynamic competition and barriers to entry and expansion

Despite the relatively low use of Android app marketplaces that are rivals to the Play Store, it has been argued that, nevertheless, the Play Store is constrained by dynamic competition. That is, the Play Store may be subject to competitive pressures on account of the possibility that a rival app marketplace may develop an innovation that allows it to enter and/or expand at a competitively significant scale. There are a number of factors that limit the constraint provided by the threat of dynamic competition.

Pre-installation of the Play Store

As set out above, the Play Store is pre-installed on the vast majority of Android mobile devices. Pre-installation is important due to the consumer tendency to use default services. Google is able to achieve high rates of pre-installation and prominent home screen placement via its agreements with device manufacturers for their use of Google Android (see 2.2.3).

Even if Google achieves high rates of pre-installation simply because device manufacturers generally want the Play Store pre-installed, this is still a barrier to entry and expansion. Given the number and variety of apps available on the Play Store, a device manufacturer increases the value of its device by pre-installing the largest incumbent on its device. This is

¹⁰⁷ European Commission, [Commission Decision, Case AT.40099 – Google Android](#), 18 July 2018, para 596.

¹⁰⁸ European Commission, [Commission Decision, Case AT.40099 – Google Android](#), 18 July 2018, paras 596, 607–609.

¹⁰⁹ *US Department of Justice v Google LLC*, [Complaint filed in the US District Court for the District of Columbia](#), 20 October 2020, p 24, para 73.

¹¹⁰ European Commission, [Commission Decision, Case AT.40099 – Google Android](#), 18 July 2018, para 598.

self-reinforcing as the more device manufacturers that pre-install the Play Store, the more app developers will wish to use it.

For some device manufacturers a means of entry has been to create an app marketplace and pre-install it on the device they manufacture, for example, the Samsung Galaxy app marketplace. While this may allow a device manufacturer's app marketplace to enter, it may not overcome barriers to expansion. For example, 30–40% of Android phones come with the Samsung Galaxy app marketplace pre-installed, yet less than 5% of apps downloaded are from the Samsung Galaxy app marketplace.¹¹¹ Although we might not expect Samsung to capture 30–40% of downloads (due to the presence of the Play Store), the failure of the Samsung Galaxy app marketplace to achieve even 5% of downloads as the second largest Android app marketplace highlights the challenges faced by potential rival app marketplaces even where the benefits of pre-installation are available.

Cross side network effects

As noted above, a cross-side network effect operates if 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. Where cross-side network effects operate in both directions, as is the case with app marketplaces, a positive feedback loop is created.

There are positive feedback effects here. An increase in consumers using an app marketplace is likely to attract more app developers, which is likely to attract more users and so on. These feedback effects appear to be strong. They only appear to be limited by the potential for 'congestion' where the sheer number of app developers becomes so large that consumer search costs increase or app quality decreases. However, congestion seems to be a minor issue with the Play Store.

Successful incumbent multi-sided platforms by definition have reached a critical mass of users on each side of their platform and benefit from the positive feedback effects between the sides of the platform. Entrants have to obtain critical mass as well and that takes time. Further, in a mature market, the entrant has the challenge of persuading users who may benefit from these positive feedback effects to switch to a platform that has a smaller and therefore possibly less valuable group of customers on the other side.

These cross-side network effects appear to be powerful for app marketplaces like the Play Store, and make entry and expansion by other app marketplaces difficult.

Economies of scale

In common with many digital platforms, app marketplaces also have large economies of scale. Setting up and operating an app marketplace involves significant fixed costs. Once set up, the costs of adding additional apps or allowing more consumers to access apps on the marketplace are small. As a result, larger app marketplaces have lower average costs than smaller app marketplaces.

The EC Google Android decision cited several large firms commenting on the high costs of entry in the form of development and marketing. For example:

According to Amazon: 'Excluding the effort to develop APIs, Amazon has dedicated hundreds of employees and tens of millions of dollars each year over the course of several years to develop and commercialize its app marketplace, including engineering, app marketplace operations, business development, developer and consumer marketing, developer relations and support'.¹¹²

¹¹¹ European Commission, [Commission Decision, Case AT.40099 – Google Android](#), 18 July 2018, paras 597-598.

¹¹² European Commission, [Commission Decision, Case AT.40099 – Google Android](#), 18 July 2018, para 628.

Operating system integration

Apple and Google have the ability to integrate their app marketplaces with their operating systems and to prevent others from doing the same. For example, because Apple owns iOS, it can exclude other app marketplaces from it.

Alternative Android app marketplaces that are not pre-installed but can be downloaded to be used in parallel with the Play Store, cannot be used to automatically update apps.¹¹³ Such an automatic update function is important from the perspective of consumers, developers and device manufacturers. Consumers find manual updates or downloads to be cumbersome.¹¹⁴ Developers and device manufacturers also appreciate automatic installation and updates.

This is a particular example of how Android app marketplaces are dependent on access to the underlying Android OS. Google's control of Android effectively means that the existence and features of Android app marketplaces are, at least partly under Google's control. This may make potential entrants wary of developing an Android app marketplace when a key input – access to the Android OS – is in the hands of a competitor.

2.3.3. ACCC assessment

The ACCC has examined the potential competitive constraints on the Play Store.

While there a number of other app marketplaces available on the Android OS, the Play Store's dominant position and the advantages it gains from being the only pre-installed app marketplace on the majority of Android mobile devices means that alternative app marketplaces impose a weak competitive constraint. Moreover, while options, or potential options, are available for consumers and app developers that use the Android OS to bypass app marketplaces, these options are at best weak alternatives to accessing apps through the Play Store.

To the extent that there is any significant competitive constraint on the Play Store, it is likely to come from fixed devices or the App Store.

For most activities, it does not appear that fixed devices and mobile apps are close substitutes. This includes activities such as gaming where consumers use both fixed devices and apps on mobile devices extensively. As a result, it does not appear, from the information available, that fixed devices impose a strong constraint on the Play Store.

While the App Store may constrain the Play Store to a degree, from the information that is available, the constraint appears to be weak. For the majority of app developers, the App Store and the Play Store are not substitutes. Further, while consumers who are dissatisfied with the apps available through the Play Store have the option to switch to the App Store, such a switch is likely to be costly and hence unlikely.

The lack of strong competitive constraints faced by the Play Store gives Google market power in the distribution of mobile apps. This market power particularly affects Google's dealings with app developers.

2.4. Competitive constraints on the App Store

The competitive constraints, or the potential competitive constraints, on the App Store are more limited than those on the Play Store.

¹¹³ European Commission, [Commission Decision, Case AT.40099 – Google Android](#), 18 July 2018, para 615.

¹¹⁴ European Commission, [Commission Decision, Case AT.40099 – Google Android](#), 18 July 2018, para 617, referring to Deutsche Telekom response to the European Commission's request for information.

As Apple only allows app developers to distribute iOS compatible apps through the App Store, it is the only app marketplace available for iOS. Bypassing the App Store is very difficult and is not an effective alternative to accessing apps through the App Store.

As a result, the only potential constraints on the App Store are likely to come from fixed devices or the Play Store.

As discussed above in relation to the Play Store, from the information available, it does not appear fixed devices impose a strong constraint on the App Store. This leaves the potential constraint from the Play Store.

2.4.1. Does the Play Store provide a competitive constraint on the App Store?

Two factors are likely to be important in assessing the competitive constraint that the Play Store imposes on the App Store. One is the likely reaction of consumers and app developers to any attempt by Apple to exercise market power. Second is the effect on Apple's profits of losing consumers and app developers to the Play Store.

Likely reaction of consumers and app developers

Consumers dissatisfied with the apps available through the App Store have the option to switch to the Play Store. Similarly, some app developers have a choice between making their apps available on the App Store or on the Play Store. While this is the case, and as noted above, a number of factors limit this constraint.

First, as most consumers limit their ownership of smartphones to one OS or the other, switching from using the App Store to the Play Store usually involves purchasing an Android smartphone. Moreover, they will need to incur the cost of familiarising themselves with the features available on the Android OS. While the costs of Android phones may be lower than cost of an iPhone, these costs are nevertheless likely to discourage many consumers from switching from the App Store to the Play Store. This is particularly the case given the range of factors (in addition of the availability and prices of apps) that consumers take into account in choosing between mobile OS.

Second, many app developers are unlikely to see the Play Store as an alternative to the App Store. In order to gain access to the majority of smartphone users in Australia, app developers must make their apps available on both the App Store and the Play Store. For many apps, such as those that facilitate the matching of buyers and sellers, this is a commercial imperative.

Moreover, for those app developers that only use the App Store, moving their apps from the App Store to the Play Store is likely to be unappealing. Not only would they incur the costs of making their app compatible with the Android OS, but they would lose their existing iOS customer base.

As noted above, the only significant prospect of competition between the App Store and the Play Store is for nascent apps who have not chosen a mobile OS. As also noted above, this competition is likely to be limited.

Likely effect on Apple's profits of losing consumers and app developers

Apple's mobile ecosystem (including the App Store) is a high up-front or fixed cost business. As a result, Apple appears to make significant profit margins on incremental sales. These include margins on iPhones and app purchases, as well as margins on sales of subscription services (such as Apple Music) and other hardware such as iPads, and payments by Google to set Google Search as the default search service on the Safari browser.¹¹⁵ Most recent Apple financial reports provide high level gross margins of 31.5% for 'products' and 66% for 'services'.¹¹⁶

As a result, a small shift of consumers and/or developers from iOS to Android could significantly affect the profitability of Apple. While this is the case, it is unlikely to matter much. As noted above, an attempt by the App Store to exercise market power is unlikely to cause many consumers to shift to the Play Store. As a result, the ACCC considers it is unlikely that the Play Store places a significant competitive constraint on the App Store.

2.4.2. ACCC assessment

The lack of strong competitive constraints faced by the App Store gives Apple market power in the distribution of mobile apps. This market power particularly affects Apple's dealings with app developers.

2.5. Market power in mobile app distribution

Their control of iOS and Android give Apple and Google control over the distribution of mobile apps on their respective mobile ecosystems. This control, combined with their significant market power in mobile OS, means that the App Store and the Play Store are the key gateways through which app developers can access consumers on their mobile devices. As there are limited effective alternatives to access these consumers, the App Store and the Play Store are 'must haves' for the majority of mobile app developers in Australia.

This provides Apple and Google with market power in mobile app distribution in Australia and the ACCC considers it likely that this market power is significant. This market power particularly affects the dealings of app developers with Apple and Google in Australia

¹¹⁵ *US Department of Justice v Google LLC*, [Complaint filed in the US District Court for the District of Columbia](#), 20 October 2020, p 37, para 118.

¹¹⁶ Apple Inc. reported a gross margin percentage of 31.5% for 'Products' and 66.0% for 'Services' (which includes the App Store) in its 2020 annual report. See Apple, [Apple Inc. 2020 Annual report on Form 10-K – 2020 10-K](#), 2020.

3. Apple and Google's terms and conditions which govern access to their respective marketplaces

- Apple and Google control access to their respective app marketplaces and act as gatekeepers, unilaterally setting, amending, interpreting and enforcing the terms and conditions that app developers must follow to access their respective users.
- App developers report difficulties in resolving issues with Apple and Google during the app review process. The ACCC has, at present, been informed of more concerns in relation to the App Store review process than with the Play Store process.
- Apple and Google's enforcement of their rules in the app review process appears to be applied inconsistently and could be used to refuse or delay the approval of third-party apps, or to preference first-party apps.
- Apple and, to a lesser extent Google, control the operating system and device functionality that third-party apps can access. Where third-party apps do not have access to the same functionality as Apple and Google's first-party apps, they may not be able to compete effectively, to the detriment of consumer choice and innovation.

This chapter discusses Apple and Google's terms and conditions of their respective app marketplaces, including the app review process and access to functionality for third-party app developers. This chapter is structured as follows:

- **Section 3.1** outlines Apple and Google's control of their respective app marketplaces, and the terms and conditions of access imposed on app developers.
- **Section 3.2** sets out Apple and Google's app review processes and explores common concerns and experiences faced by app developers.
- **Section 3.3** discusses Apple's, and to a lesser extent Google's, approach to granting access to functionality for third-party app developers and how this can affect downstream competition.

3.1. Terms and conditions of app marketplaces

Apple and Google, through the App Store and Play Store respectively, intermediate between consumers and app developers. In order to distribute apps on these app marketplaces, third-party app developers must accept and abide by the terms and conditions of access as set out by Apple and Google. These terms are contained in a number of agreements, policies and guidance documentation, some of which is publicly available and some of which is confidential between the developers and Apple and/or Google.

To create and distribute apps in the App Store, Apple requires developers to agree to the Apple Developer Program License Agreement,¹¹⁷ and the Apple Developer Agreement regarding Terms of Use.¹¹⁸ Developers must also adhere to the App Store Review Guidelines,¹¹⁹ and a range of other guidelines as required, such as the Apple Wallet guidelines.¹²⁰ In order to distribute apps in the App Store, developers are required to join the Apple Developer Program for an annual fee of USD99.¹²¹

Similarly for the Play Store, Google requires third-party app developers to sign up to the Google Play Developer Distribution Agreement,¹²² and Google Developer Program policies.¹²³ Developers must also adhere to the Google Play Terms of Service,¹²⁴ and follow guidance on various Play Store policies.¹²⁵

Aspects of these agreements and guidelines seek to promote and maintain the quality and safety of apps available in the respective app marketplaces. For example, Apple outlines requirements about the way in which apps can collect user data, use location data and what may be considered objectionable conduct (such as defamatory or discriminatory content).¹²⁶ Google's terms also cover similar areas in the Developer Program policies.¹²⁷

Apple and Google create, amend, interpret and enforce the terms that developers must meet to access their respective app marketplaces. Further, as Apple and Google both also produce and distribute their own apps (so-called 'first-party' apps) in competition with third-party apps, Apple and Google could potentially use the terms to advantage their vertically integrated businesses in particular downstream markets for various apps.

¹¹⁷ Information provided to the ACCC.

¹¹⁸ Apple, [Apple Developer Agreement](#), *Apple Developer*, accessed 24 March 2021. The Apple Developer Agreement regarding Terms of Use governs the app developer's participation as a developer of apps for the Apple App Store. It covers aspects that overlap with the Apple Developer Program License Agreement, but also covers other areas such as the type of benefits the app developer might be entitled to (i.e. 'certain Apple developer conferences, technical talks, and other events').

¹¹⁹ Apple, [App Store Review Guidelines](#), 1 February 2021, accessed 24 March 2021.

¹²⁰ See Apple, [Getting Started with Apple Wallet](#), *Apple Developer*, accessed 24 March 2021.

¹²¹ Apple, [Choosing a Membership](#), *Developer Support*, accessed 24 March 2021; Apple, [Membership Details](#), *Apple Developer Program*, accessed 24 March 2021.

¹²² Google, [Google Play Developer Distribution Agreement](#), 15 April 2019, accessed 24 March 2021.

¹²³ Google, [Developer Program Policy](#), *Play Console Help*, 1 March 2021, accessed 24 March 2021.

¹²⁴ Google, [Google Play Terms of Service](#), 12 October 2020, accessed 24 March 2021.

¹²⁵ Google, [Developer Policy Center](#), accessed 24 March 2021.

¹²⁶ Apple, [App Store Review Guidelines](#), 1 February 2021, accessed 24 March 2021, section 1 ('Safety').

¹²⁷ Google, [Developer Policy Center](#), accessed 24 March 2021; Google, [Developer Program Policy](#), *Play Console Help*, 1 March 2021, accessed 24 March 2021.

As set out in chapter 2, there are limited viable alternatives for third-party app developers to distribute apps on mobile devices beyond the App Store and Play Store, this vertical integration and the accompanying risk of self-preferencing can give rise to potential competition concerns. The ACCC notes the European Commission's draft legislative proposal for the Digital Markets Act aims to, amongst other things, address the risk of digital platforms acting in this way.¹²⁸ Legislation has also come into effect in Germany to address this issue,¹²⁹ while proposals in the United Kingdom are also designed to address these concerns.¹³⁰

3.1.1. Developer concerns with the application of app marketplace terms and conditions by Apple and Google

App developers have raised concerns that Apple and Google (through their control of the App Store and Play Store) are unavoidable business partners and that they must accept Apple and Google's agreements to ensure they can continue to reach consumers.¹³¹ For example, Microsoft's President Brad Smith has commented that, '[Apple and Google] impose requirements that increasingly say there is only one way to get on to our platform and that is to go through the gate that we ourselves have created.'¹³²

A number of app developers have raised concerns about the ability of Apple and Google to exercise sole discretion either when making amendments to terms and conditions or limiting the extent to which an app developer can develop and distribute their app in the App Store or Play Store.¹³³ In response to a Call for Information by the Competition and Markets Authority (CMA), Spotify stated that:

App stores are in a position not only to *set* app approval terms unilaterally, but also to give themselves the discretion unilaterally to *amend* app approval rules (or their *interpretation*), leaving developers no option but to adapt their own commercial conduct, even when materially disadvantageous to them.¹³⁴

Further to this, the ACCC notes that in the event that a third-party app developer wishes to make its grievances public, the Apple Developer Program License Agreement requires companies to seek Apple's 'express prior written approval, which may be withheld at Apple's

¹²⁸ European Commission, [Statement by Executive Vice-President Vestager on the Commission proposal on new rules for digital platforms](#), 15 December 2020, accessed 24 March 2021; European Commission, [Proposal for a Regulation of the European Parliament and of the Council on contestable and fair markets in the digital sector \(Digital Markets Act\)](#), 15 December 2020. During the announcement of the Digital Markets Act (DMA) and associated Digital Services Act, Executive Vice President Vestager identified types of conduct that the DMA seeks to address including gatekeeper platform obligations and prohibitions regarding the use of data, interoperability and self-preferencing. In relation to self-preferencing, Executive Vice-President Vestager commented, '[t]o end this practice, the Digital Markets Act will oblige the gatekeeper to adjust its search algorithm to make sure rival offers receive the same level of prominence as its own offers'.

¹²⁹ D'Kart, [German Competition Act 2021 – Unofficial Translation: German Act against Restraints of Competition](#), 14 January 2021.

¹³⁰ CMA, [A new pro-competition regime for digital markets: Advice of the Digital Markets Taskforce](#), 8 December 2020.

¹³¹ The Google Play Distribution Agreement states that 'If You [*the app developer*] do not agree with the modifications to the Agreement, You may terminate Your use of Google Play, which will be Your sole and exclusive remedy. You agree that Your continued use of Google Play constitutes Your agreement to the modified terms of this Agreement'. See Google, [Google Play Developer Distribution Agreement](#), 15 April 2019, accessed 24 March 2021, para 15.3; Apple's Developer Program License Agreement states that 'In order to use the Apple Software and Services, You [*the app developer*] must first accept this Agreement. If You do not or cannot accept this Agreement, You are not permitted to use the Apple Software or Services.' See, for example, Apple, [Apple Developer Program License Agreement](#), 22 June 2020; See, also, REA Group, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 16 October 2020, pp 2–3.

¹³² L Tung, '[Microsoft president Brad Smith: It's time Apple's App Store model was probed](#)', *ZDNet*, 19 June 2020, accessed 24 March 2021.

¹³³ Apple states that 'Apple may terminate or suspend you as a registered Apple Developer at any time in Apple's sole discretion. If Apple terminates you as a registered Apple Developer, Apple reserves the right to deny your reapplication at any time in Apple's sole discretion.' See Apple, Apple, [Apple Developer Agreement](#), *Apple Developer*, accessed 24 March 2021, para 10. Similarly, Google states that it retains the right, 'at its sole discretion, to suspend and/or bar any Product and/or Developer from Google Play or from Devices.' See Google, [Google Play Developer Distribution Agreement](#), 15 April 2019, accessed 24 March 2021, para 8.3.

¹³⁴ Spotify, [Spotify's Response to the CMA's Digital Markets Taskforce Call for Information](#), 8 December 2020, p 4.

discretion' before issuing any press release or making public statements regarding the Apple Developer Program License Agreement or the company's relationship with Apple.¹³⁵ Such a requirement may deter an app developer speaking freely about their experience without consideration of potential repercussions.¹³⁶

The *US House Report on Competition in Digital Markets* discussed app developers' reliance on Apple and Google in order to access users in downstream app markets. The report noted that in some circumstances accepting the terms and conditions imposed by Apple and Google may be to the detriment of developers as it 'requires concessions and demands that carry significant economic harm, but that are "the cost of doing business" given the lack of options.'¹³⁷

One such condition imposed by both Apple and Google is the requirement to use first-party in-app payment systems, which may not be in the interests of third-party app developers.¹³⁸ This is discussed further in chapter 4. In relation to the App Store, another condition imposed on app developers by Apple is the requirement to 'offer Sign in with Apple as an equivalent option' if they allow users to sign in with other third-party or social login services (for example, Google Sign-In and Facebook Login).¹³⁹ App developers must adhere to this and in the event they choose not to include this option, they can experience delays and rejections during the app review process.¹⁴⁰ This is another example of how Apple can dictate the terms that third-party app developers must agree to in order to access the App Store.

The *US House Report on Competition in Digital Markets* also noted Apple and Google's gatekeeper and dominant position in app marketplaces.¹⁴¹ In preparing the report, the House Subcommittee received submissions that Google exercised its position over app developers through its 'arbitrary and unaccountable enforcement of Play Store policies',¹⁴² and how app developers have faced difficulties challenging decisions made by Google.¹⁴³ Further submissions to the Subcommittee noted that Google uses the Play Store to protect the dominance of its services (for example in search services) and stifle competition from rivals.¹⁴⁴

¹³⁵ Information provided to the ACCC.

¹³⁶ In information provided to the ACCC, Apple has stated: 'Apple has never taken action against a developer for public "grievances".'

¹³⁷ 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 11.

¹³⁸ Apple, [App Store Review Guidelines](#), 1 February 2021, accessed 24 March 2021. Paragraph 3.1.1 states 'If you want to unlock features or functionality within your app, (by way of example: subscriptions, in-game currencies, game levels, access to premium content, or unlocking a full version), you must use in-app purchase.' Google's policy states 'Play-distributed apps must use Google Play's billing system as the method of payment if they require or accept payment for access to features or services, including any app functionality, digital content or goods.' See Google, [Payments](#), [Play Console Help](#), accessed 24 March 2021, para 2.

¹³⁹ Apple, [App Store Review Guidelines](#), 1 February 2021, accessed 24 March 2021, para 4.8; S Perez, 'Coalition for App Fairness, a group fighting for app store reforms, adds 20 new partners', *TechCrunch*, 22 October 2020, accessed 24 March 2021; Apple, [What is Sign in with Apple?](#), *Apple Support*, 24 September 2020, accessed 24 March 2021. Apple states the Sign in with Apple feature is privacy oriented as it allows users to hide their email address from sites and apps if they prefer to not share it.

¹⁴⁰ See L Eadicicco, 'An email app developer that's been at odds with Apple says the iPhone maker stonewalled its app update for weeks', *Business Insider Australia*, 30 September 2020, accessed 24 March 2021.

¹⁴¹ 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 219, 334.

¹⁴² 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 221.

¹⁴³ 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 222.

¹⁴⁴ 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 221–222.

One developer's experience with Google's enforcement of its rules in Australia is discussed in box 3.1.

Box 3.1: Google's enforcement of its rules in Australia

In Australia, mobile advertising start-up Unlockd, in partnership with Flybuys,¹⁴⁵ launched an app available for download in 2017 that served ads on the lock screen of Android mobile devices and rewarded users with Flybuys rewards points.¹⁴⁶ Unlockd's Australian entities entered into voluntary administration in June 2018, following Google's decision to ban Unlockd and its partners from the Google Play Store and to revoke access to advertising inventory from Google AdMob.¹⁴⁷ Press reports noted that Google had provided approval to Unlockd on at least two occasions, but that Google later ruled that Unlockd did not comply with Google AdMob and Play Store terms and conditions.¹⁴⁸ Unlockd publicly stated that 'Google's policies are disadvantageous to app developers, including Unlockd, wishing to develop innovative, disruptive and more transparent business models in competition with Google's own online advertising business.'¹⁴⁹

The ACCC understands that Google's setting and enforcing of its policies impacted a number of other businesses that had a similar business model to Unlockd.¹⁵⁰

The example of Unlockd raises broader questions around digital platforms' role as effective 'regulators', given the gateway role of their own marketplaces. The ACCC will continue to take an ongoing interest in Google's setting and enforcement of its rules and its implications for competition.

The setting, interpreting and enforcing of rules or policies by digital platforms, including app marketplaces can have a substantial impact on a range of digital commerce. In some cases, rules may be unclear, overly broad or applied in an inconsistent manner, with limited avenues of appeal. Businesses whose products or services are not clearly within the terms and policies set, interpreted and enforced by digital platforms can face risks and uncertainties to their business. This process may lead to inefficient investment decisions and unduly restrict or prevent the emergence of alternative business models.

3.2. The app review process

App review is an important stage in the app development and distribution process for app developers and consumers, as it is an opportunity for Apple and Google to identify and address potential concerns with apps, such as user safety, inclusion of potentially harmful content and reliable app functionality.¹⁵¹

In its submission to the ACCC, Apple states that the app review process ensures 'the App Store remains a safe and trusted place for consumers to discover and download software for their Apple devices and to fairly compensate Apple for creating and operating the store.'¹⁵² The App Store Review Guidelines cover requirements for developers relating to safety, performance, business, design and legal considerations. Apple states that the guidelines are

¹⁴⁵ M Bailey, '[Murdoch-backed start-up Unlockd lets Wesfarmers offer Flybuys for looking at ads](#)', *The Australian Financial Review*, 21 August 2017, accessed 24 March 2021.

¹⁴⁶ C Kruger, '[Wesfarmers strikes deal with Unlockd for flybuys program](#)', *The Sydney Morning Herald*, 12 November 2018, accessed 24 March 2021.

¹⁴⁷ P Smith, '[How Unlockd fell apart following Google's threat to ban its apps](#)', *The Australian Financial Review*, 15 June 2018, accessed 24 March 2021; C Kruger, '[Start-up Unlockd puts off legal action in Australia against Google](#)', *The Sydney Morning Herald*, 31 October 2018, accessed 24 March 2021.

¹⁴⁸ P Smith, '[How Unlockd fell apart following Google's threat to ban its apps](#)', *The Australian Financial Review*, 15 June 2018, accessed 24 March 2021.

¹⁴⁹ P Smith, '[Unlockd wins first battle of Google legal war for survival](#)', *The Australian Financial Review*, 10 May 2018, accessed 24 March 2021.

¹⁵⁰ J Rogerson, '[Google has finally banned lock screen ads on Android](#)', *TechRadar*, 1 December 2017, accessed 24 March 2021.

¹⁵¹ Apple, [App Store Review Guidelines](#), 1 February 2021, accessed 24 March 2021; Google, [Developer Policy Center](#), accessed 24 March 2021.

¹⁵² Apple, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 2 October 2020, p 3.

designed to ensure app developers have the opportunity to be successful and to help them 'sail through the App Review process.'¹⁵³ The role of the app review process for protecting consumers is discussed further in chapter 6.

Similarly, Google's submission to the ACCC notes that its Developer Program policies and app review process ensures that consumers can access high quality apps in the Play Store.¹⁵⁴ Google goes further to say that '[a]ll of Google's policies are designed with users' and developers' interests in mind – they promote a safe and secure environment for all stakeholders.'¹⁵⁵ The Netherlands Authority for Consumers and Markets (ACM) found that 'Google pays more attention to the developers and their interests in their review guidelines', as compared to Apple, which they described as being more focused on the iOS user experience rather than the experience of app developers.¹⁵⁶

App developers rely upon access to the App Store and Play Store to reach consumers using mobile devices, and this means their apps must successfully pass Apple and Google's respective app review processes. In the event that an app is unable to meet the terms and conditions Apple or Google impose, app developers cannot reach users of iOS or the vast majority of Android devices respectively. Section 3.2.1 looks at the submission and review processes of the App Store and Play Store, and section 3.2.2 examines the range of views which have been expressed by app developers about the respective app review processes.

3.2.1. The App Store and Play Store app review processes

Apple has indicated that it reviews, on average, approximately 100,000 submissions for apps, including app updates, per week.¹⁵⁷ Apple uses a manual process to review apps to ensure they are compliant with the terms set out in the App Store Review Guidelines,¹⁵⁸ and the Apple Developer Program License Agreement.¹⁵⁹ Apple states that on average 50% of apps are reviewed in 24 hours and over 90% are reviewed within 48 hours after submission.¹⁶⁰ According to a report by CNBC regarding the app review process, an Apple reviewer may only take a few minutes to decide whether to accept, reject or hold an app. The report notes that those familiar with the Apple app review process consider that many apps are simple and can be reviewed in a short amount of time.¹⁶¹

In circumstances where an app may be rejected, the app developer is provided with an opportunity to resolve the issues with the app (as identified by Apple) and submit it again for review.¹⁶² Developers also have the opportunity to appeal the rejection of an app by providing further substantiating documents to an App Review Board.¹⁶³ In relation to the App Store, the ACCC understands that app developers follow the broad steps set out below in figure 3.1.

¹⁵³ Apple, [App Store Review Guidelines](#), 1 February 2021, accessed 24 March 2021.

¹⁵⁴ Google, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 19 October 2020, p 8.

¹⁵⁵ Google, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 19 October 2020, p 8.

¹⁵⁶ ACM, [Market study into mobile app stores](#), 11 April 2019, p 27.

¹⁵⁷ Apple, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 2 October 2020, p 12.

¹⁵⁸ Apple, [Resolve app rejection issues](#), *App Store Connect Help*, accessed 24 March 2021.

¹⁵⁹ See Apple, [Beta Testing Made Simple with TestFlight](#), *App Store Connect*, accessed 24 March 2021.

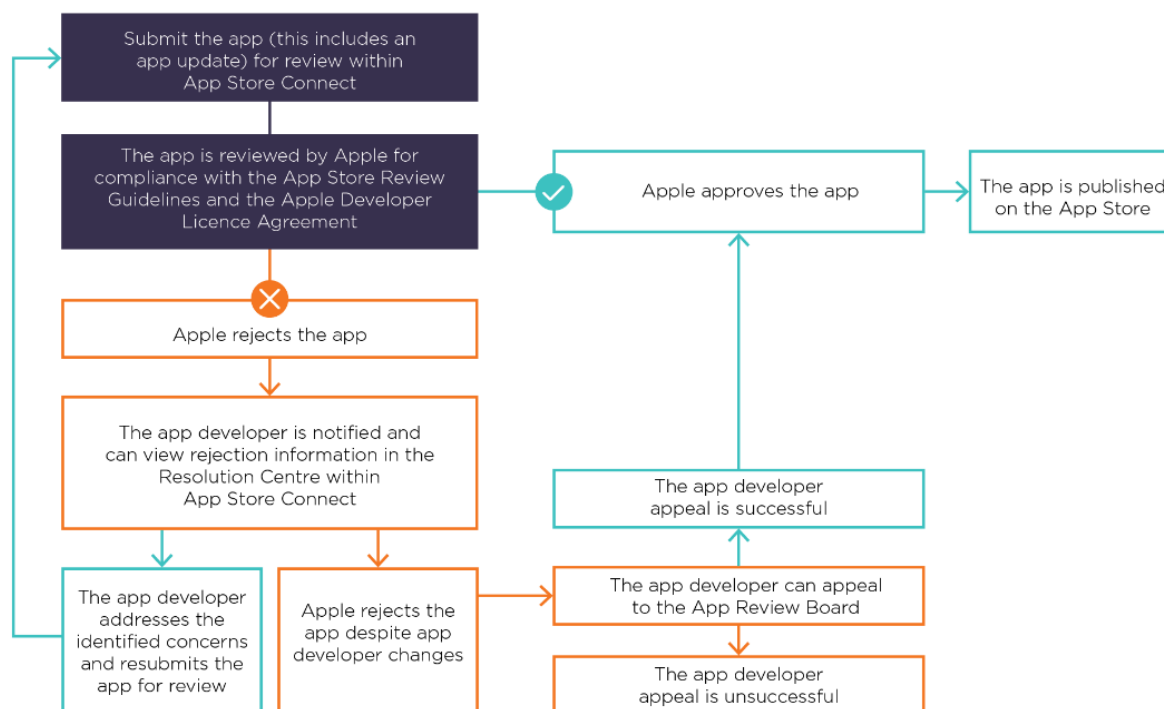
¹⁶⁰ Apple, [App Review](#), *App Store Developer*, accessed 24 March 2021.

¹⁶¹ K Leswing, '[Inside Apple's team that greenlights iPhone apps for the App Store](#)', *CNBC*, 22 June 2019, accessed 15 March 2021.

¹⁶² ACM, [Market study into mobile app stores](#), 11 April 2019, p 29.

¹⁶³ Apple, [App Review](#), *App Store Developer*, accessed 24 March 2021.

Figure 3.1: The App Store submission process¹⁶⁴



Google uses a combination of an automated process and manual review to screen apps and associated updates.¹⁶⁵ Google states that when assessing whether to approve or reject apps appearing on the Play Store, it considers a range of factors such as ‘a pattern of harmful behaviour or high risk of abuse’, which could be assessed by looking at ‘items such as app- and developer-specific complaints, news reporting, previous violation history, user feedback, and use of popular brands, characters, and other assets.’¹⁶⁶ The ACCC understands the app review process typically takes between 3 and 7 days.¹⁶⁷

Google submitted that where it finds an app that has breached the Developer Program Policies or Developer Distribution Agreement, Google will escalate the matter according to the enforcement process outlined on the Developer Program Policies Centre Page.¹⁶⁸ Google commits to provide app developers with written detailed information in the event of an app rejection, removal, suspension, or warning, to explain ‘why a decision was made, how you can modify your app to comply, and how to appeal’.¹⁶⁹ The ACCC understands that app developers follow the broad steps set out below in figure 3.2.

¹⁶⁴ Apple, [Beta Testing Made Simple with TestFlight](#), *App Store Connect*, accessed 24 March 2021; Apple, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 2 October 2020, pp 11–13; Apple, [App Review](#), *App Store Developer*, accessed 24 March 2021.

¹⁶⁵ ACM, [Market study into mobile app stores](#), 11 April 2019, p 29; E Kim, ‘[Creating Better User Experiences on Google Play](#)’, *Android Developers Blog*, 17 March 2015, accessed 24 March 2021; S Samat, ‘[Improving the update process with your feedback](#)’, *Android Developers Blog*, 15 April 2019, accessed 24 March 2021.

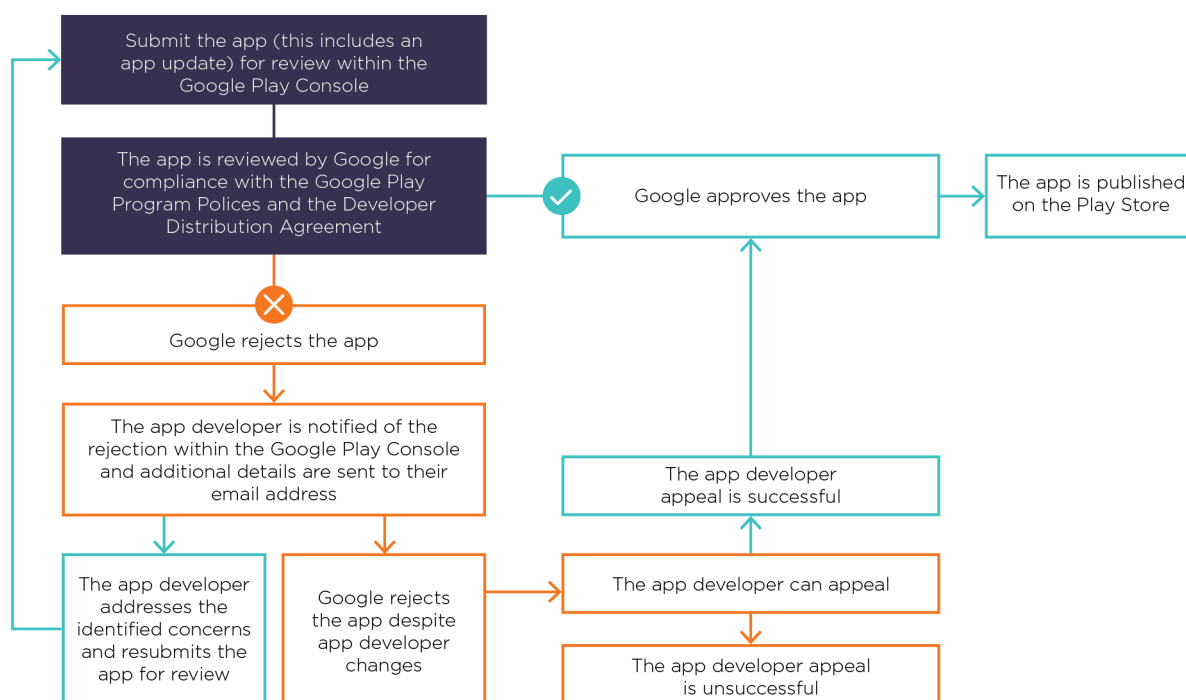
¹⁶⁶ Google, [Developer Program Policy](#), *Play Console Help*, 1 March 2021, accessed 24 March 2021, ‘Policy Coverage’.

¹⁶⁷ R Hager, ‘[Google Play Store app submission reviews may take 7 days or longer](#)’, 16 March 2020, accessed 24 March 2021; Google, [Publish your app](#), *Play Console Help*, accessed 24 March 2021.

¹⁶⁸ Google, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 19 October 2020, p 8.

¹⁶⁹ S Samat, ‘[Improving the update process with your feedback](#)’, *Android Developers Blog*, 15 April 2019, accessed 24 March 2021.

Figure 3.2: The Play Store submission process¹⁷⁰



3.2.2. Concerns raised by app developers about the app review process

This Report draws on the experience of a number of app developers with the app review process, as raised in submissions to the ACCC, the ACCC’s App Developer Questionnaire,¹⁷¹ in media reports and in overseas inquiries and reports.¹⁷²

The ACCC recognises that a review process and associated terms and conditions ensures that app marketplaces have appropriate protections in place for both consumers and app developers. The ACCC also acknowledges that, in some circumstances, delays, rejections or removals of an app may be valid and required. For example, this could be required when dealing with harmful, malicious or exploitative apps, which are discussed in chapter 6.

However, a number of app developers have expressed concerns and frustration with their experience of seeking approval for their app to be placed on an app marketplace. In particular, they raise concerns about the inconsistent interpretation and application of app review terms, communication during the review process, and the potential for preferential treatment by app marketplaces of first-party apps. These concerns are discussed further below.

Inconsistent interpretation and application of app review terms and conditions

In response to the ACCC’s App Developer Questionnaire, several app developers expressed confusion and frustration when it came to how Apple and Google interpreted and applied their respective guidelines.¹⁷³ One app developer in relation to the App Store review process stated that ‘[r]eviewers wield the rules inconsistently and often if your app is rejected you can

¹⁷⁰ Google, [Publish your app](#), *Play Console Help*, accessed 24 March 2021; Google, [Contact Google Play about an account termination or app removal](#), *Play Console Help*, accessed 24 March 2021.

¹⁷¹ ACCC, [App marketplaces report – App developer questionnaire](#), 27 November 2020.

¹⁷² 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; ACM, [Market study into mobile app stores](#), 11 April 2019; European Commission, [Competition Policy for the Digital Era](#), 20 May 2019.

¹⁷³ ACCC, [App marketplaces report – App developer questionnaire responses](#), 27 November 2020, responses 30, 62, 63.

just resubmit it and it will be reviewed by someone else and approved'.¹⁷⁴ In relation to Apple's review process, the Cofounder and Chief Technology Officer of Basecamp has commented that:

It's complete tyranny, the rules are often interpreted differently by different reviewers because they're intentionally left vague. So we live in constant fear we may have violated these vague rules, and that the next update to our applications will be blocked by Apple.¹⁷⁵

Phillip Shoemaker (Apple's former Senior Director of App Store Review) has also commented that app developers are not all treated the same and that App Store rules are often "arbitrary" and "arguable".¹⁷⁶

Similar concerns about the Play Store review process are raised by some third-party app developers, such as that Play Store policies and Google's enforcement of those policies is an 'opaque system'.¹⁷⁷ Another developer was quoted in the Netherlands ACM market study into mobile app stores as stating that 'the terms and conditions are long and broadly phrased, and, as such, it is difficult, if not impossible, to discern the reason for refusal'.¹⁷⁸ The ACCC has, at present, been informed of more concerns in relation to the App Store compared to the Play Store.¹⁷⁹

Third-party app developers have also expressed frustration with the inconsistency of the review process where certain features are delayed or rejected in their app submission despite these features or similar functionality having been approved in other apps. In these circumstances, app developers may be reluctant to develop new features, which may lead to a dampening of innovation and a loss of potential benefits for consumers.¹⁸⁰

Communications between app developers and Apple and Google during the app review process

App developers rely on being able to resolve concerns identified by Apple or Google quickly to ensure that they are able to distribute their apps to consumers. In the event that communication with Apple or Google is unclear, slow, generic or non-existent this can lead to delays and frustrations for app developers when trying to resolve their concerns.¹⁸¹

The Netherlands ACM market study into mobile app stores found that app developers can struggle to get in contact with Apple and Google, in particular 'when it concerns a discussion about the interpretation of the terms and conditions or a removal (unjustified or otherwise) of an app'.¹⁸² In relation to the Play Store, the *US House Report on Competition in Digital Markets* noted that app developers described the process of challenging a Play Store decision as 'navigating a black box' and one developer stated that they had 'tried for over a

¹⁷⁴ ACCC, [App marketplaces report – App developer questionnaire responses](#), 27 November 2020, response 62.

¹⁷⁵ 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 368.

¹⁷⁶ 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 371.

¹⁷⁷ 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 221.

¹⁷⁸ ACM, [Market study into mobile app stores](#), 11 April 2019, p 77.

¹⁷⁹ ACCC, [App marketplaces report – App developer questionnaire responses](#), 27 November 2020.

¹⁸⁰ Match Group, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 16 October 2020, p 17; REA Group, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 16 October 2020, pp 1, 6. The REA Group is a multinational advertising agency that has released 10 apps across Apple and Google's app marketplaces with over 10 million downloads in aggregate. REA's core business involves advertising properties on behalf of real estate agents and allowing property seekers to search for properties.

¹⁸¹ ACM, [Market study into mobile app stores](#), 11 April 2019, p 6.

¹⁸² ACM, [Market study into mobile app stores](#), 11 April 2019, p 107.

month through several channels to get a full explanation from Google of the problem and resolve it amicably. Google responded with silence, then roadblocks and runarounds.¹⁸³

In the event that app developers received feedback from Apple, a number have indicated that the feedback can be vague and lack specificity. They argue that this effectively means they face difficulties understanding why a violation has occurred and what can be done to resolve the alleged violations.¹⁸⁴ One app developer commented that Apple's feedback when an app is rejected is 'extremely generic' and only cites the paragraph in the guidelines, without explaining how the reviewer arrived at their decision.¹⁸⁵

Several app developers have also expressed concerns about how Apple communicates when it has issues with a developer's app. The ACCC understands that communications relating to the app review process tend to occur within App Store Connect.¹⁸⁶ Third-party app developers have indicated that within App Store Connect, prior approval information and communications with Apple cannot be exported and at times might be removed by Apple making it difficult to demonstrate a history of a developer's app being previously approved for the same or similar functionality as one that is rejected.¹⁸⁷

One app developer reported their experience as one where Apple raised concerns directly on the phone.¹⁸⁸ According to the same app developer:

When they want to remove your app from the store or force you to make controversial changes they call you on the phone. When asked they say their conversation cannot be quoted and is off the record, and they won't put anything into writing.¹⁸⁹

This can make it difficult for app developers to have a record of communication when trying to resolve concerns raised by Apple.

Whilst not raised as frequently, similar concerns are expressed in relation to the Play Store. Some developers have raised concerns that at times Google can provide vague reasons to explain app rejections or removal.¹⁹⁰ One developer commented that in the event of a violation of the Play Store terms:

...Google does not ever explain how, other than to quote the policy above and attach pictures of the allegedly violating image. When the imagery does not fit the above definitions, app publishers such as [third party app developers] are put in a position of having to guess how to apply these standards.¹⁹¹

However, there are some third-party app developers who report positive experiences with Apple and Google. In response to the ACCC's App Developer Questionnaire, some app developers submitted that the review process has identified legitimate issues with their app and the process is fast, clear and transparent.¹⁹² Others have referred to the importance of having a trusted source where consumers can access apps without having built that trust

¹⁸³ 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 222.

¹⁸⁴ ACCC, [App marketplaces report – App developer questionnaire responses](#), 27 November 2020, responses 16, 31, 37, 42, 63.

¹⁸⁵ ACCC, [App marketplaces report – App developer questionnaire responses](#), 27 November 2020, response 8.

¹⁸⁶ ACCC, [App marketplaces report – App developer questionnaire responses](#), 27 November 2020, response 61.

¹⁸⁷ ACCC, [App marketplaces report – App developer questionnaire responses](#), 27 November 2020, response 61.

¹⁸⁸ ACCC, [App marketplaces report – App developer questionnaire responses](#), 27 November 2020, response 8.

¹⁸⁹ ACCC, [App marketplaces report – App developer questionnaire responses](#), 27 November 2020, response 8.

¹⁹⁰ See, for example, [Google Play Help: Community](#), 8 April 2020, accessed 24 March 2021; [Google Play Help: Community](#), 26 April 2020, accessed 24 March 2021; R Hager, 'A DMCA failure: Play Store automated takedowns hit indie app "Always On Display AMOLED"', *Android Police*, 19 October 2018, accessed 24 March 2021.

¹⁹¹ 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 221.

¹⁹² ACCC, [App marketplaces report – App developer questionnaire responses](#), 27 November 2020, responses 49, 50.

with an app developer independently and how the app stores have made app distribution a lot easier for them.¹⁹³

Potential preferential treatment of first-party apps

Apple and Google not only control access to and distribution of apps in their respective app marketplaces, but they also produce their own first-party apps that may compete with similar third-party apps. This creates an opportunity for Apple and Google to use their app marketplace control to their advantage, and preference their own apps.

The European Commission's *Competition Policy for the Digital Era Report* identified this risk, stating that a dominant platform 'could design the rules (or apply them) in a way which allows it to engage in abusive self-preferencing'.¹⁹⁴ The report also stated that digital platforms that establish their own rules (as Apple and Google do with respect to their app marketplaces) have the capacity to act as 'regulators' and that:

...[B]ecause of their function as regulators - dominant platforms have a responsibility to ensure that their rules do not impede free, undistorted, and vigorous competition without objective justification. A dominant platform that sets up a marketplace must ensure a level playing field on this marketplace and must not use its rule-setting power to determine the outcome of the competition.¹⁹⁵

In the US, former Senior Director of App Review for Apple, Phillip Shoemaker, explained to the US Subcommittee investigation that apps which compete against Apple's services often have trouble getting through the review process.¹⁹⁶ In its submission to the ACCC, Microsoft raised concerns about Apple's restriction of cloud game streaming apps through its App Store Review Guidelines and its subsequent launch of its own subscription gaming service. The details of these concerns and the potential effects on competition are discussed in box 3.2.

Box 3.2: Apple's restriction of cloud game streaming apps

Gaming apps are a significant source of net revenue in the Apple App Store. 'In 2018, approximately 71% of spend in the Apple App Store was generated in connection with games', representing approximately USD33.2 billion globally.¹⁹⁷ According to Sensor Tower, in Australia, net revenue from gaming apps for the iPhone increased by approximately USD23 million (approximately 6%) from USD349 million in 2018 to USD372 million in 2019.¹⁹⁸

Cloud game streaming services allow users to browse, select and play games from the cloud rather than having to download individual games to a user's device.¹⁹⁹ Microsoft describes its game streaming service, Xbox Game Pass, as enabling gamers to experience a "Netflix-like" streamed gaming experience' as it presents a catalogue of available games that can be streamed and played.²⁰⁰

In September 2019, Apple launched its own subscription gaming service called Apple Arcade, which has its own tab in the App Store and allows users to download and play games on their

¹⁹³ ACCC, [App marketplaces report – App developer questionnaire responses](#), 27 November 2020, responses 4, 6, 13.

¹⁹⁴ European Commission, [Competition Policy for the Digital Era](#), 20 May 2019, p 6.

¹⁹⁵ European Commission, [Competition Policy for the Digital Era](#), 20 May 2019, p 6.

¹⁹⁶ 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 372.

¹⁹⁷ Microsoft, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 16 October 2020, p 3.

¹⁹⁸ Sensor Tower data indicates that for the games category (for iPhones and iPads), Apple's net revenue in 2018 was USD348,590,742 and in 2019 it increased to USD372,469,286. Sensor Tower provides net revenue figures in US dollars and uses daily spot rates (from [Open Exchange Rates](#)) to convert local currency to USD.

¹⁹⁹ Microsoft, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 16 October 2020, p 2.

²⁰⁰ Microsoft, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 16 October 2020, p 2.

devices for a monthly-all-inclusive fee.²⁰¹ Prior to and during the time when Apple launched Apple Arcade, game streaming apps (such as Xbox Game Pass) were not allowed on the App Store. In its submission to the ACCC, Microsoft stated that '[n]o other third-party game or gaming subscription service benefits from similar preferential and advantageous treatment in the App Store' as Apple Arcade does.²⁰²

While Apple Arcade is not a game streaming service itself as users must download and install each game in order to play on their device, it arguably competes with game streaming services such as Microsoft's Xbox Game Pass,²⁰³ and Google Stadia.²⁰⁴

Microsoft stated that the 'rules and policies of Apple's App Store have blocked Microsoft and other cloud game streaming providers from offering game streaming apps to consumers on iOS devices.'²⁰⁵ This is because Apple's App Store Review Guidelines require each streaming game to be 'submitted to the App Store as an individual app so that it has an App Store product page, appears in charts and search, has user ratings and review...' and that each game can be reviewed by Apple.²⁰⁶

Microsoft stated that its Xbox Game Pass streaming service is no different to that which exists for music (for example, Spotify) and television or movies (for example, Netflix). Microsoft asserts that in these situations, Apple does not require that each individual movie or song be submitted as a separate app. It also noted that Apple has not outlined any technical reason that streamed games should be treated differently than other types of streamed content, stating only that it wants to review each game individually.²⁰⁷

Microsoft claims the App Store policy prevents alternatives to the App Store's traditional 'download to play' model for gaming apps, which prevents 'the core innovations that make cloud game streaming attractive to consumers.'²⁰⁸ Given Apple's position as the interpreter and enforcer of App Store rules, there is an opportunity for Apple to ensure that users continue to use apps and services that are App Store-based as opposed to switching to potentially emerging alternative means of access such as cloud-based streaming for games.

There does not appear to be a similar restriction in the Play Store as Microsoft is currently testing its cloud gaming service (Project xCloud) in Australia on Android mobile phones and tablets, where users can stream games from the cloud to play on their device.²⁰⁹

Figure 3.3: Example of Microsoft's cloud gaming streaming service²¹⁰



²⁰¹ J Clover, 'Apple Arcade: The Complete Guide', *MacRumors*, 3 February 2020, accessed 24 March 2021; Apple, [Apple Arcade](#), accessed 24 March 2021.

²⁰² Microsoft, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 16 October 2020, p 4.

²⁰³ Microsoft, [Xbox Game Pass](#), accessed 24 March 2021.

²⁰⁴ Google, [Stadia](#), accessed 24 March 2021.

²⁰⁵ Microsoft, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 16 October 2020, p 5.

²⁰⁶ Apple, [App Store Review Guidelines](#), 1 February 2021, accessed 24 March 2021, para 4.9.1.

²⁰⁷ Microsoft, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 16 October 2020, p 6.

²⁰⁸ Microsoft, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 16 October 2020, p 6.

²⁰⁹ Microsoft, [Project XCloud \(Preview\)](#), accessed 24 March 2021.

²¹⁰ Microsoft, [Project XCloud \(Preview\)](#), accessed 24 March 2021.

This Report explores other instances of self-preferencing behaviour. For example, the next section (section 3.3) examines the extent to which Apple may seek to limit third-party access to certain functionality to protect its own first-party apps. In addition, chapter 5 examines the discoverability and display of apps, including the extent to which Apple's own apps may be treated more favourably by the App Store search algorithm and the effect of pre-installing Apple and Google's own apps on devices.

There is an opportunity for Apple and Google to do more to resolve concerns with the app review process

The ACCC considers that given the range of concerns expressed by app developers, there may be an opportunity for both Apple and Google to improve how they interpret and enforce terms and conditions during their respective app review processes. This includes their respective approaches when communicating with app developers, for example, the extent to which information provided to app developers is constructive and allows app developers to understand and address Apple and Google's concerns.

The ACCC continues to support the *DPI Final Report* recommendations regarding establishing effective internal dispute resolution mechanisms (recommendation 22) and introducing external oversight of the digital platforms to resolve complaints between platforms and businesses and platforms and consumers via an ombudsman scheme (recommendation 23).²¹¹ These recommendations were recommended to cover complaints or disputes from businesses and complaints or disputes from consumers including in relation to scams and the removal of scam content. These proposals may assist in the context of concerns raised in relation to app marketplaces, as they could help ensure Apple and Google address concerns raised by third-party app developers about the app review process.

Further, the ACCC's *DPI Final Report* recognised issues relating to risks of self-preferencing and other potential anti-competitive conduct in the context of online advertising.²¹² The ACCC will continue to proactively monitor and investigate instances of potentially anti-competitive conduct (including self-preferencing in relation to app marketplaces) and where appropriate this may include taking enforcement action.²¹³

At this stage in the DPSI, the ACCC will continue to monitor and explore self-preferencing allegations. The ACCC is also considering the broader issues that arise when digital platforms occupy critical gatekeeper roles and at the same time compete with those businesses that rely on access to the gatekeeper platform. As part of this process, the ACCC is considering both the extent of these concerns and the solutions being put forward overseas, including recent amendments to the German Competition Act as well as proposals by the CMA and the European Commission.²¹⁴

²¹¹ ACCC, [Digital Platforms Inquiry Final Report](#), 26 July 2019, p 37.

²¹² ACCC, [Digital Platforms Inquiry Final Report](#), 26 July 2019, p 12.

²¹³ ACCC, [Digital Platforms Inquiry Final Report](#), 26 July 2019, p 31.

²¹⁴ P Bongartz, 'Happy New GWB!', *D'Kart Antitrust Blog*, 14 January 2021, accessed 24 March 2021. European Commission, [Statement by Executive Vice-President Vestager on the Commission proposal on new rules for digital platforms](#), 15 December 2020, accessed 24 March 2021. CMA, [A new pro-competition regime for digital markets: Advice of the Digital Markets Taskforce](#), 8 December 2020.

3.3. Access to device and operating system functionality drives innovation and consumer choice in downstream markets for apps

To enable third-party app developers to build apps for iOS and Android, Apple and Google each provide developers with access to functions of their respective operating systems and device hardware, such as through access to application programming interfaces (APIs) as outlined in box 3.3.

Box 3.3: What are APIs?

APIs enable third-party app developers to interact with the operating system, device hardware, data, and other applications and services of a mobile device, for example, to design and supply mobile apps. Some APIs are essential inputs to mobile apps and are required in order for apps to have basic functionality. For example:

- a camera API enables an app to interact with the camera in a mobile phone to take photos
- a Bluetooth API enables developers to create a mobile app that interacts with a consumer's other devices such as smart watches, headphones, and speakers
- a gestures API enables mobile apps to easily detect and respond to common gestures, such as a user scrolling or swiping on their smartphone screen.

The opening of functionality to third-party app developers has led to the creation of many novel and useful third-party apps for consumers. Apple and Google both offer third-party developers access to a significant number of APIs and functionality to support the creation of vibrant downstream markets for apps.

However, given both Apple and Google set the terms governing access to aspects of the functionality of their devices and/or operating systems, they may be able to use those terms to their advantage. This could lead to negative outcomes for consumers in the event that access is unfairly restricted or denied, due to a dampening of competition and innovation.

As discussed above, the ability of Apple and Google to self-preference is the subject of concern by overseas authorities. In addition to the European Commission's proposed Digital Markets Act,²¹⁵ proposals by the CMA also seek to address the risk of self-preferencing by vertically integrated digital platforms as well as unfair commercial practices.²¹⁶ Further, in January 2021, Germany's competition law was amended to prevent particular platforms that are deemed to be of 'paramount significance for competition across markets' from engaging in certain conduct including self-preferencing behaviour.²¹⁷

3.3.1. Apple may seek to limit third-party access to protect its own apps

Apple, in particular, as the sole device manufacturer and operating system provider for the iOS ecosystem, currently has complete discretion over when and how it opens its systems to third parties. While Apple recognises that the success of its business 'depends on a vibrant

²¹⁵ European Commission, [Statement by Executive Vice-President Vestager on the Commission proposal on new rules for digital platforms](#), 15 December 2020, accessed 24 March 2021; European Commission, [Proposal for a Regulation of the European Parliament and of the Council on contestable and fair markets in the digital sector \(Digital Markets Act\)](#), 15 December 2020.

²¹⁶ In the UK, if Apple and Google are found to have strategic market status in relation to their respective app marketplaces, they could be required to act in accordance with a Code of Conduct based on the objectives of 'fair trading', 'open choices' and 'trust and transparency'. See CMA, [A new pro-competition regime for digital markets: Advice of the Digital Markets Taskforce](#), 8 December 2020, p 36.

²¹⁷ See D'Kart, [German Act against Restraints of Competition \(Unofficial translation\)](#), 14 January 2021, pp 3–4.

offering of popular and innovative third-party apps',²¹⁸ it also notes the need to balance access with the security and privacy of its users.²¹⁹ However, as discussed below, this rationale may be used to justify potential self-preferencing behaviour.

In contrast, Android is an open source operating system, which means that in general third-party developers do not need to be granted access to certain functionality in the same way they do for iOS.

Some app developers have expressed frustrations with Apple delaying or denying access to certain functionality for third-party apps, and in some cases, limiting this functionality to first-party apps. Two examples of the potential impact of such behaviour on competition in downstream app markets are discussed in box 3.4.

²¹⁸ Apple, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 2 October 2020, p 2.

²¹⁹ Apple, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 2 October 2020, p 2.

Box 3.4: Apple's ability to restrict access to functionality for third-party app developers

Near field communication (NFC)

NFC allows devices within a few centimeters of each other to exchange data wirelessly, and is used, amongst other things, to facilitate 'tap-and-go' (contactless) payments through an app on a mobile device.²²⁰

Since 2013, Android has supported third-party use of NFC functionality on enabled devices, allowing consumers to use 'tap-and-go' payments on Google Pay and Samsung Pay, for example.²²¹

In contrast, while Apple has gradually rolled out various aspects of NFC functionality to third-party developers, it continues to reserve some aspects, such as 'tap-and-go' payment functionality for its own Apple Pay app.²²² Apple has stated that it limits this access to protect the security of the iPhone.²²³ Similar issues do not appear to exist with Android devices.²²⁴

By reserving functionality in this way, Apple is able to differentiate its own app (Apple Pay) to attract users and may limit the potential competitive constraint of existing and potential rivals due to these product differences. For example, iOS users in India are able to install Google Pay on their iPhone, but they are not able to use 'tap-and-pay' for in-store transactions (whereas they can use this feature on Apple Pay).

This conduct extends across international markets, and has been noted in the *US House Report on Competition in Digital Markets*, which identified that Apple is able to preference its own services by reserving access to APIs and certain device functionalities for itself, such as in regards to Apple Pay.²²⁵

Further, in 2020, the European Commission,²²⁶ and the Netherlands ACM,²²⁷ both launched investigations into payment apps' access to NFC functionality. Executive Vice-President Vestager noted that '[i]t is important that Apple's measures do not deny consumers the benefits of new payment technologies, including better choice, quality, innovation and competitive prices.'²²⁸

Ultra wideband (UWB)

UWB is considered the 'next-step' from Bluetooth and facilitates accurate, short-range proximity tracking (including better spatial awareness) and data transfer.

Apple was the first to include this technology in a smartphone with the iPhone 11 in 2019. From June 2020, Apple provided third-party developer access to UWB to use in apps that share the users' physical position or location with another UWB-enabled iPhone device.²²⁹

However, Apple has declined to provide third-party access to additional functionality, for example, allowing the iPhone device to communicate with a non-iPhone device that uses UWB technology, such as through a tracking key tag.²³⁰ This functionality could enable an app to communicate with tracking devices placed on objects such as keys, remote controls and hand bags to make them easier to find. There are a number of existing device tracking apps and tags available to consumers that use Bluetooth such as 'Tile'.

Apple is reportedly planning to use UWB in a new product 'Air Tags',²³¹ which will work with its existing 'Find My' app.²³²

There are also a wider array of potential use cases for UWB technology, such as for the Internet of Things.²³³ As such, limiting third-party app developers' access to this technology (and other emerging technologies) could have wider consequences for future innovation and reduce the potential benefits for consumers and products available.²³⁴

²²⁰ NFC has many applications and uses. For example, apps running on supported devices can use NFC scanning to read data from electronic tags attached to real-world objects. For instance, a user can scan a toy to connect it with a video game, a shopper can scan an in-store sign to access coupons, or a retail employee can scan products to track inventory. One function enabled by NFC is known as 'card emulation' which allows mobile apps to act as a payment, transport or access card, for example, and facilitate contactless transactions without the need to use a physical card. See Android

Apple may be able to foreclose potential future rival apps by denying access to certain functions, or benefit from time to test the market before releasing access to third-party app developers. Developers may also have less incentive to invest in research and development for an app that uses a new iOS or hardware feature if they perceive a risk that Apple will limit or frustrate access, which may result in less innovation in downstream markets. These outcomes may lead to poor outcomes for consumers such as lower quality apps, restricted choice of apps (if Apple is the only option), and fewer innovative new apps.

The ACCC recognises there are risks associated with releasing functionality to third parties in certain circumstances. For example, before the technology is ready for broader distribution, or where there are security or privacy concerns. Where there are legitimate privacy or security concerns with allowing access to certain functionality, these issues should be clearly and timely communicated to third-party developers, including detailed reasons why Apple apps may have access to functionality that is restricted to third parties, to avoid potential misunderstandings.

3.3.2. Google maintains control over Android despite its open-source model

Google's self-stated goal for Android is to 'avoid any central point of failure in which one industry player can restrict or control the innovations of any other player'.²³⁵ Google also states that Android's 'open-source model encourages innovation by giving device makers

Developers, [Host-based card emulation overview](#), 27 December 2019, accessed 24 March 2021; Apple, [Human Interface Guidelines: Near Field Communication](#), *Apple Developer*, accessed 24 March 2021.

²²¹ Reserve Bank of Australia, [Review of Retail Payments Regulation – Issues Paper](#), November 2019.

²²² Apple first released NFC in the iPhone 6 in 2014 and restricted its use to the Apple Pay app. Third-party apps were given some access over time, including NFC 'read' access for third-party apps (on iPhone 7 devices and above) from 2017 in iOS11 and NFC 'write' access from 2019 in iOS13. A consumer may have a Google Pay app on their iPhone, but they cannot use the 'tap-and-go' feature that uses NFC for contactless payments in store.

²²³ 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 355.

²²⁴ S McKeith, ['Google's Tap-And-Go 'Android Pay' Is Now Available In Australia'](#), *HuffPost*, 15 July 2016, accessed 24 March 2021.

²²⁵ 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 354.

²²⁶ European Commission, [Antitrust: Commission opens investigation into Apple practices regarding Apple Pay](#), 16 June 2020, accessed 24 March 2021.

²²⁷ ACM, [ACM launches an investigation into users' freedom of choice regarding payment apps on smartphones](#), 4 December 2020, accessed 24 March 2021.

²²⁸ European Commission, [Antitrust: Commission opens investigation into Apple practices regarding Apple Pay](#), 16 June 2020, accessed 24 March 2021.

²²⁹ S Warwick, ['iOS 14: Developers can now take advantage of the U1 chip thanks to new 'Nearby Interaction' framework'](#), *iMore*, 24 June 2020, accessed 24 March 2021.

²³⁰ Tile, [Responses to Questions for the record from Kristen Daru with Tile](#), *House Committee on the Judiciary*, 30 March 2020, p 24.

²³¹ D Lumb and M Swider, ['Apple AirTags release date, price and how it'll compare to Tile'](#), *TechRadar*, 13 November 2020, accessed 24 March 2021.

²³² J Rossignol, ['Kuo: 'Apple Tags' to Feature Ultra-Wideband Technology, Likely Far More Precise Than Tile's Trackers'](#), *MacRumors*, 6 September 2019, accessed 24 March 2021. This has been followed up with consistent articles. See, for example, I Campbell, ['Tile is prepping an AirTags competitor that could let you find lost items through walls'](#), *The Verge*, 5 January 2021, accessed 24 March 2021; B Mayo, ['Kuo: Ultra-wide band chip production ramp predicts Q3 2020 launch for Apple AirTags'](#), *9to5Mac*, 18 February 2020, accessed 24 March 2021.

²³³ L Mearian, ['Ultra Wideband \(UWB\) explained \(and why it's in the iPhone 11\)'](#), *Computerworld*, 31 December 2019, accessed 24 March 2021.

²³⁴ Reports in November 2020 indicated that Google would add a UWB API to Android. See, for example, D Lee, ['Google embraces the future with Ultra-Wideband APIs for Android'](#), *Android Central*, 11 November 2020, accessed 24 March 2021. However, recent reports have emerged that suggest that access to UWB will be limited to pre-installed system applications at this stage and remain inaccessible to third-party apps. See K Vyas, ['Google has added an Ultra-wideband \(UWB\) API in Android'](#), *XDA Developers*, 25 January 2021, accessed 24 March 2021.

²³⁵ Google, [Android is for everyone](#), *Android*, accessed 24 March 2021.

the freedom to customize their phones and the Android OS ... so consumers get more choices when it comes to devices and apps.²³⁶

Although Android is an open-source operating system, third-party developers may still require access to certain APIs or functionality in order to build their apps. This affords Google some control over third-party access to the operating system.

For example, Google offers third-party app developers proprietary APIs through Google Play Services,²³⁷ which 'keep apps updated and running smoothly on Android devices'.²³⁸ Google Play Services connects third-party apps to Google Services like Google Sign-In and Google Maps and enables push notifications and in-app purchases through the Play Store. The Google Maps Android API, for example, allows apps to include Google Maps or Street View without the need to open a separate application, allowing full control over the camera and providing a means of adding custom markers and map overlays.²³⁹ Without these APIs, an app may not function properly without expensive and time consuming reprogramming.

Google notes the distinction between APIs used for Android apps, and Google Play Services, being that:

... Android APIs are the interfaces of the Android Operating System that enable access to Android hardware and device system services. Google Play Services is a bundle of system software that extends the usefulness and lifecycle of Android devices. Its purpose is to facilitate high quality functionality on Android devices by providing a rich API surface for developers and out-of-the-box functionality for users.²⁴⁰

However, some APIs or superior APIs may only be offered through Google Play Services rather than made available for free on Android. Google also has the ability to remove aspects of the Android open source code and incorporate this into the 'closed-source' Google ecosystem (in this case some apps will only function when Google Play Services is available). In these ways, Google is able to control access to functionality of the operating system to an extent, in a similar way to Apple with iOS.²⁴¹

Functions that consumers associate with an Android device, may actually be offered by a Google service (and Google API) that runs on top of Android, rather than being freely available due to the open-source operating system of Android itself. Consequently, while in theory third-party developers have access to an open operating system, there may be some functionality that is integral to their user experience for their app that is provided directly by Google.

²³⁶ Google, [Android is for everyone](#), *Android*, accessed 24 March 2021.

²³⁷ Google Play Services is part of the proprietary Google layer that falls within the Mobile Application Distribution Agreement that Google requires device manufacturers to sign in order to pre-install Google Mobile Services. Google Mobile Services includes the Google Play Store app, Google apps such as Chrome, YouTube and Google Maps and Google Play Services APIs.

²³⁸ Google, [Keep your device & apps working with Google Play Services](#), *Google Play Help*, accessed 24 March 2021. The Google Maps Android API, for example, allows apps to include Google Maps or Street View without the need to open a separate application, allowing full control over the camera and providing a means of adding custom markers and map overlays. See Android Developers, [Add maps](#), 27 December 2019, accessed 24 March 2021.

²³⁹ Google, [Keep your device & apps working with Google Play Services](#), *Google Play Help*, accessed 24 March 2021; Android Developers, [Add maps](#), 27 December 2019, accessed 24 March 2021.

²⁴⁰ Information provided to the ACCC.

²⁴¹ R Amadeo, [Google's iron grip on Android: Controlling open source by any means necessary](#), *Ars Technica*, 21 July 2018, accessed 24 March 2021.

While there is a risk that third-party app developers may become increasingly dependent on Google if the app functionality that they can offer is only available through proprietary APIs, (as opposed to being available through open-source Android),²⁴² the ACCC has not, at present, been informed of significant developer concerns about how Google provides access to Android and proprietary APIs.

²⁴² See *US Department of Justice v Google LLC*, [Complaint filed in the US District Court for the District of Columbia](#), 20 October 2020, pp 24–25, para 75.

4. Terms relating to app payments

- Apple and Google's respective control over the App Store and Play Store enables each of them to impose terms that prevent app developers from using alternative payment systems.
- The commission applied on in-app payments is a key way in which Apple and Google recover the costs of creating and maintaining their app marketplaces, and generating profit. The in-app payments systems operated by Apple and Google are the mechanism by which they monitor in-app payments and determine and recover the commission.
- It is highly likely that the commission rates charged by Apple and Google are inflated by the market power they have in their dealings with app developers. It is also highly likely that this market power enables Apple and Google to unilaterally set and enforce the rules that app developers must satisfy, including the requirement that prevents them using alternative payment systems in-app.
- Assessing the degree to which commission rates are inflated by Apple and Google's market power is difficult, owing to the complex interrelated nature of the platforms' ecosystems. Each app marketplace and its associated commission structure is one element within the ecosystem and must be considered in that context.
- The ways in which Apple and Google's respective requirements for app developers to use in-app payment systems are applied by each app marketplace may affect downstream competition between apps that are subject to the requirement and apps that are not. It may also affect competition between certain categories of apps.
- Restrictions that prevent app developers from informing consumers about alternative payment systems outside of the app mean consumers are not fully informed about the payment options available, including possibly cheaper options. Fully informed consumers would enable consumer choice as to which payment system they prefer, as well as access to potentially better prices. These restrictions also limit the business models available to app developers.

This chapter is structured as follows:

- **Section 4.1** outlines the payment systems in place for the App Store and Play Store.
- **Section 4.2** considers the requirement in Apple and Google's developer agreements for certain apps to use the marketplace's in-app payment systems, and the related requirement that a commission is paid on transactions made using those in-app payment systems.
- **Section 4.3** looks at the restrictions in Apple and Google's developer agreements on developers informing consumers about alternative payment options.

4.1. Setting the scene

4.1.1. Making payments on the app marketplaces

As discussed in chapter 1, there are a number of business models used by app developers to monetise apps. Some apps are 'paid apps', requiring an upfront payment for download and use. Other apps generate revenue from in-app advertising. Others are free to download and use, but offer consumers additional features via 'in-app payments' (IAP) – it is these types of apps which are the focus of this chapter. Though the focus is on in-app payments, the findings and analysis will also largely apply to paid apps.

Box 4.1: What is an in-app payment?

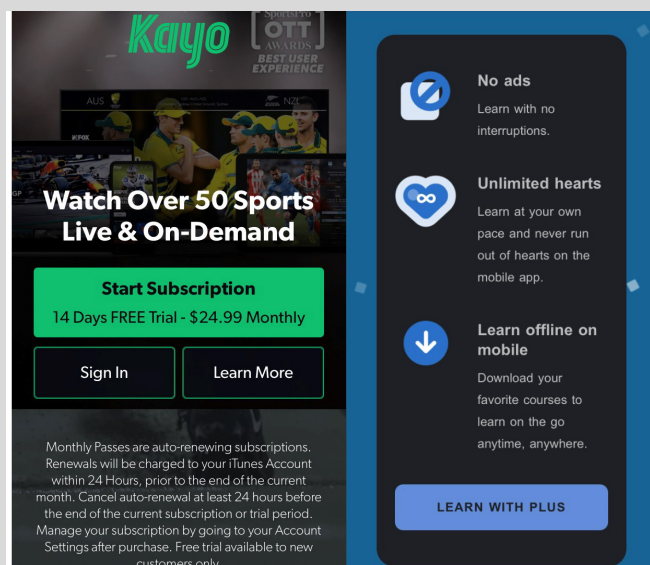
Some apps offer additional features, functionality or content in exchange for a payment from consumers. This payment could be a one-off, or require a payment for ongoing access, on a subscription basis.

Examples of a one-off purchase include buying additional lives, coins or levels in a game. Ongoing payments could include the removal of ads, and subscriptions to music or video streaming services, newspaper articles, or a dating service.

Other apps offer users the ability to purchase goods or services to use in the real world, such as buying clothing or booking appointments.

Some examples of products and services offered in-apps are in figure 4.1.

Figure 4.1: Kayo and Duolingo screenshots taken by ACCC – as at 31 January 2021



These types of developer business models are a key part of how Apple and Google make money on their app marketplaces. Both Apple and Google have terms in place to stipulate how app developers use in-app payments if they wish to distribute their apps through the App Store or the Play Store respectively.²⁴³ These are discussed below.

4.1.2. Terms around in-app payments form part of Apple and Google's respective relationships with developers

As discussed in chapter 3, Apple and Google each impose a variety of terms on app developers seeking to place their apps on the app marketplaces, including terms and conditions relating to in-app payments.²⁴⁴ Both app marketplaces require that:

- certain in-app payments must be made using the marketplaces' respective in-app payment system
- payments made using the marketplaces' respective in-app payment system are subject to a commission.

Figure 4.2: In-app payments subject to Apple or Google's commission



Apple and Google's respective terms and conditions and how they are applied are discussed at section 4.2.

Apple and Google also place restrictions on app developers informing consumers about alternative payment options outside an app. This is discussed at section 4.3.

Whilst there are similarities between Apple and Google's terms relating to in-app payments, there are substantive difference between the two. Where relevant, these differences are noted in the subsequent sections.

²⁴³ Sometimes the entity writing the code for the app (the developer) is also the app provider (the entity actually publishing or providing the app on the app marketplace). However, this is not always the case as some app providers get a third-party developer to write the app code. Here we have used a common shorthand to refer to app providers as app developers, even if strictly not all of them are developers.

²⁴⁴ In this chapter, 'terms and conditions' refers to the following documents: Apple's [App Store Review Guidelines](#), specifically the terms contained under section 3 ('Business'), and Google's [Payments Policy](#).

Box 4.2: Apple and Google’s explanation for in-app payment requirements

Apple and Google have both made a number of arguments regarding their rationale for limiting in-app payments to their own payment systems:²⁴⁵

- Consumer protection – a single, app marketplace-run payment system provides the security, valued by consumers, which would be compromised if third-party payment systems were allowed.
- Value to app developers – the payments from in-app payments are for the services app marketplaces offer in totality, rather than just a payment processing fee (which is how a number of app developers regard it).²⁴⁶ Apple and Google provide app developers with tools and support to develop apps, and the marketplace provides a means by which app developers can reach and distribute to a large market.

Apple and Google have also stated that their respective IAP systems are efficient mechanisms for them to recoup their investment in their respective app marketplaces. This is discussed further in box 4.3.

4.1.3. In-app payments are part of Apple and Google’s respective business models

As discussed in chapter 2, mobile operating systems are multi-sided platforms: three-sided for the Android operating system and two-sided for the Apple operating system.²⁴⁷ These platforms have multiple revenue sources resulting from different prices for different products offered on the multiple sides of the platform. In relation to app developers, both Apple and Google source revenue through:

- charging app developers a commission on paid downloads and on some in-app payments; and
- charging app developers to distribute apps:²⁴⁸
 - Apple charges developers a yearly fee of USD99 for membership in its Developer Program. As at June 2018, there were 20 million registered developers on iOS,²⁴⁹ giving a revenue estimate from developer fees of around USD2 billion annually.
 - Google charges developers a one-time USD25 registration fee to enter into the Google Play Developer Distribution Agreement, appointing Google as its agent or service provider to distribute its apps.²⁵⁰

²⁴⁵ Apple, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 2 October 2020, pp 8, 10; Google, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 19 October 2020, p 9.

²⁴⁶ Nine, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 16 October 2020, p 5; Match Group, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 16 October 2020, p 9; ACCC, [App marketplaces report – App developer questionnaire responses](#), 27 November 2020, responses 9, 21, 53, 64.

²⁴⁷ As discussed in chapter 2, in the case of the Android OS, the 3 sides interact with each other as follows:

- Manufacturers of devices, using the OS as a component of the devices they manufacture.
- Consumers of devices, where the OS acts as a ‘controller’ between software they want to use (mostly apps) and the device.
- App developers, using the OS as a way to access consumers seeking extra software for their device.

In the case of the Apple iOS, device consumers and app developers are the 2 sides.

²⁴⁸ Apple, [Purchase and Activation](#), *Apple Support*, accessed 24 March 2021; Google, [How to use Play Console](#), *Play Console Help*, accessed 24 March 2021.

²⁴⁹ Apple, [WWDC 2018 Keynote – Apple](#), *YouTube*, 6 June 2018, accessed 24 March 2021, minutes 0:05:06 to 0:05:17. Apple provides members with an assortment of software tools to build, test and distribute their apps on Apple’s iOS for iPhones and iPadOS for iPads, watchOS, macOS and tvOS. Without these tools, developers have no effective way to build apps that will work on iOS.

²⁵⁰ Google, [How to use Play Console](#), *Play Console Help*, accessed 24 March 2021.

In addition, Apple also raises revenue by charging app developers to advertise via its Search Ads program. For a fee, developers can buy specific keywords for placing Search Ads at the top of Apple App Store search results, highlighted with a blue tint and 'Ad' marker. This program was expected to generate USD2 billion in 2020.²⁵¹

From a non-developer perspective, Google's contractual arrangements with original equipment manufacturers (OEMs) links access to the Google Play Store to the installation of other apps such as Google Search and Google Chrome. These in turn increase consumer engagement with Google Search, where Google earns advertising revenue, and generates user data for better targeted display ads.

The commission applied to in-app payments is a key way in which Apple and Google recover costs and generate profit from their app marketplaces and possibly from their mobile ecosystem more broadly.

Box 4.3: Apple and Google's rationale for the commission

Apple and Google both indicate that the commission is intended to cover the cost of providing app marketplace services. The requirement for using the marketplaces' IAP systems is the mechanism enabling each of Apple and Google to monitor transactions, and to track and enforce the commission payment.

- Apple states that the imposition of its IAP requirements allows it to collect a commission, which is how it recoups costs for providing the App Store and realise a return on investment, including for the services it provides (including app development tools, intellectual property, app review, and marketing services);²⁵² and that without its IAP system, it would be practically impossible to collect Apple's commission.²⁵³
- Google states that other fee models may significantly harm certain developers and deprive them of the many benefits of the current system. For instance, a flat rate fee would negatively impact developers of free or cheaper apps. Similarly, a hosting fee, or a fee for each service Google offers on the Play Store, would disproportionately impact developers that are struggling to attract users.²⁵⁴

The targeted nature of this commission recovery mechanism, affecting only a proportion of apps, means consumers and the majority of app developers are able to benefit from the app marketplaces' services without being subject to the commission.

The ACCC considers that the requirement to use app marketplace IAP systems (discussed in 4.2) and the level of the commission are interlinked.

²⁵¹ L Feiner, '[Apple's App Store ads could be a \\$2 billion business by 2020, Bernstein analyst predicts](#)', *CNBC*, 22 October 2018, accessed 24 March 2021.

²⁵² Apple, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 2 October 2020, p 8.

²⁵³ Apple, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 2 October 2020, p 10.

²⁵⁴ Google, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 19 October 2020, p 9.

4.2. The application and enforcement of Apple and Google's IAP requirements

4.2.1. Apple and Google's requirements that certain in-app payments are made using their respective IAP systems

As set out above, Apple and Google require the use of their respective IAP systems for certain payments made within apps.

The requirements to use Apple and Google's respective IAP systems does not apply to all apps.²⁵⁵ Apple states that less than 16% of apps on the App Store are subject to its IAP requirement.²⁵⁶ Google has not publicly stated the number of apps affected by its requirement but states that less than 3% of developers with apps on the Play Store are subject to this requirement.²⁵⁷ Other estimates indicate around 18% of active apps on the App Store,²⁵⁸ and around 16.6% of active apps on the Play Store are using in-app payments (with the percentage of total apps, including inactive apps, being smaller).²⁵⁹ All apps that sell digital goods and services directly through the apps are required to use Apple or Google's IAP system and pay the commission. The different terms around which apps are required to adhere to these requirements are discussed further below.

IAP commissions represent a significant amount of revenue. Though neither Apple nor Google publish their own numbers on revenue from their respective app marketplaces, they do report each year the cumulative amount they have remitted to developers from transactions on the app marketplace – USD155 billion for Apple (between 2008 and 2019) and USD80 billion for Google (between 2012 and 2019).²⁶⁰ These numbers do not include the revenue retained by Apple and Google. Third-party estimates suggest total revenues (from which Apple and Google take their respective commissions) for 2019 of USD54.2 billion on the App Store, and USD29.3 billion on the Play Store.²⁶¹

Some interested parties have noted that Google appears to have applied its IAP requirements less strictly in the past than Apple has applied its equivalent policies.²⁶² However, Google states that it has 'always required' developers who distribute their apps on the Play Store to use its IAP system if they offer in-app payments for digital goods.²⁶³ Google has recently clarified the language in its Payment Policy to reflect this requirement.²⁶⁴ The updated policy came into effect for new apps submitted after 20 January 2021. Existing apps

²⁵⁵ The key distinction is made between apps that provide 'digital' goods and services and apps that provide 'physical' goods and services. (This will be discussed in further detail in section 4.2.3 below).

²⁵⁶ Apple, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 2 October 2020, pp 2, 4, 10.

²⁵⁷ S Samat, '[Listening to developer feedback to improve Google Play](#)', *Android Developers Blog*, 28 September 2020, accessed 24 March 2021.

²⁵⁸ 'Active apps' refers to apps available for download on the app marketplaces. 'Inactive apps' refers to apps not currently available on the app marketplaces.

²⁵⁹ Sensor Tower data, based on estimated numbers of apps on the App Store and the Play Store, as of 21 January 2021.

²⁶⁰ K Leswing, '[Apple App Store had estimated gross sales of 50 billion in 2019](#)', *CNBC*, 8 January 2020, accessed 24 March 2021; D Wilde, '[Google has now paid out over \\$80 billion to Play Store developers](#)', *9to5Google*, 4 February 2020, accessed 24 March 2021.

²⁶¹ S Salim, '[Apple's App Store and Google Play Users Spent over \\$83 Billion on Mobile App in the Last 12 months, Globally](#)', *Digital Information World*, 9 January 2020, accessed 24 March 2021.

²⁶² See, for example, Australian Investment Council, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 8 October 2020, p 5; ACCC, [App marketplaces report – App developer questionnaire responses](#), 27 November 2020, responses 28J, 39J.

²⁶³ S Samat, '[Listening to Developer Feedback to Improve Google Play](#)', *Android Developers Blog*, 28 September 2020, accessed 24 March 2021.

²⁶⁴ Google, [Payments](#), *Play Console Help*, accessed 24 March 2021, para 2; S Samat, '[Listening to Developer Feedback to Improve Google Play](#)', *Android Developers Blog*, 28 September 2020, accessed 24 March 2021.

that do not currently use Google's IAP System but that are required to under Google's Policy will have until 30 September 2021 to comply.²⁶⁵

The ACCC received a wide variety of responses to its Issues Paper and App Developer Questionnaire about Apple and Google's respective requirements to use their IAP systems. Some app developers considered the requirements a fair trade-off for benefits afforded to app developers, such as the ease of taking payments. The Developers' Alliance cited simplicity, reduced risk and familiarity as benefits to consumers of a marketplace-driven transaction.²⁶⁶ Others raised concerns about a lack of ability to choose which payment system(s) to offer. The Australian Investment Council considered that 'the mandatory use of IAP, like the mandatory use of Apple ID, also reinforces Apple technology at the centre of the user's experience.'²⁶⁷

Some examples of responses from the App Developer Questionnaire are below:

The ease of use of taking payments using in-app purchase made the commissions completely worth it for me.²⁶⁸

Overall - Apple in-app payments add zero value to our company, cost the consumers extra money and we only put them in because Apple hold a monopoly on software distribution on iPhone & iPad devices. We would be able to provide a better service and lower cost to consumers without Apple forcing us to use in-app payments.²⁶⁹

I'd much rather be able to choose a different payment processor to make in-app purchases, so I can either lower prices in the app, and/or increase my profit. I suspect it'd be somewhere between the two. Currently I have to charge 30% more - so the customer always loses.²⁷⁰

Epic Games is one example of a developer that has attempted to bypass using Apple and Google's respective IAP systems, discussed at box 4.4 below.

²⁶⁵ Google, [Payments](#), *Play Console Help*, accessed 24 March 2021, para 2; S Samat, '[Listening to Developer Feedback to Improve Google Play](#)', *Android Developers Blog*, 28 September 2020, accessed 24 March 2021.

²⁶⁶ Developers Alliance, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 1 October 2020, p 3.

²⁶⁷ Australian Investment Council, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 8 October 2020, p 8.

²⁶⁸ ACCC, [App marketplaces report – App developer questionnaire responses](#), 27 November 2020, response 4J.

²⁶⁹ ACCC, [App marketplaces report – App developer questionnaire responses](#), 27 November 2020, response 33J.

²⁷⁰ ACCC, [App marketplaces report – App developer questionnaire responses](#), 27 November 2020, response 46J.

Box 4.4: Epic Games' attempt to introduce its own in-app payment system

Epic Games (Epic) is a video game and entertainment software company. Epic operates the popular online game 'Fortnite', which has over 350 million registered users worldwide.²⁷¹ Fortnite is free to download and play, and offers users the ability to purchase content in-app, including digital avatars and costumes. Epic also runs the Epic Games Store, a digital video storefront available on personal computers, where users can download games developed by Epic and third-party developers. Epic Games also develops 'Unreal Engine', a software suite that allows third-party developers to create realistic three-dimensional content.²⁷²

In August 2020, Epic introduced its own in-app payment systems for Fortnite. It announced a 20% discount for Fortnite players who purchased the game's virtual currency through Epic's IAP system, rather than through Apple and Google's IAP systems.²⁷³ Within hours of this announcement, Fortnite was removed from both the App Store and Play Store, with both app marketplaces citing a violation of their respective terms and conditions.²⁷⁴

Epic subsequently commenced proceedings against Apple in the US, UK, EU and Australia, alleging that certain technical and contractual constraints imposed by Apple on app developers (in particular, the requirement to only distribute apps on the iOS through the App Store, and only use Apple's IAP for the processing of payments for in-app content) foreclose competition.²⁷⁵

Epic also commenced proceedings against Google in the US, UK and Australia, alleging that through various technological and contractual restrictions, Google similarly forces app developers and consumers to use the Play Store, and ties the Play Store to Google's IAP system.²⁷⁶

4.2.2. Imposition of a commission on transactions subject to IAP requirements

As mentioned above, Apple and Google require that apps pay a commission for every transaction made using their respective IAP system. The commission on any payment made using the IAP systems is 30%, and 15% for subscription apps after the first year; though sometimes these amounts are subject to change for certain apps.²⁷⁷ For example, in 2020, Apple introduced a reduced commission rate of 15% on paid apps and in-app payments for

²⁷¹ Epic Games, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 4 February 2021, p 2.

²⁷² Epic Games, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 4 February 2021, p 3.

²⁷³ Epic Games, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 4 February 2021, p 3; A Webster, 'Epic offers new direct payment in Fortnite on iOS and Android to get around app store fees', *The Verge*, 13 August 2020, accessed 24 March 2021.

²⁷⁴ N. Statt, 'Apple just kicked Fortnite off the App Store', *The Verge*, 13 August 2020, accessed 24 March 2021.

²⁷⁵ Epic Games, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 4 February 2021, p 1; Epic Games, [Epic Games extends its fight against Apple to Australia](#), 18 November 2020, accessed 24 March 2021; C Fox, 'Fortnite-maker Epic Games sues Apple and Google in UK', *BBC News*, 15 January 2021, accessed 24 March 2021. The ACCC notes that Epic was not given permission to serve a lawsuit out of jurisdiction against the US-based entity of Apple. See *Epic Games v Apple Inc*, [Judgement \(Service out of the jurisdiction\)](#), UK Competition Appeal Tribunal 22 February 2021; S Shead, 'Epic Games files antitrust complaint against Apple in the EU', *CNBC*, 17 February 2021, accessed 24 March 2021.

²⁷⁶ See *Epic Games v Google LLC*, United States District Court, Northern District of California, [Complaint for injunctive relief](#), 13 August 2020; *Epic Games, Inc v Alphabet Inc*, UK Competition Appeal Tribunal, [Notice of claim](#), 14 January 2021; L Henning, 'Epic's Australian Google lawsuit says tech giant abuses control of Android operating system', *Mlex*, 10 March 2021, accessed 24 March 2021.

²⁷⁷ Google, [Service fees](#), *Play Console Help*, accessed 24 March 2021; Apple, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 2 October 2020, p 9.

app developers that made less than USD1 million per year.²⁷⁸ In March 2021, Google announced its commission would be reduced to 15% for the first USD1 million of revenue every developer earns each year,²⁷⁹ with the 30% commission applying on any revenue above that.

Interested parties expressed divergent views on the appropriateness of the level of the commission. In responses provided to the App Developer Questionnaire, some developers consider the commission as the cost of doing business and that the benefits provided by the app marketplaces justified the level of the commission.²⁸⁰ Other developers said the imposition and level of the commission meant that either they did not offer paid features in their app (loss of innovation),²⁸¹ made no profit from their app (inhibiting their ability to compete),²⁸² or passed the cost on to consumers.²⁸³

Submissions made by some larger app developers raised concerns regarding the commission. Larger app developers have claimed that this commission is too high for something that is essentially a payment processing fee,²⁸⁴ and that it is not proportionate to the service provided by the app marketplaces.²⁸⁵ Developers also consider that the level of the commission can affect innovation or the introduction of new products and services. For example, REA (a multi-sided business offering services to consumers and real estate agents) stated the level of the commission acts as a deterrent to providing paid products via app as the monetary cost to REA would be more significant for such products.²⁸⁶

Google does not specifically justify the level of the commission, but notes that under this commission model, the majority of developers (especially new developers trying to build a user base) can access the Play Store's app development tools, the distribution channel, and the broader Android ecosystem for free.²⁸⁷ Apple similarly notes that the majority of developers have access to the App Store, its users, and the development tools Apple makes available, for no more than the annual fee of USD99.²⁸⁸ Apple also specifically justifies the 30% commission by stating it is 'hardly unique', and is similar to a number of app marketplaces and game digital marketplaces.²⁸⁹

²⁷⁸ Apple, [Apple announces App Store Small Business Program](#), *Apple Newsroom*, 18 November 2020, accessed 24 March 2021.

²⁷⁹ S Samat, ['Boosting developer success on Google Play'](#), *Android Developers Blog*, 16 March 2021, accessed 24 March 2021.

²⁸⁰ See, for example, ACCC, [App marketplaces report – App developer questionnaire responses](#), 27 November 2020, responses 12J, 32J, 35J, 61J.

²⁸¹ See, for example, ACCC, [App marketplaces report – App developer questionnaire responses](#), 27 November 2020, response 9J.

²⁸² See, for example, ACCC, [App marketplaces report – App developer questionnaire responses](#), 27 November 2020, responses 3J, 64J.

²⁸³ See, for example, ACCC, [App marketplaces report – App developer questionnaire responses](#), 27 November 2020, responses 2J, 3J, 28J, 46J, 47J.

²⁸⁴ Nine, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 16 October 2020, p 5; Match Group, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 16 October 2020, p 9; ACCC, [App marketplaces report – App developer questionnaire responses](#), 27 November 2020, responses 9, 21, 53, 64.

²⁸⁵ REA Group, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 16 October 2020, p 5.

²⁸⁶ REA Group, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 16 October 2020, pp 5–6.

²⁸⁷ Google, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 19 October 2020, p 9. The ACCC notes that Google charges developers a one-time registration fee of USD25 to enter into the Google Play Developer Distribution Agreement.

²⁸⁸ Apple, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 2 October 2020, p 10.

²⁸⁹ Apple, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 2 October 2020, p 10. The marketplaces Apple references include the Google Play Store, Amazon Appstore; and the Xbox, Nintendo, and Steam video game digital marketplaces.

Box 4.5: History of app marketplace 30% commissions

Apple introduced a commission of 30% on payments for in-app digital goods and services when it launched the App Store in 2008.²⁹⁰ In 2011, Apple allowed subscriptions via the App Store, and applied the 30% commission to those subscriptions.²⁹¹ In 2016, Apple announced the commission attracted by subscriptions would drop to 15% for developers who maintained a subscription with a customer longer than a year.²⁹² Apple has changed its rules so that in certain circumstances (including businesses who have applied for a reduced commission under Apple's small business program)²⁹³ a 15% commission is attracted.

Google introduced in-app billing in March 2011 and in-app subscriptions in May 2012,²⁹⁴ with a commission level of 30%. As of 1 January 2018, Google also changed the commission attracted by subscriptions that lasted longer than a year to 15%.²⁹⁵ On 16 March 2021, Google announced it would change its rules so that a 15% commission is paid on the first USD1 million of revenue every developer earns each year,²⁹⁶ with the 30% commission applying on any revenue above that.

The Amazon Appstore launched its in-app payment service in April 2012, with Amazon taking 30%,²⁹⁷ stating that Amazon was 'just following the paradigm that's out there with the 70-30 split'. Samsung's Galaxy store launched in 2009 with a default commission of 30%.²⁹⁸

ACCC's views regarding the level of the commission

The ACCC considers that it is highly likely that the commission rates are inflated by the market power that Apple and Google have in their dealings with app developers. Apple and Google structure their charges and their levels in order to maximise their profits. In the case of apps, this is about setting commission rates based on the likely ability and willingness of app developers to pay, and, to the extent possible, minimising any flow on effects to consumers. While the market power that Apple and Google have in their dealings with app developers is highly likely to mean that the commission rates are higher than otherwise would be the case, it is difficult to know by how much. There are a couple of reasons for this.

First, it is difficult to predict the level of charges a mobile ecosystem is likely to impose in the absence of market power. This is particularly the case given charges for the use of a mobile ecosystem are, in the main, not cost-based. For some costs, such as the costs of developing and maintaining the mobile operating systems, there may be no direct revenue source. These costs are common to the range of services provided by a mobile ecosystem. Moreover, in setting charges, operators of mobile ecosystems consider the effect on the overall use of the system. This is made complex by the significant interdependencies between different users of mobile ecosystems. For instance, setting commission rates for in-app payments involves taking into account the likely reactions of both consumers and app developers.

²⁹⁰ Apple, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 2 October 2020, pp 8–9; J Nicas, ['How Apple's 30% App Store Cut Became a Boon and a Headache'](#), *The New York Times*, 14 August 2020, accessed 24 March 2021.

²⁹¹ J Halliday, ['Apple launches subscription service for magazines, newspapers and music'](#), *The Guardian*, 16 February 2011, accessed 24 March 2021.

²⁹² L Goode, ['App Store 2.0'](#), *The Verge*, 8 June 2016, accessed 24 March 2021.

²⁹³ Apple, [App Store Small Business Program](#), *App Store Developer*, accessed 24 March 2021.

²⁹⁴ I Elbouchikhi, ['In-app Subscriptions in Google Play'](#), *Android Developers Blog*, 24 May 2012, accessed 24 March 2021.

²⁹⁵ Google, [Service fees](#), *Play Console Help*, accessed 24 March 2021.

²⁹⁶ S Samat, ['Boosting developer success on Google Play'](#), *Android Developers Blog*, 16 March 2021, accessed 24 March 2021.

²⁹⁷ KM Cutler, ['Amazon takes in-app purchases out of beta. Here's how they compromised on the revenue share'](#), *TechCrunch*, 10 April 2012, accessed 24 March 2021.

²⁹⁸ Samsung Galaxy Store Seller Portal, [Terms and Conditions](#), as of 3 August 2009, accessed via Wayback machine 24 March 2021.

Second, there are no clear benchmarks with which to compare the commission fees. As outlined in a report commissioned by Apple,²⁹⁹ the 30% commission rate is similar to the commission rates charged by other app marketplaces and many game digital marketplaces. While this is the case, it is not compelling evidence one way or the other of the degree to which the commission rates are inflated by Apple and Google's market power. It is quite possible that the commission rates set by Apple and Google are used as 'market' benchmarks and replicated by other app or games marketplaces.

Irrespective of whether the level of the commissions that Apple and Google charge app developers are inflated by Apple and Google's market power, the imposition of the commissions unequally affects app developers, and competition in at least some categories of apps. This effect is discussed, in combination with the IAP requirements, in the next section.

4.2.3 Competitive effects of Apple and Google's respective application of their IAP requirements

The requirement to use Apple and Google's IAP systems for transactions of app-facilitated goods and services, and to pay Apple or Google a 30% commission on those transactions, does not apply to all apps or transactions. In particular:

- Apple and Google's IAP requirements typically apply to payments for 'digital' goods and services and not to those that offer 'physical' goods and services.³⁰⁰
- Some apps avoid Apple and Google's IAP requirements by not offering content for purchase in-app. This is a viable option for some types of apps but not others.

This section sets out the implications of these IAP requirements.

Paying for digital goods and services in an app

Some apps can be used to buy digital goods and services, such as an additional level, life or coin in a game; subscribing to an online service such as music streaming; or paying to unlock 'premium' content. Other apps are used to buy physical goods and services that are consumed outside the app, such as ordering groceries through a supermarket app, buying clothes through a retailer's app, or booking a dentist appointment. Both Apple and Google's terms and conditions require the use of their respective IAP systems as the method of making in-app payments for digital goods and services.³⁰¹

Apple has maintained this distinction between payments for digital and physical goods and services since launching the App Store in 2008.³⁰² Apple submits the following:

Simply put, while Apple is unable to assure that an order from Amazon is delivered, a driver requested through Uber arrives on time, or a consumer product is as good as promised, Apple is uniquely well-suited to assure the quality of the user experience when it comes to how digital content is delivered and consumed on its devices. And if something goes wrong in the transmission of an app or an in-app feature, Apple can fix the problem, and have any necessary refunds processed by its AppleCare support teams.³⁰³

²⁹⁹ Analysis Group, [Apple's App Store and other digital marketplaces: A comparison of commission rates](#), 22 July 2020.

³⁰⁰ Apple, [App Store Review Guidelines](#), 1 February 2021, accessed 24 March 2021, guideline 3.1.1; Google, [Payments](#), *Play Console Help*, accessed 24 March 2021, para 2.

³⁰¹ Apple, [App Store Review Guidelines](#), 1 February 2021, accessed 24 March 2021, guideline 3.1.1; Google, [Payments](#), *Play Console Help*, accessed 24 March 2021, para 2.

³⁰² Apple, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 2 October 2020, p 9.

³⁰³ Apple, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 2 October 2020, p 9.

Google states that it has always required developers distributing apps on the Play Store to use its IAP system if offering in-app payments for digital goods and services.³⁰⁴ Google submits:

We only collect a service fee if the developer charges users to download their app or they sell in-app digital items, and we think that is fair. Not only does this approach allow us to continuously reinvest in the platform, this business model aligns our success directly with the success of developers.³⁰⁵

Some interested parties expressed concerns that the distinction between digital and physical goods and services, as defined by the app marketplaces, is unclear or arbitrary.³⁰⁶ Match Group, for example points to the characterisation of its Tinder app as offering ‘digital’ goods and services, and the Uber app as offering ‘physical’ goods and services, arguing that both apps connect people to meet in the real world. Other submissions noted the burden this distinction places on purely digital businesses.

Further, not all payments for digital goods and services are subject to Apple and Google’s respective IAP requirements. Each app marketplace allows, and in some instances requires, some types of apps to offer alternative payment systems for the in-app payment of some digital goods and services. Google requires peer-to-peer payments, online auctions and tax exempt donations to use an alternative to its IAP system. Apple allows payments for real-time person-to-person services between two individuals to be made using alternative payment systems.

Apple, and to a lesser extent Google, have made changes to their respective terms and conditions over time, and who these terms and conditions apply to. Apple has done this in the past by introducing various ‘programs’, members of which are not subject to Apple’s IAP requirements. Apple’s ‘Video Partner Program’ for example, allows eligible ‘premium subscription video providers’ to offer alternative payment methods for the payment of video content in-app. Participants are also only subject to a 15% commission on these transactions. Participating apps are required to integrate with a number of Apple technologies, and must allow users to purchase content through Apple’s IAP system. In April 2020, it was reported that Amazon Prime Video had signed up to this program. As a result, the Amazon Prime Video iOS and Apple TV apps now allow Amazon Prime subscribers to purchase or rent movies in-app using Amazon’s own payment system. The ACCC understands that prior to this change users of the Amazon Prime Video apps could not make in-app payments; they could only purchase content from Amazon’s website.

Apple’s ‘App Store Small Business Program’, launched on 1 January 2021, is a further example. Qualifying small businesses earning up to USD1 million in proceeds per year can apply for the program to receive a reduced commission of 15% on paid apps and in-app payments. On 16 March 2021, Google announced that, starting 1 July 2021, it would be making changes to its IAP requirements so that the first USD1 million of revenue every developer earns each year, selling digital goods or services, would attract a reduced commission of 15%.³⁰⁷

³⁰⁴ S Samat, [‘Listening to developer feedback to improve Google Play’](#), *Android Developers Blog*, 28 September 2020, accessed 24 March 2021.

³⁰⁵ S Samat, [‘Listening to developer feedback to improve Google Play’](#), *Android Developers Blog*, 28 September 2020, accessed 24 March 2021.

³⁰⁶ See, for example, Match Group, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 16 October 2020, para 87; Australian Investment Council [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 8 October, p 4; ACCC, [App marketplaces report – App developer questionnaire responses](#), 27 November 2020.

³⁰⁷ S Samat, [‘Boosting developer success on Google Play’](#), *Android Developers Blog*, 16 March 2021, accessed 24 March 2021.

Apple and Google have also each made changes to their respective IAP requirements in response to the COVID-19 pandemic. These are discussed at box 4.6 below.

Box 4.6: COVID-related changes to Apple and Google’s respective IAP requirements

Apple and Google have each announced changes relating to their respective IAP terms in response to the COVID-19 pandemic.

Apple’s COVID-19-related changes

In November 2020, Apple announced it would extend the deferral of its 30% commission for companies offering paid online group event experiences through to June 2021.³⁰⁸ Apple had announced in September 2020 that apps were required to offer any paid online group event experience through Apple’s IAP system.³⁰⁹ The initial deadline had been December 2020, but Apple announced it would be giving businesses more time to transition in-person events to digital events and develop in-app purchase solutions.³¹⁰

Google’s COVID-19-related changes

In a FAQ released in September 2020, Google stated that, in recognition that due to COVID-19 many business had to move previously physical services online, those businesses will not need to comply with Google’s payments policy for at least the next 12 months.³¹¹

The examples discussed in box 4.6 highlight the discretion exercised by both Apple and Google in how their terms and conditions are modified and applied. The changes to IAP requirements do benefit a large number of app developers by reducing the commissions paid on in-app payments, or allowing the use of alternative payment systems. This may consequently increase innovation through reducing barriers to entry. However, the overall impact of these commission reductions on the app marketplaces may not be significant. For example, while the reduction in the commission for low revenue developers from Apple’s Small Business Program would apply to approximately 98% of companies that currently pay Apple’s commission for in-app payments, it is estimated that those developers accounted for less than 5% of App Store revenues in 2019.³¹² Third-party estimates suggest that, had Apple’s Small Business Programme been in place for 2020, Apple would have foregone only 2.7% of its revenue from IAP commissions; and, had Google’s recent changes been in place for 2020, Google would have foregone around 5% of its revenue from IAP commissions.³¹³

The ACCC notes that margins are likely to be much higher on digital goods than physical goods, where the marginal cost of production and supply is significantly greater. This difference may go some way in explaining why Apple and Google have decided to impose their respective IAP requirements and commission on payments for digital goods and services only: extending this to payments for physical goods and services may make apps selling these products unprofitable and could drive them off the app marketplace.

³⁰⁸ Apple, [Deadline extended for online group event in-app purchase requirement](#), *Apple Developer*, 23 November 2020, accessed 24 March 2021.

³⁰⁹ Apple noted updates to Apple’s App Store Review Guidelines, including the introduction of guideline 3.1.3(d). See Apple, [App store review guideline updates now available](#), *Apple Developer*, 11 September 2020, accessed 24 March 2021.

³¹⁰ Apple, [Deadline extended for online group event in-app purchase requirement](#), *Apple Developer*, 23 November 2020, accessed 24 March 2021.

³¹¹ M Loew, [Answering your FAQs about Google Play billing](#), *Android Developers Blog*, 28 September 2020, accessed 24 March 2021.

³¹² J Nicas, [Apple halves its app store fee for the smaller companies](#), *The New York Times*, 18 November 2020, accessed 24 March 2021.

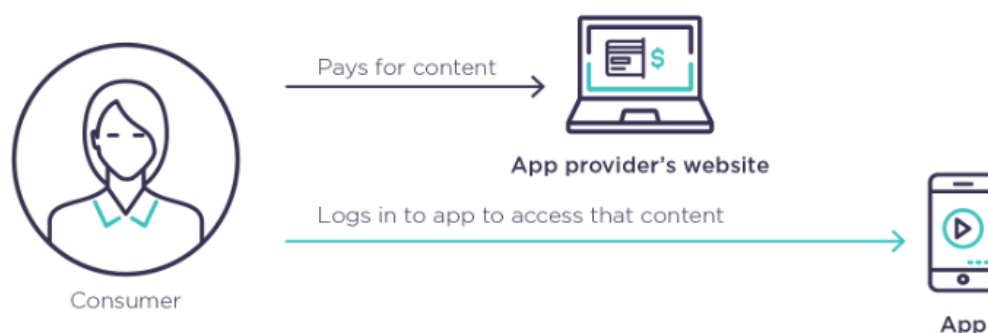
³¹³ K Leswing, [Google and Apple are giving up less than 5% of their revenue from apps with payout changes, analytics firm estimates](#), *CNBC*, 16 March 2021, accessed 24 March 2021.

Apple and Google also compete in the supply of some of these digital products, meaning there is the potential for the imposition of their respective IAP requirements and commission to raise costs for their rivals. Even where Apple and Google do not participate in the supply of these digital products, their commission charges affect competition between developers with different business models in at least some categories of apps.

Bypassing Apple and Google’s respective IAP systems: off-app content

Some apps are able to avoid the application of the IAP commission by choosing not to offer content or subscriptions for purchase in-app. Instead, these apps offer content for purchase outside the app marketplace (for example, on their related website). Users are able to access this content when they log in to the app. The app itself therefore functions as a ‘read only’ platform, allowing users to consume pre-purchased content, but not to purchase new content. These apps are therefore not captured in the percentages of apps that use IAP and attract the commission, outlined in section 4.2.1.

Figure 4.3: Paying for content to be consumed in ‘read only’ apps



Apple has characterised this situation as its ‘reader app exception’. According to Apple, ‘reader apps’, which include magazines, newspapers, books, audio, music, and video, allow users to access content purchased or subscribed to outside the app and the app developer is able to ‘avoid’ paying the commission.³¹⁴ Apple also allows apps that operate across multiple platforms to enable users to access content, subscriptions and features acquired outside the app, provided the same content, subscriptions and features are available for purchase in-app using Apple’s IAP system.³¹⁵

Google’s terms and conditions do not explicitly state that apps are able to offer access to content that was purchased outside the app.³¹⁶ However, in a blog post addressing frequently asked questions about Google Play Billing, Google stated:

Google Play allows any app to be consumption-only, even if it is part of a paid service. For example, a user could login when the app opens and the user could access content paid for somewhere else.³¹⁷

³¹⁴ Apple, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 2 October 2020, p 10; M Loew, ‘[Answering your FAQs about Google Play billing](#)’, *Android Developers Blog*, 28 September 2020, accessed 24 March 2021, response to the question ‘Can I offer a consumption-only (reader) app on Play?’.

³¹⁵ Apple, [App Store Review Guidelines](#), 1 February 2021, accessed 24 March 2021, guideline 3.1.3(b).

³¹⁶ Google, [Payments](#), *Play Console Help*, accessed 24 March 2021.

³¹⁷ M Loew, ‘[Answering your FAQs about Google Play billing](#)’, *Android Developers Blog*, 28 September 2020, accessed 24 March 2021, response to the question ‘Can I offer a consumption-only (reader) app on Play?’.

The ACCC notes that apps operating as ‘read only’ apps are unable to attract new users through their apps, as users must leave the app to purchase or subscribe to content. This, in combination with Apple and Google’s respective restrictions on directing users to alternative payment and sign-up mechanisms outside an app (discussed at section 4.3), means that operating as a ‘read only’ app is, in practice, only a viable option for large companies with brand recognition and an existing customer base that are not reliant on the app marketplaces to attract customers. Apple and Google also benefit from these large companies bringing those customer bases onto their respective app marketplaces.

Operating as a ‘read only’ app is less viable for new or emerging app developers without an existing customer base, as well as for app developers that rely on the app marketplace for monetisation, such as app developers without substantive websites. The ACCC also notes that some apps currently operating as ‘read only’ apps had previously offered in-app payments, but have forgone this monetisation model in order to avoid paying Apple and Google the respective commission.³¹⁸

ACCC’s views on how Apple and Google apply their respective IAP requirements

The ACCC considers that Apple and Google’s control over their respective app marketplaces enables each of them to bundle developer access to the app marketplace with a requirement to use their respective IAP systems, and to take commissions on transactions using those systems.

Apple and Google’s respective terms which prevent app developers from using alternative payment systems for payments made in-app affects the ability of alternative payment systems to operate in the app marketplaces. This in turn leads to a loss of consumer choice, as consumers are unable to use any other payment option when making payments in-app. Examples of alternative payment systems are set out in box 4.7 below.

Box 4.7: Examples of alternative payment systems

PayPal

PayPal is an online payment system that allows users to make payments using a secure internet account. Users can link their bank account, credit card or debit card to a PayPal account to make online payments, receive payments, or transfer money.³¹⁹ PayPal collects a fee from the person or business receiving the money.³²⁰

Stripe

Stripe is a third-party payment processor that allows businesses to send and receive payments online. Stripe enables businesses to take payments from credit cards, which it transfers into businesses’ bank accounts. It offers payment processing software and application programming interfaces for e-commerce websites and mobile applications.³²¹ Similar to PayPal, Stripe collects a fee on transactions.³²²

³¹⁸ Reuters Staff, ‘[Financial Times pulls its apps from Apple Store](#)’, *Reuters*, 31 August 2011, accessed 24 March 2021; Spotify, ‘[Time to Play Fair](#)’, accessed 24 March 2021.

³¹⁹ PayPal, [How PayPal works](#), accessed 24 March 2021.

³²⁰ As of February 2021, PayPal’s standard rate for receiving domestic transactions in Australia was 2.6%. See PayPal, [PayPal Merchant Fees](#), Commercial Transaction Rates: Standard rate for receiving domestic transactions, accessed 24 March 2021.

³²¹ Stripe Australia, [About Stripe](#), accessed 24 March 2021.

³²² For example, as of February 2021, the standard fee for accepting a credit or debit card payment in Australia from a domestic card was 1.75% plus a fixed fee of 0.30AUD. See Stripe, [Pricing Details](#), accessed 24 March 2021.

The ACCC notes that at least some app developers have stated that Apple and Google's terms and commissions either deter developers from offering products to consumers,³²³ or mean they charge consumers more to cover the commission.³²⁴ Removing these requirements would allow app developers to offer consumers alternative methods to pay for goods and services, including potentially cheaper prices. Possible measures to address these issues are to unbundle payment systems from the use of app marketplaces, as discussed below.

Possible measures to address issues associated with Apple and Google's IAP requirements

The ACCC considers that Apple and Google have market power in their dealings with app developers, and this is likely to be significant. This is highly likely to mean commission rates are inflated. It is also highly likely that this market power enables them to unilaterally set and enforce the rules that app developers must satisfy, including the requirement that prevents them using alternative payment systems in-app.

One possible measure being considered overseas to address this is unbundling of the app marketplaces' services, such that Apple and Google's market power cannot be used to control the payment systems available to consumers. A number of state US legislatures are considering legislation to require Apple to free up choice of app distribution and payment systems. For example, North Dakota's legislature considered, and voted down a bill in February 2021,³²⁵ and a similar bill is being considered by Arizona's legislature.³²⁶

Two possible options for opening up access in this area are:

- Unbundle developer access to the app marketplaces from a developer's exclusive use of IAP systems, which would allow other businesses to offer users and developers alternative payment processing options
- (Apple-specific) Making changes to allow alternative marketplaces onto iOS.

The ACCC notes the potential risk of less secure payment systems offering in-app payments if Apple and Google were required to allow alternative payment systems, and the role that Apple and Google play in protecting consumers from harmful apps (as discussed in chapter 6). The ACCC also notes that, at this stage, it is not clear how effective the unbundling would be at addressing the issues raised by Apple and Google's control over of their respective marketplaces and payment systems, and notes that it is also not clear what detriment to app developers may arise from any resultant changes to Apple and Google's revenue raising model. For example, there is a potential risk that this may lead to changes in Apple or Google's fee or commission structure if the unbundling were to undermine their ability to apply and collect commissions on in-app payments. This could have a number of effects, such as limiting app marketplaces to less efficient forms of charges (for example, Apple or Google imposing a larger flat fee on apps providing digital goods and services), which might encourage smaller innovative apps to explore alternative avenues to app marketplaces to avoid having to pay the fee, in turn reducing the apps available through the

³²³ See, for example, REA Group, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 16 October 2020, pp 5–6.

³²⁴ See, for example, ACCC, [App marketplaces report – App developer questionnaire responses](#), 27 November 2020, responses 2J, 3J, 28J, 46J.

³²⁵ M Potuck, 'North Dakota senate votes down anti-App Store bill first given to lawmaker by Coalition for App Fairness lobbyist', *9to5Mac*, 16 February 2021, accessed 24 March 2021.

³²⁶ Competition Policy International, [Arizona Passes Bill to Add Fortnite-style Payment Options In Google & Apple Stores](#), 3 March 2021, accessed 24 March 2021. At the time of writing, the Bill had been passed by the Arizona House of Representatives and was being considered by the Senate.

app marketplace, and reducing its value to consumers. Any legislative requirement to unbundle would therefore require significant further work and industry consultation.

Another option is setting rules through a regime that recognises the gatekeeper role being played by the app marketplaces and establishes a rules framework that will prevent marketplaces using unfair practices towards the business users and customers that depend on them, to gain an undue advantage.³²⁷ Imposition of price controls has been discussed as a possible measure to be included in these gatekeeper rules.³²⁸ Other possible elements of such a framework are discussed in chapter 3 and below in section 4.3.

4.3. Restrictions on informing consumers about alternative payment options outside an app

Some businesses that operate an app offer users the ability to pay for goods and services *outside* the app, for example, via their website (referred to from here as ‘off-app’):

- Many apps offer this in addition to the in-app payment option (using the app marketplace’s IAP system).
- For apps operating as ‘read only’ apps (discussed at section 4.2.3), off-app payment methods are the only mode of payment for accessing the content for consumption in the app.

Payments made off-app are not subject to app marketplace requirements regarding which payment system to use, and do not attract a commission. Because some app developers pass on the 30% or 15% commission to consumers for payments made in-app, it can sometimes be cheaper to buy content or products outside the app.

Apple and Google’s respective IAP terms and conditions prohibit app developers informing consumers about any alternative payment options other than the app marketplaces’ respective IAP systems. These restrictions prevent app developers from steering consumers off-app (for example, by providing a hyperlink for consumers which takes them to a website) and from informing consumers that an alternative payment option exists.

Google’s policy previously did explicitly state this restriction. Changes made to the policy in January 2021 now explicitly state that apps may not lead users to a payment method other than the Play Store’s IAP system.³²⁹ Google’s blog post accompanying the announcement of these changes, stated that it does not place any restrictions on app developers outside of the app.³³⁰

A study commissioned by Apple states that these restrictions are in place to prevent users and developers from free riding on Apple’s App Store services and investments.³³¹ As noted above, consumers and the majority of app developers do not have to pay the IAP commissions for the marketplaces’ services.

These restrictions were raised in a number of submissions to the ACCC, and in responses to the App Developer Questionnaire. Apple’s restriction also forms part of the European Commission’s investigation into Apple’s terms and conditions relating to in-app payments.³³²

³²⁷ European Commission, [The Digital Markets Act: Ensuring fair and open digital markets](#), accessed 24 March 2021; CMA, [‘CMA advises government on new regulatory regime for tech giants’](#), 8 December 2020, accessed 24 March 2021.

³²⁸ L Cabral et al., [The EU Digital Markets Act: A report from a panel of economic experts](#), European Commission, 2021, p 19.

³²⁹ Google, [Payments](#), *Play Console Help*, accessed 24 March 2021.

³³⁰ S Samat, [‘Listening to developer feedback to improve Google Play’](#), *Android Developers Blog*, 28 September 2020, accessed 24 March 2021.

³³¹ Analysis Group, [Apple’s App Store and other digital marketplaces: A comparison of commission rates](#), 22 July 2020.

³³² European Commission, [‘Antitrust: Commission opens investigations into Apple’s App Store rules’](#), 16 June 2020, accessed 24 March 2021.

Apps that are determined to have breached the restriction by alerting consumers about off-app payments may be removed or rejected from the app marketplaces. Apps have been removed or rejected for explicitly providing links to consumers in apps on the App Store. As mentioned above, Google made changes to explicitly state that developers may not lead consumers to off-app payment systems, and that apps that have reportedly been directing consumers away from the Play Store (which reportedly include Netflix and Spotify)³³³ have until September 2021 to stop.³³⁴

Some app developers have raised concerns with instances of inadvertently breaching this restriction due to the broad requirements being applied (as discussed in chapter 3). In 2019, Spotify launched a campaign titled 'time to play fair', which outlined its complaints with Apple's terms and conditions, including the rejection of Spotify for breaching conditions regarding providing information of off-app payments.³³⁵ In the App Developer Questionnaire, one app developer stated:

In at least one case in the past, we even had an application rejected because our external website (linked to on an about page unrelated to any form of payment), contained a page elsewhere on it that allowed for a user to pay us directly for a subscription using an account tied to our application.³³⁶

³³³ S Perez, '[Google to better enforce Play Store in-app purchase policies, ease use of third-party app stores](#)', *TechCrunch*, 29 September 2020, accessed 24 March 2021.

³³⁴ S Samat, '[Listening to developer feedback to improve Google Play](#)', *Android Developers Blog*, 28 September 2020, accessed 24 March 2021.

³³⁵ Spotify, '[Time to Play Fair](#)', accessed 24 March 2021.

³³⁶ ACCC, '[App marketplaces report – App developer questionnaire responses](#)', 27 November 2020, response 36J.

Another stated:

Apple (and to a certain extent Google) have strict rules around even mentioning the existence of other monetisation platforms within product we release on the App Store and Google Play and they police them subjectively.³³⁷

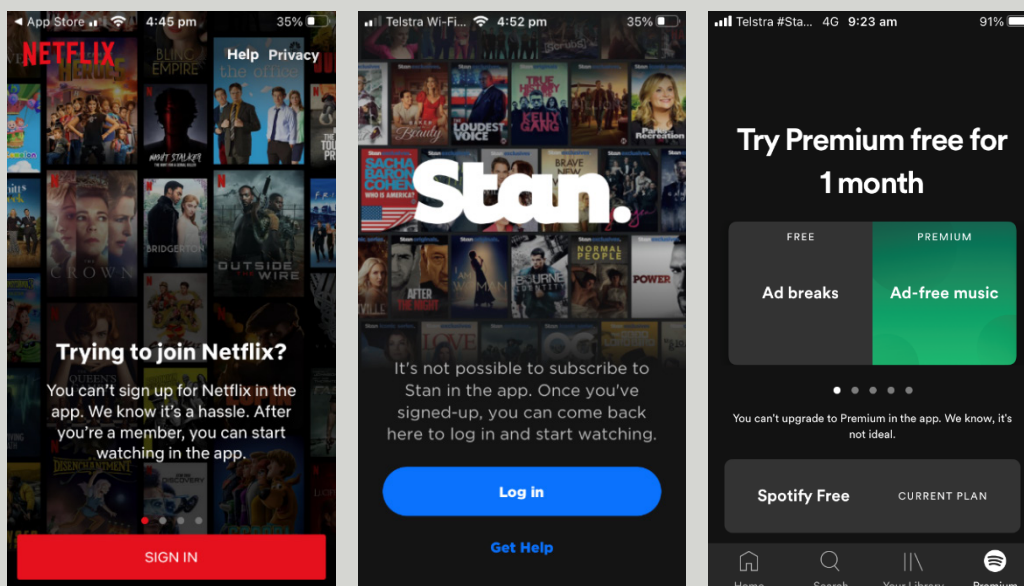
This prohibition means that ‘read only’ apps require consumers to know where they can purchase content, and go off-app in order to make the purchase. As discussed in box 4.8, Apps are allowed to tell consumers that paid content is not available via in-app payments.

Box 4.8: ‘Read only’ apps: alerting consumers to alternative payment options

‘Read only’ apps are also restricted from mentioning off-app payment options. In its ‘time to play fair campaign’, Spotify claims that this prohibition has extended previously to mentioning promotions.³³⁸

These apps therefore rely on consumers to intuit that they must go to an off-app payment system (for example, the app’s website) to pay. Some examples of approved apps that reference the lack of in-app payment options (including Spotify’s current reference to its ‘premium’ product) are below.

Figure 4.4: Netflix and Stan screenshots taken by ACCC—as at 26 January 2021; Spotify screenshot taken by ACCC —as at 11 February 2021



4.3.1. ACCC’s views on Apple and Google’s restrictions

As discussed in section 3.1, the ACCC considers that Apple and Google’s respective positions as ‘gatekeepers’ to the app marketplace enables them to each set terms and conditions for app developers on a ‘take it or leave it’ basis. The restrictions on app developers communicating with consumers about alternative payment methods off-app is one example of this.

The ACCC considers that Apple and Google’s respective restrictions result in insufficient information for informed choice: consumers are not fully informed about the payment options available to them, including possibly cheaper options for content that they will access in an app.

³³⁷ ACCC, [App marketplaces report – App developer questionnaire responses](#), 27 November 2020, response 23J.

³³⁸ Spotify, [‘Time to Play Fair’](#), accessed 24 March 2021.

The restrictions also limit the business models available to app developers, which can in turn lead to a loss of innovation. 'Read only' apps do not offer in-app payments and cannot inform consumers about how to pay for content off-app. This model is more viable for apps with an existing customer base and strong name recognition, who are able to rely on consumers seeking out alternative payment systems with little information or prompting in the app. For new and emerging apps, the inability to direct consumers off-app makes operating as a 'read only' app more challenging. This might affect competition between apps within a specific category, where one app operates as a 'read only' and the other does not.

Potential measures to address information asymmetry and limitations on developers

One measure to address this information asymmetry and enable greater consumer choice is a requirement that app marketplaces allow developers to communicate with consumers about alternative payment options. While this would only address off-app payments (and not the IAP requirements discussed at sections 4.1 and 4.2) it would nonetheless be likely to mitigate some of the harm that consumers face as they would at least be aware of alternative payment options. The ACCC considers this measure a less restrictive option to the possible unbundling or price control approaches noted above.

Being able to inform consumers of, and direct them to, alternative ways to pay for content off-app would also benefit app developers. Those developers currently using the app marketplaces' respective IAP systems would have the opportunity to avoid the app marketplaces' commissions and receive payments from consumers through systems that might attract a lower fee. Developers that currently only offer off-app payments also stand to benefit: operating as a 'read-only' app would become more viable if information about payment options off-app are displayed to users in-app.

The ACCC notes that the additional time and effort associated with leaving an app to make a payment may act as a disincentive for some consumers. This consumer friction, resulting in consumers electing to make payments in-app rather than going off-app, may be more prevalent in relation to small, repeated purchases, such as buying 'lives' in a game. However, the ACCC expects some consumers will be willing to leave an app for more favourable prices, particularly when larger savings are available, such as payments for ongoing subscriptions.

The ACCC also notes that facilitating app developers bypassing the app marketplaces' in-app payment systems may make this recovery mechanism less effective for Apple and Google. As with the unbundling discussion above, it is unclear what detriment to app developers may arise from any resultant changes to Apple and Google's revenue raising model. However, the ACCC expects that Apple and Google would be more likely to change their revenue raising models only if most or all developers took the option to bypass IAP.

As outlined in chapter 3, the ACCC notes that other jurisdictions are considering measures to address the exercise of market power by digital platforms. For example, the European Commission's (EC) draft Digital Markets Act (EU) and Digital Services Act (EU) proposes a set of rules on gatekeeper platforms, including requiring gatekeepers to allow consumers to link up to businesses outside their platforms,³³⁹ which some commentators have noted may address concerns raised by app developers regarding restrictions that are imposed by app marketplaces to inhibit or prevent services from bypassing these commissions.³⁴⁰ In the UK, the CMA's Digital Markets Taskforce's advice regarding a 'Strategic Market Status regime'

³³⁹ European Commission, [The Digital Markets Act: Ensuring fair and open digital markets](#), accessed 24 March 2021; European Commission, [Proposal for a Regulation of the European Parliament and of the Council on contestable and fair markets in the digital sector \(Digital Markets Act\)](#), 15 December 2020, p 39.

³⁴⁰ D Antal et. al., '[Music Streaming: Is it a level playing field?](#)', *Competition Policy International*, 23 February 2021, accessed 24 March 2021.

for digital platforms included the imposition of pro-competitive interventions. Possible interventions include those relating to consumer choice and addressing consumer inertia.³⁴¹

The UK and EC draft proposals, as well as the reports which lead to these proposals, highlight the similarity of the issues across a range of gatekeeper platforms and services, including app marketplaces. The ACCC will continue to explore the issues highlighted here in relation to app marketplaces as well as in other digital platform markets through the course of the DPSI.

Potential measure 1: to address inadequate payment option information and limitations on developers

There is a need for greater awareness about the payment options available to consumers through an obligation on marketplaces to allow developers to provide users with information about alternative payment options.

³⁴¹ CMA, [Advice of the Digital Markets Taskforce – Appendix D: The SMS Regime: pro-competitive interventions](#), 8 December 2020, pp D13–D14.

5. Discovery and display of apps

- Discoverability is an important determinant of competition in downstream app markets. Apps need a fair opportunity to be discovered by consumers in order to compete against rivals.
- There are various ways that consumers can find apps on the app marketplace. However, according to Apple, 65% of total app downloads come from consumers using search functions on the App Store.
- Changes in the operation of app marketplace discovery tools, including search algorithms and featured editorials, can have a large impact on an app's ability to reach consumers and to compete effectively. App developers would benefit from a better understanding of app marketplace search algorithms and impending changes.
- Some apps may have more discovery opportunities than others in the App Store, such as paid apps and apps that allow for in-app payments.
- Apple and Google's own apps benefit from being pre-installed and displayed on prominent locations of smartphones. Apple and Google's apps may also be set as defaults and benefit from not having competing apps pre-installed. In this way, pre-installation of apps can limit consumer choice to the detriment of competition in downstream app markets.

This chapter outlines how the app marketplaces can benefit consumers, by providing tools to help them discover apps, and considers how App Store and Play Store policies or practices impact third party developers and on competition and innovation in downstream markets for apps. This chapter is structured as follows:

- **Section 5.1** sets out how consumers can discover apps in the App Store and Play Store by using the search function or by browsing the marketplace.
- **Section 5.2** discusses the lack of transparency for app developers regarding the operation of the search function in the app marketplaces.
- **Section 5.3** considers whether some apps may have greater discovery opportunities on the App Store.
- **Section 5.4** discusses the pre-installation of apps and the potential benefits and consequences for competition and consumer outcomes.

5.1. Consumers' discovery of apps in the App Store and Play Store

Discoverability refers to the degree to which apps can be found by consumers. Discoverability can determine whether an app 'lives or dies' due to the very large number of apps now on the App Store and the Play Store.³⁴²

While some consumers may search for apps already knowing the specific app they want to download,³⁴³ others benefit from using the discovery tools that Apple and Google provide in their app marketplaces to find new apps that also meet their needs and interests. In addition to app discovery, Apple and Google both provide tools such as user ratings (including age and content ratings) and reviews, to help consumers compare and choose the right app.

A key discovery tool for consumers on the App Store and Play Store is the search function, where consumers may enter a single keyword or a phrase to search for apps. In response to a search query, Apple and Google use proprietary algorithms to determine which apps are most relevant to the query and the order in which those apps will be displayed. Search results may return both organic and paid results. Organic results are relevant, free listings that appear in search results and are typically displayed less prominently than paid results. Paid results are advertisements taken out by the app developer and appear at the top of search results. Discovery through search is important for apps' success; for example in 2019, 65% of app downloads on the App Store occurred directly after a search.³⁴⁴

Apps may also be discovered by browsing various tabs of the App Store and Play Store. For instance, both marketplaces have editorialised sections displayed in prominent locations where select apps are promoted or recommended to users. The main editorial section of the App Store is called the 'Today' tab, however the 'Apps' and 'Games' tabs may also contain editorial content.³⁴⁵ On the Play Store, select apps are promoted on various sections such as 'Recommended for you' and 'Editor's Choice'. While developers cannot pay to be featured on App Store editorials, developers may pay Google to be featured on certain sections of the Play Store.³⁴⁶ The benefits of such featuring are evident, as Sensor Tower estimates that apps that have been universally featured on the Play Store to all users (as opposed to only being recommended algorithmically to select users) experienced a threefold increase in median downloads in 2017-18.³⁴⁷

More successful apps may also appear on various charts such as 'Top Free' and 'Top Paid' charts on the stores. Appearance on these top charts are usually for apps with the highest number of downloads or highest revenues over a period of time. A 2020 study found that new apps that break into the App Store's 'Top Free' and 'Top Paid' charts experienced significant increases in downloads (as much as 80%).³⁴⁸

Figures 5.1 and 5.2 below illustrates how consumers may discover apps through search or by browsing the App Store and Play Store.

³⁴² Australian Business Software Industry Association, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 2 October 2020, p 7; Apple, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 2 October 2020, p 4; Statista, [Number of available applications in the Google Play Store from December 2009 to December 2020](#), 4 February 2021, accessed 24 March 2021.

³⁴³ For example, Apple states that 70% of App Store visitors use search to find apps. See Apple, [Apple Search Ads](#), accessed 24 March 2021. Match Group submitted that app rankings are arguably less important to established developers with strong brand names since users will search directly for these apps in an app marketplace. See Match Group, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 16 October 2020, p 14.

³⁴⁴ Apple, [Apple Search Ads](#), accessed 24 March 2021. App Store data from all available countries and regions (excluding China mainland), 2019.

³⁴⁵ Apple, [Introducing the New App Store](#), *Apple Developer*, accessed 24 March 2021.

³⁴⁶ Paid listings on the Play Store are covered in greater detail in box 5.1.

³⁴⁷ J Briskman, 'iOS 11's App Store Increases Downloads of Featured Apps up to 800%', *Sensor Tower Blog*, 20 April 2018, accessed 24 March 2021.

³⁴⁸ Z Gokgoz, M Ataman, and G Bruggen, [There's an app for that! understanding the drivers of mobile application downloads](#), *Journal of Business Research*, 123 (2021), p 431.

Figure 5.1: Discovering apps via search on the App Store (left) and Play Store (right)³⁴⁹

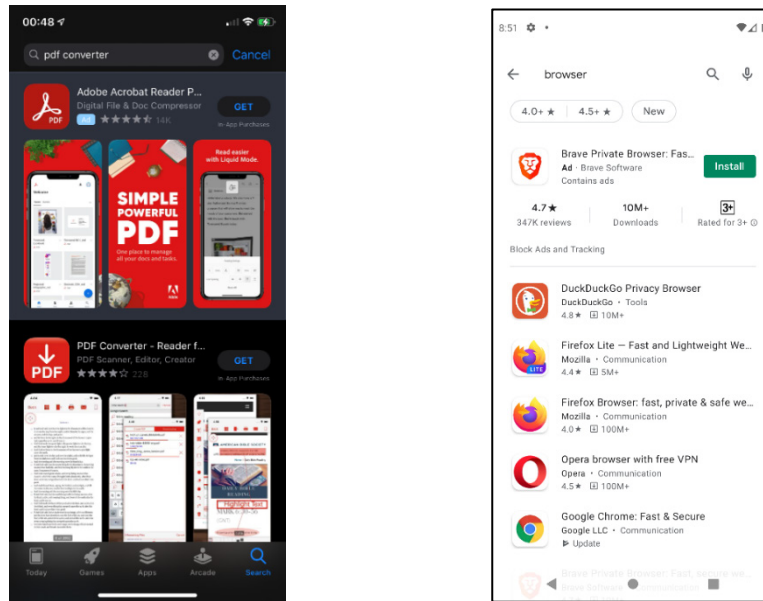
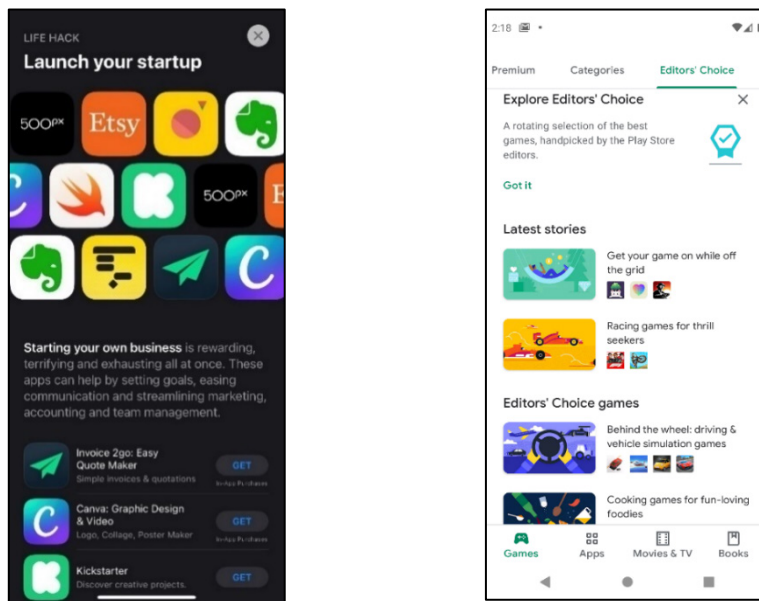


Figure 5.2: Discovering apps by exploring/browsing the App Store (left) and Play Store (right)³⁵⁰



³⁴⁹ Screenshot of Australian Play Store's search results was taken using Android Studio emulating a Google Pixel running Android 10 on 10 February 2021. Screenshot of the Australian App Store's search results was taken using an iPhone X running iOS 14.3 on 30 December 2020.

³⁵⁰ Screenshot of the Australian Play Store's Editor's Choice tab was taken using Android Studio emulating a Google Pixel running Android 10 on 15 February 2021. Screenshot of the Australian App Store's Today tab were taken using an iPhone X running iOS 14.3 on 29 January 2021.

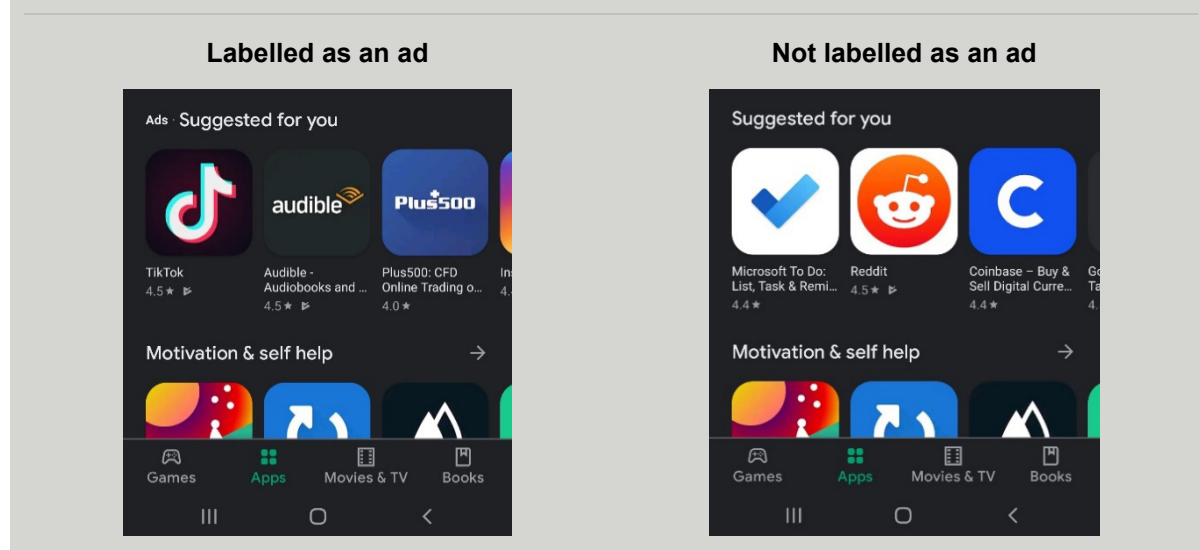
There are also sections within the App Store and Play Store that feature paid listings in prominent locations. To promote transparency and ensure consumers are not misled, it is important that any paid listings are clearly labelled, as discussed in box 5.1.

Box 5.1: Paid app listings on the Play Store

In addition to paid search results, app developers may pay Google to have their app displayed in prominent locations of the Play Store. According to Google, apps appearing in the 'Suggested for you' and 'Related to this app' section may be paid app listings.³⁵¹

Figure 5.3 recorded on 2 March 2021 on a Samsung Galaxy S10 smartphone, shows an example of the Android 11 version of the Play Store where the apps displayed in the 'Suggested for you' section in the Apps tab were labelled as an ad in one instance and not labelled as an ad in another instance. Google has advised that if Google does not have sufficient paid placements to fill the tab under the 'Suggested for you' heading, it will show organic results in this tab.³⁵² The ACCC is continuing to look at this issue.

Figure 5.3: Play Store 'Suggested for you', captured on 2 March 2021 on a Samsung Galaxy S10 running Android 11 with One UI 3.0



5.2. There is a lack of transparency for app developers regarding the operation of search

Discoverability is critical to the competitive success of an app – if a consumer cannot find an app, they are unable to download it and the chances of the app succeeding in the marketplace diminishes. To assist app developers in improving or maintaining discoverability of their app on search, both Apple and Google make available some information about how their algorithms work, as discussed below.

³⁵¹ Google, [About app campaigns](#), accessed 22 February 2021; Information provided to the ACCC.

³⁵² Information provided to the ACCC.

5.2.1. App marketplaces provide limited information on the operation of their search algorithms

Apple advises developers that the main parameters considered in app ranking and discoverability on the App Store are the following:

1. matches with app title, descriptions and categories with the user's search query
2. number and quality of the app's ratings
3. number and quality of the app's written reviews
4. the app's number of downloads
5. date when the app was launched, and
6. whether the app has violated any App Store rules.³⁵³

Google's website notes that the Play Store's algorithm takes account of the following broad factors in determining relevance and ranks:

1. the app's perceived relevance with the search term based on its title and descriptions, its category, etc.
2. quality of the app based on factors such as visual design, technical performance and stability, degree of customer support provided by developers, etc.
3. user feedback through ratings and reviews
4. whether the user experience provided by the app is meaningful and lasting
5. frequency of updates to the app, and more.³⁵⁴

Google also periodically provides blogs and presentations to give developers a deeper understanding into some of the parameters that influence tools such as search.³⁵⁵

The ACCC considers that these disclosures are very likely to be only a fraction of all the signals currently considered by the marketplace search algorithms. Indeed, Apple disclosed in 2019 that the App Store search algorithm considered a total of 42 signals in determining relevance and ranks of apps against a given search query.³⁵⁶ However, Apple only identified and provided some detail on four of those 42 signals.³⁵⁷

Some app developers consider that the current level of disclosure is inadequate and that Apple and Google should provide more information about the signals determining search results. In response to the ACCC's Issues Paper for this Report, Free TV Australia, Commercial Radio Australia, SBS, ABSIA, and the Australian Investment Council (AIC) submitted that app developers have little understanding on how search algorithms operate and raised concerns regarding the opacity of the algorithms.³⁵⁸

³⁵³ Information provided to the ACCC; Apple, [Optimising for App Store Search](#), *App Store Developer*, accessed 24 March 2021.

³⁵⁴ See Google, [App Discovery and Ranking](#), *Play Console Help*, accessed 24 March 2021; Google, [Get discovered on Google Play search](#), *Play Console Help*, accessed 24 March 2021.

³⁵⁵ Google, [Submission to the European Commission workshop on ranking transparency guidelines in the framework of the EU regulation on Platform-to-Business relations](#), 2019.

³⁵⁶ J Nicas and K Collins, '[How Apple's Apps Topped Rivals in the App Store It Controls](#)', *The New York Times*, 9 September 2019, accessed 24 March 2021.

³⁵⁷ Apple, [Optimizing for App Store Search](#), as of 17 June 2019, accessed via Wayback machine 24 March 2021.

³⁵⁸ See Free TV Australia, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 16 October 2020, p 15; Commercial Radio Australia, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 2 October 2020, pp 4–5; Australian Business Software Industry Association, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 2 October 2020, p 6; SBS, [Submission to the ACCC Digital](#)

Responses to the ACCC's app developer survey also suggested dissatisfaction among app developers, with over half of the developers who responded to the questionnaire suggesting they were not satisfied with the level of transparency provided by Apple and Google on the operation of discovery tools such as search algorithms.³⁵⁹

The ACCC understands market participants' concerns that too much transparency on algorithms could lead to gaming of the algorithms and have adverse effects on consumers. Balancing the advantages and disadvantages of greater transparency is discussed in later sections of the chapter.

5.2.2. Changes to app search algorithms or display can impact the visibility of apps on the app marketplace and affect app developers

Apple and Google state that they have incentives to maintain and/or increase the quality of their app search functions – in how relevant apps are found and how those results are displayed – to ensure consumers are able to find the best app that suits their needs and that their search experience is positive. Apple and Google both state that they regularly review and change the operation of search algorithms and how these search results are displayed to ensure they are delivering high-quality and relevant results to consumers.³⁶⁰

However, given that a significant portion of an app's downloads and hence its success comes from consumers' use of search, changes made to search without adequate notice, while possibly made with the intent of improving the quality of search for consumers, may have adverse effects for some app developers and for competition in downstream app markets.

A number of app developers submitted to the ACCC that Apple and Google do not provide them with sufficient information or warning to understand impending changes to app search functions, which leaves them vulnerable to a reduced ability to reach consumers.³⁶¹ The ACCC notes that app developers have raised similar concerns about the opacity of app marketplace algorithms to the Netherlands Authority for Consumers and Markets Authority, and Japan's Fair Trade Commission.³⁶²

Mobile apps analytics firm AppTweak's systems identified several instances in the past few years where Apple and Google appear to have rolled out changes to their app marketplace search algorithm.³⁶³ The ACCC analysed the impact of some of the algorithm changes and found that Apple's updates to the search algorithm during certain periods led to significant fluctuations in the keyword rankings of a number of apps on search results.

The ACCC analysed the impact of some of the algorithm changes and found that Apple's updates to the search algorithm during certain periods led to significant fluctuations in the keyword rankings of a number of apps on search results. For instance, as figure 5.4 below shows, data from Sensor Tower suggests that following algorithm updates on 13 July 2018

[Platform Services Inquiry Second Interim Report](#), 26 October 2020, p 8; Australian Investment Council, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 8 October 2020, p 7.

³⁵⁹ Of the 62 developers that responded to the survey question 'Do app stores provide you with sufficient and clear information about how 'featuring' and 'ranking' processes operate?', 37 (or 60%) developers responded 'No', while 25 said 'Yes'.

³⁶⁰ See Apple, [Discovery on the App Store and Mac App Store](#), *App Store Developer*, accessed 24 March 2021; P Bankhead, [Improving discovery of quality apps and games on the Play Store](#), *Android Developers Blog*, accessed 24 March 2021.

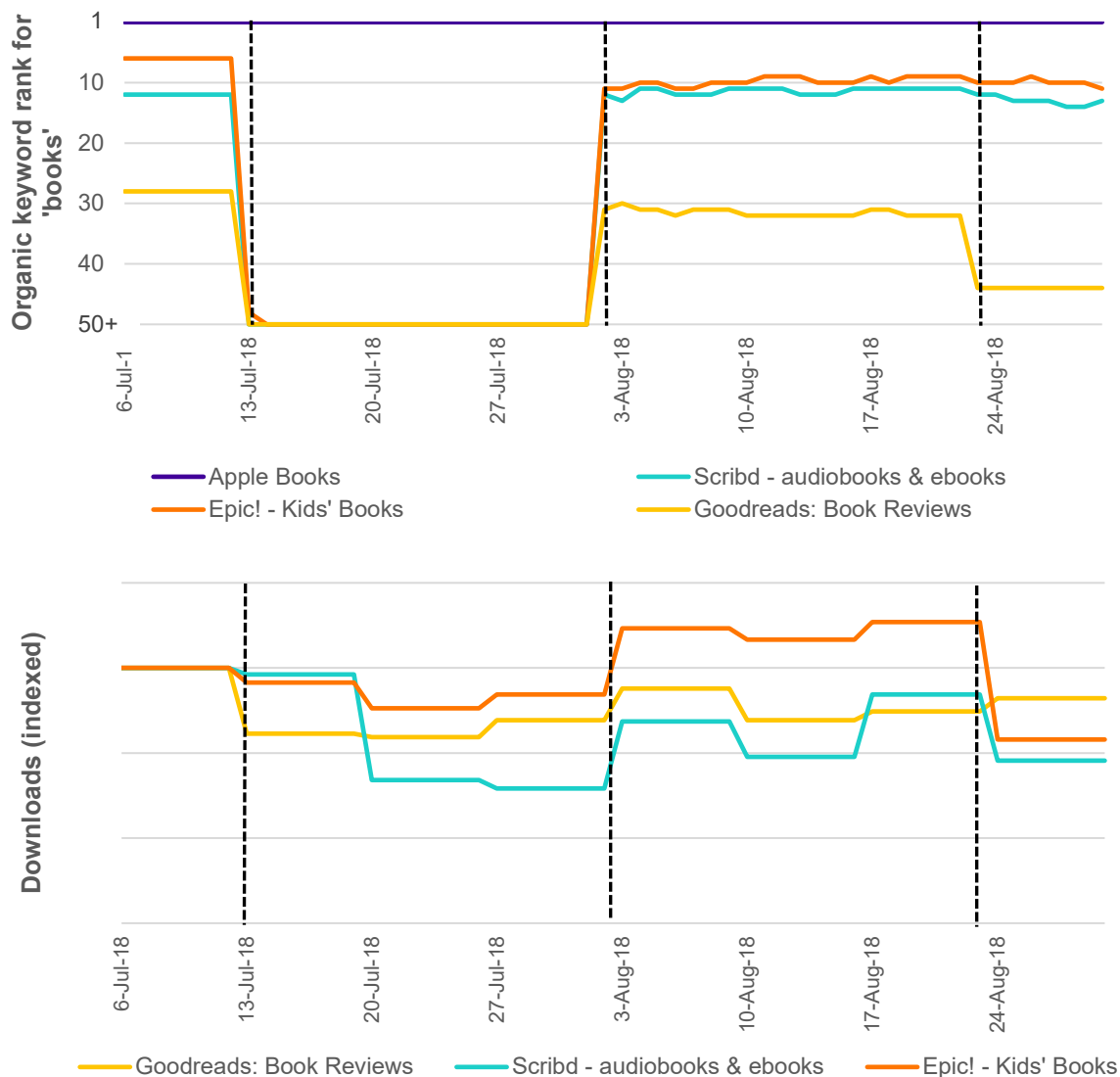
³⁶¹ See Commercial Radio Australia, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 2 October 2020, p 5; SBS, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 26 October 2020, p 8.

³⁶² ACM, [Market study into mobile app stores](#), 11 April 2019, p 85; Japan Fair Trade Commission, [Report regarding trade practices on digital platforms: Business-to-Business transactions on online retail platform and app store](#), October 2019, p 87.

³⁶³ AppTweak, [App Store Algorithm Change Detector](#), accessed 24 March 2021, App Store; AppTweak, [App Store Algorithm Change Detector](#), accessed 24 March 2021, Google Play Store. AppTweak's historical data on keyword ranking changes on search results only dates back to January 2018.

and 3 August 2018, many apps including Goodreads, Scribd, Epic! – Kids’ Books saw fluctuations in their ranks across a number of keywords on the App Store including a higher traffic keyword ‘books’.³⁶⁴ Sensor Tower’s data also showed that fluctuations in downloads for these appeared to be influenced by reductions and increases in their rankings on search results.

Figure 5.4: Changes to App Store (Australia) search algorithm (vertical dotted lines) from July 2018 to August 2018 led to fluctuations in ranks and downloads for apps



Source: ACCC analysis of data from Sensor Tower and AppTweak.

Note: Downloads are weekly. Base downloads were calculated using an average of the relevant apps’ downloads from 6 July 2018 to 12 July 2018. Data on downloads for Apple Books for the relevant period is not available on Sensor Tower.

The ACCC notes that the App Store algorithm updates during July to August 2018 also affected other apps. For example, data from Sensor Tower shows that apps such as Spotify, iHeartRadio, and Audible experienced fluctuations in search rankings for the search term

³⁶⁴ According to data from Sensor Tower, from July to August 2018, the search rankings of Goodreads, Scribd, Epic! – Kids’ Books apps fell and then increased significantly on a number of keywords including audible, books, classroom, kindle, kids, reading, etc. Sensor Tower estimates how often a specific keyword is searched within the App Store. A higher ‘Traffic score’ means more people are searching this term, and more people will see the apps ranking for this keyword. The traffic score is on a logarithmic scale (base 10) from 0 – 10, with 10 being the highest amount of traffic towards a single keyword. Sensor Tower has a traffic score of 5.5 for the keyword ‘books’ on the Australian App Store as of 24 March 2021.

'podcast', while music apps such as Tidal, Deezer, and Amazon Music experienced ranking fluctuations for the search term 'music'.

Changes in how the search results were displayed in Play Store over time have also led to sudden changes in discoverability for many apps. For instance, Android developers reported that many of their apps experienced sudden and significantly reduced downloads and installs, and suspected this was due to a change in the Play Store's algorithm.³⁶⁵ Some developers reported reductions of 94% in average daily downloads following the suspected Play Store algorithm change.³⁶⁶ Google later noted that it has implemented changes to the Play Store's search and discovery algorithms' consideration of app quality and user engagement.³⁶⁷ The changes meant that apps and games that have high retention rates, low crash rates and low uninstalls are recommended more often on the Play Store.

5.2.3. There is a need for changes in the search algorithm to be communicated in a timely manner with the right amount of detail

Given the potentially significant impact of algorithm changes on the ability of apps to succeed in the market, app developers invest time, effort, and money to understand changes in the algorithms to ensure the visibility of their apps to consumers. Some app developers state that the 'complexity and fluidity' of discovery tools such as search mean that they need to engage experts in app marketing firms (otherwise known as 'App Store Optimisation' firms) to follow how these processes are evolving and to ensure that their app remains visible on the app marketplaces.³⁶⁸

The effort expended by developers in optimising for search visibility is likely to be higher due to a lack of transparency by Apple and Google on the operation of search. Given this, many app developers have called for additional transparency from Apple and Google on the operation of marketplace discovery tools, as this would help reduce their costs.

However, as raised previously, Apple and Google have legitimate concerns about disclosing too much information about their algorithms. Apple has stated that it does not divulge the workings of the App Store's search algorithm in order to maintain a level playing field for developers and prevent the manipulation of results.³⁶⁹ While Google has not provided the reasons why it is not more transparent regarding the Play Store's search algorithm, the ACCC considers they are likely to be similar to the reasons that it keeps details of the Google Search algorithm confidential: to ensure that the algorithm provides high-quality results without allowing for the manipulation or 'gaming' of the algorithm.³⁷⁰ Google said that if it were to reveal the algorithm used by Google Search in its entirety, market participants could simply optimise against these signals without the need to improve the quality of their offering.³⁷¹

³⁶⁵ L Lanier, [Google Changes 'Discovery Algorithm' on Google Play, Leading to Panic From Some Devs](#), *Variety.com*, 29 June 2018

³⁶⁶ M Rahman, [Developers are facing huge drop in new installs after Play Store algorithm changes](#), *XDA Developers*, 27 June 2018, accessed on 23 February 2021; accessed 25 March 2021; E Seufert, [The Google Play algorithm change and the peril of ASO](#), *MobileDevMemo*, 2 July 2018, accessed 25 March 2021;

³⁶⁷ Android Developers Blog, [Improving discovery of quality apps and games on the Play Store](#), 29 June 2018, accessed 25 March 2021.

³⁶⁸ ACCC, [App marketplaces report – App developer questionnaire responses](#), 27 November 2020, response 60.

³⁶⁹ T Mickle, ['Apple Dominates App Store Search Results, Thwarting Competitors'](#), *The Wall Street Journal*, 23 July 2019, accessed 24 March 2021.

³⁷⁰ Google, [Submission in response to the ACCC's Digital Platforms Inquiry Preliminary Report](#), 16 February 2019, p 43.

³⁷¹ Google, [Submission of Google Australia Pty Ltd to the ACCC Digital Platforms Inquiry](#), 26 October 2018, p 5.

Some app developers also accept that too much transparency could have unintended effects if developers abuse their knowledge of the determining factors and manipulate search.³⁷²

The ACCC also recognises the risk that manipulation of the algorithms can lead to poor outcomes for consumers in their search for apps and may deter app developers from providing high quality innovative apps.

The level of disclosure by Apple and Google in this regard needs to balance the need to provide reasonably adequate and timely information to app developers, with the need to protect the algorithms from potential manipulation which would result in a poor outcome for consumers.

5.3. Greater discovery opportunities for certain apps on the App Store's search and editorials

In response to the ACCC's Issues Paper and App Developer Questionnaire, many stakeholders raised significant concerns that the app search algorithms may be treating some apps more favourably than others and result in those appearing more prominently in App Store search results, as discussed below.³⁷³

5.3.1. First-party apps appear to be more favourably treated by the App Store search algorithm and App Store search rules

Independent investigations conducted separately by The Wall Street Journal and The New York Times both found, based on their analysis of historical search ranking data, that the App Store's search algorithm may have systematically ranked Apple's own apps more favourably than competitors'.

In June 2019, The Wall Street Journal tested how 40 of Apple's own apps were displayed in App Store search results against a set of commonly searched keywords.³⁷⁴ The Wall Street Journal found that Apple apps mostly ranked first in the searches it conducted, with only four of the 40 Apple apps not ranking first in any of the searches.³⁷⁵ The New York Times' analysis of search results collected by Sensor Tower also found that Apple's apps have ranked first for at least 700 search terms in the store.³⁷⁶

According to The New York Times, some of its searches produced as many as 14 Apple apps before showing results from third-party apps. The searches also displayed Apple apps which did not appear relevant to the query. For example, a search with the term 'podcast' would have displayed Apple Podcast first, followed by 13 Apple-owned apps including Compass, Find My Friends, and Tips. In some cases, direct searches for the titles of competing third-party apps showed Apple apps first and ahead of those competing third-parties.

³⁷² See ACCC, [App marketplaces report – App developer questionnaire responses](#), 27 November 2020, responses 6, 22, 49, 62; The App Association, [Position Paper submitted to the European Commission workshop on ranking transparency guidelines in the framework of the EU regulation on Platform-to-Business relations](#), 6 January 2020, pp 1–3.

³⁷³ See ACCC, [App marketplaces report – App developer questionnaire responses](#), 27 November 2020, responses 20, 26, 35, 50; F Free TV Australia, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 16 October 2020, p 15; Commercial Radio Australia, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 2 October 2020, pp 4–5; Australian Investment Council, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 8 October 2020, p 7.

³⁷⁴ T Mickle, ['Apple Dominates App Store Search Results, Thwarting Competitors'](#), *The Wall Street Journal*, 23 July 2019, accessed 24 March 2021. The Wall Street Journal conducted searches with a set of popular keywords for each app category to see if an Apple app surfaced first in those search results. For Apple apps falling within the music category, for example, The Wall Street Journal searched for 'music,' 'songs' and 'playlist.'

³⁷⁵ T Mickle, ['Apple Dominates App Store Search Results, Thwarting Competitors'](#), *The Wall Street Journal*, 23 July 2019, accessed 24 March 2021.

³⁷⁶ J Nicas and K Collins, ['How Apple's Apps Topped Rivals in the App Store It Controls'](#), *The New York Times*, 9 September 2019, accessed 22 February 2021.

Analysis by The New York Times also found that established rival developers slipped down the rankings as Apple introduced new services in their product categories. For example, Spotify had long been among the top search results for the search term 'music' since 2013 along with other popular music streaming apps such as Pandora Music and SoundCloud according to Sensor Tower.³⁷⁷

However, as The New York Times pointed out, data collected by Sensor Tower suggests Apple Music quickly became the top search result for 'music' within days after Apple started listing the app on the App Store in mid-2016, eclipsing rival music streaming apps such as Spotify. Similarly, Audiobooks.com has been the top ranked app shown by the App Store for 'audiobooks' for nearly 2 years but was overtaken by Apple Books on the same day that Apple started listing Apple Books on the App Store. Audiobooks explained to The Wall Street Journal that losing the top search ranking to Apple 'triggered a 25% decline in Audiobooks.com's daily app downloads.'³⁷⁸

In response to the reports by The New York Times and The Wall Street Journal, Apple said it changed the App Store's search algorithm so that first-party apps no longer dominated the top positions of search results.³⁷⁹

While it has made changes to the algorithm, Apple explicitly denied manipulating the App Store search algorithm to benefit its own apps. Apple's Senior Vice President responsible for the App Store said 'there's nothing about the way we run search in the App Store that's designed or intended to drive Apple's downloads of our own apps'. Apple added that its apps tended to rank highly because they are popular with users and because their generic names like 'books' and 'music' closely match high-traffic search terms.³⁸⁰

However, the ACCC notes that many of Apple's apps that appear at the top of search results already come pre-installed on iOS devices.³⁸¹ While the ACCC does not have data on this, it considers it unlikely that there are a significant number of users downloading these apps on the App Store and consequently for these apps to be considered 'popular' on the basis of downloads.

Many of Apple's apps are also not subject to user reviews and ratings on the App Store and have not been since 2012. The ACCC notes that this inhibits users from providing feedback on Apple apps in the same way they would for third-party apps, which may be resulting in a more positive ranking of Apple apps than otherwise. Box 5.2 below discusses this issue further.

³⁷⁷ Data provided by Sensor Tower. Sensor Tower's App Store search rank history timeline for the search query 'music' only stretches to mid-June 2013.

³⁷⁸ T Mickle, '[Apple Dominates App Store Search Results, Thwarting Competitors](#)', *The Wall Street Journal*, 23 July 2019, accessed 24 March 2021.

³⁷⁹ S Perez, '[Apple tweaks its App Store algorithm as antitrust investigations loom](#)', *TechCrunch*, 10 September 2019, accessed 24 March 2021.

³⁸⁰ J Nicas and K Collins, '[How Apple's Apps Topped Rivals in the App Store It Controls](#)', *The New York Times*, 9 September 2019, accessed 24 March 2021.

³⁸¹ T Cook, '[Responses to Questions for the Record from the Honorable David N. Cicilline](#)', *Subcommittee on Antitrust, Commercial and Administrative Law*, 2020.

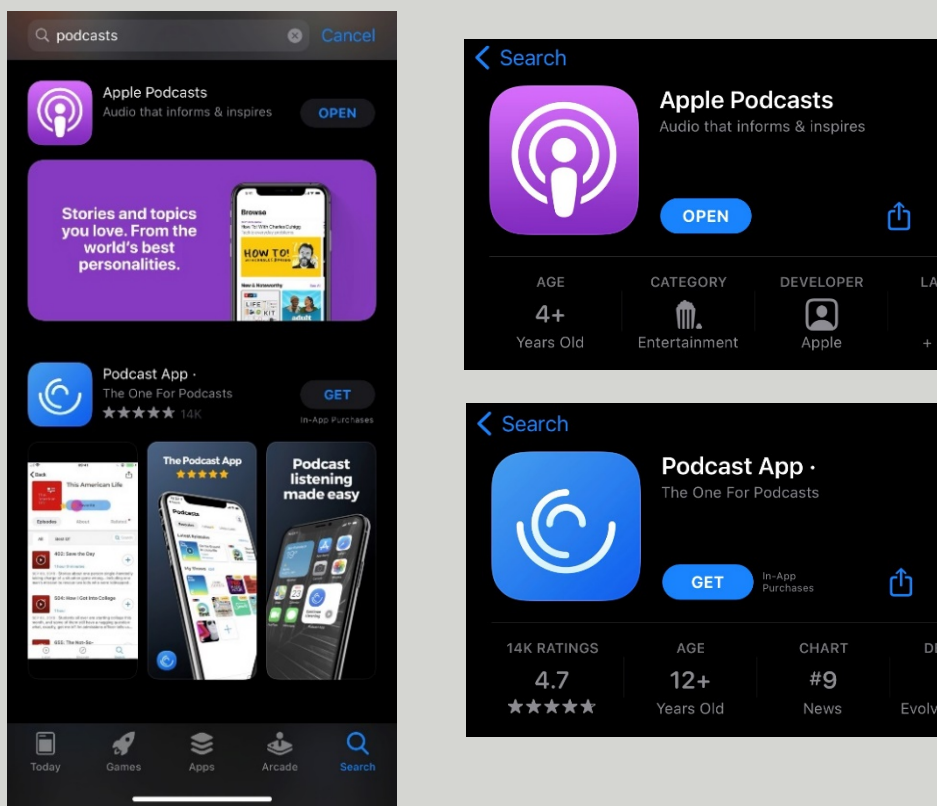
Box 5.2: Apple apps are not subject to user reviews and ratings on the App Store

The ACCC found that users are currently unable to leave written reviews or rate (from 1 to five stars) 40 of the 60 Apple first-party apps that are made available on the App Store.³⁸² Apple has said that Apple apps that are 'integrated' on the iPhone are not reviewable by users on the App Store. However, those Apple apps that are only available if they are downloaded through the App Store are reviewable.³⁸³

Key Apple apps that come pre-installed on devices including Apple Music, Apple Podcasts, Apple News, Apple TV+, and Apple Fitness are available to download from the App Store, but are not reviewable by users on the App Store. Many of these apps deliver paid content to their users.

Figure 5.5 below show how Apple apps such as Apple Podcasts appear to be advantaged in the display of search results on the App Store due to not being subject to user ratings and reviews while rival apps are.

Figure 5.5: Display of Apple apps on the App Store compared to rival apps, both screenshots captured on 3 February 2021 on an iPhone X running iOS 14.3.



Data collected by Sensor Tower suggests that many of Apple's apps had very low ratings at the time their ratings and reviews were removed from the App Store in 2012. For example, Apple Books had a 2.7 star rating, while Apple Podcasts had a rating of 1.7 stars.

³⁸² T Cook, [Responses to Questions for the Record from the Honorable David N. Ci-cilline](#), Subcommittee on Antitrust, Commercial and Administrative Law, 2020.

³⁸³ T Cook, [Responses to Questions for the Record from the Honorable David N. Ci-cilline](#), Subcommittee on Antitrust, Commercial and Administrative Law, 2020.

Phillip Shoemaker (former Head of App Store review at Apple) suggested that Apple's executives were aware of the poor ratings of some Apple apps. Around 2015, his team proposed to senior executives that it remove all apps rated lower than two stars from the App Store to ensure overall quality. However, this proposal was eventually rejected, with an Apple executive allegedly opining that the idea 'would kill our Podcasts app'. An Apple spokesperson speaking to The New York Times said they did not recall making such comments.³⁸⁴

The ACCC considers that product reviews and ratings play an important role in helping consumers to make decisions about which products to buy or use. Where user reviews or ratings for Apple apps (particularly negative reviews) are deliberately and/or selectively removed, for commercial or promotional reasons, it may both mislead consumers as to the nature and quality of the products being offered and distort the competitive process.

Many Apple apps also have titles similar to common and high-traffic search terms such as 'mail', 'books', 'music', 'podcasts', etc. which may help them rank highly. However, documents reviewed by the US House of Representatives Subcommittee found that Apple has actively demoted third-party apps in search rankings because they used a commonly searched keyword in its title. Apple's employees determined such apps were trying to cheat the algorithm by giving their apps the name of a common search term.³⁸⁵

Apple determined that at least one third-party app had achieved its high search ranking because its name was a generic name that was also a common search term. Apple's employees determined it was 'cheating' to give an app the name of a common search term. In an email thread with Philip Schiller, Apple's Senior Vice President, Worldwide Marketing, an Apple employee wrote that '[s]ince the app name matched a broad query term like 'photo editor' the developer was able to game the query with a direct name match.' The Apple employee explained that '[t]he app has been added to the Search Penalty Box for rank demotion', and the action was labelled as complete.³⁸⁶

A level playing field in app marketplace search is a prerequisite in ensuring a competitive process in downstream mobile app markets.

5.3.2. Paid apps and apps with in-app payments appear to be treated more favourably on the App Store's search and editorial sections

Display of in-app payments on App Store search and editorials

As discussed in previous chapters of this Report, apps distributed on the App Store and Play Store have a variety of business models. Where payment is made to apps using Apple or Google's proprietary in-app billing systems, Apple or Google earn a commission (15 to 30%) on the sales made.³⁸⁷

Beginning with iOS 11 in 2017, Apple announced that apps with in-app payments would be more discoverable on the App Store, with these items able to appear on search results and editorial sections such as the Today, Apps, and Games tabs.³⁸⁸ Apple stated that the change was a 'terrific way for developers to gain additional exposure for their in-app purchases on the App Store',³⁸⁹ and Apple encouraged developers to think about their apps' in-app

³⁸⁴ J Nicas and K Collins, '[How Apple's Apps Topped Rivals in the App Store It Controls](#)', *The New York Times*, 9 September 2019, accessed 24 March 2021.

³⁸⁵ J Nicas and K Collins, '[How Apple's Apps Topped Rivals in the App Store It Controls](#)', *The New York Times*, 9 September 2019, accessed 24 March 2021.

³⁸⁶ 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 361.

³⁸⁷ Other issues related to Apple and Google's terms and conditions with regard to in-app payments were discussed in chapter 4 of the Report.

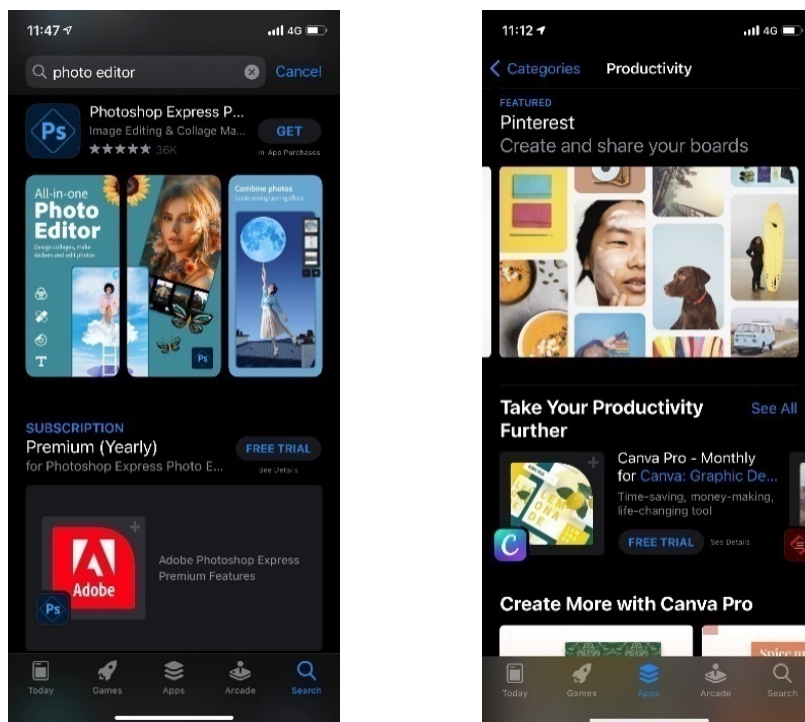
³⁸⁸ Apple, [Promoting Your In-App Purchases](#), *App Store Developer*, accessed 24 March 2021.

³⁸⁹ Apple, [WWDC 2017 – Session 302](#), *Apple Developer*, 2017, accessed 24 March 2021, minutes 23:55 to 26:40.

payments 'particularly now that they have such increased visibility'.³⁹⁰ The App Store now permits individual apps to identify up to 20 in-app payments for placement on search and editorial sections of the App Store.³⁹¹

Figure 5.6 below illustrates how in-app payments may be presented in search and editorial sections of the App Store.

Figure 5.6: In-app payments displayed on App Store search results (left) and the Apps tab (right), both screenshots captured on 19 March 2021 on an iPhone X running iOS 14.4.



As shown by figure 5.6 above, where the in-app purchase for Adobe Photoshop Express appeared on search results for the query 'photo editor', it appeared below the app itself. Based on a small number of searches conducted by the ACCC, it appears that on some search results, the top five organic search results may contain results for only three apps. The remaining two results may be for in-app payments within one of these three apps.

The ACCC considers that by making apps with in-app payments more discoverable and visible on the App Store, it is likely that the app developers could be incentivised to include in-app payments (subject to a commission by Apple) where they otherwise would. A number of app marketing firms consider the integration of in-app payments became a key tool for developers to acquire new users on iOS following the change to iOS 11.³⁹²

³⁹⁰ Apple, [WWDC 2017 – Session 301](#), *Apple Developer*, 2017, accessed 24 March 2021, minutes 43:34 to 44:31.

³⁹¹ Apple, [Promoting Your In-App Purchases](#), *App Store Developer*, accessed 24 March 2021.

³⁹² See, for example, Phiture, [Getting Ready for iOS 11](#), 2018, accessed 24 March 2021; G Kwakyi, [How to Optimize for Promoted IAP \(In App Purchases\)](#), *Gabe Kwakyi*, 21 November 2017, accessed 24 March 2021; Gummicube, [In-App Purchase Promotions: Why Does it Matter?](#), 18 October 2018, accessed 24 March 2021; A Michaeli, [10 Changes to the App Store That Can Get Your App More Downloads](#), *Appfigures*, accessed 24 March 2021.

Discovery opportunities appear greater for paid apps and apps with in-app payments on App Store editorial tabs

As discussed in previous sections, there is no opportunity for developers to pay Apple to be placed on the editorial tabs.³⁹³ However, it appears that apps which generate revenue for Apple by way of commissions are more likely to be displayed prominently on editorial sections of the App Store.

According to Apple, around 16% of apps supplied on the App Store have business models that require the use of the store's in-app purchase billing system.³⁹⁴ However, ACCC analysis of Sensor Tower data found that paid apps and those which have in-app payments are selected more than proportionately for promotion on the Today Tab, Apps Tab, and Games Tab. For example, of the apps that have had at least one feature occurrence in 2020 on the Australian App Store, around 88% had in-app payments.³⁹⁵

Conversely, third-party apps that remove in-app payments may experience a sudden and abrupt reduction in promotion on the App Store. For example, Apple promoted the Netflix app in various prominently displayed editorial sections of the App Store across different countries around 2,000 times in 2018.³⁹⁶ These promotions assisted Netflix to reach millions of additional users during the year and generate more revenue.³⁹⁷ However, Netflix announced in December 2018 that it would stop offering in-app payments within its iOS and Android apps, with users needing to subscribe through Netflix's web app or web page instead.³⁹⁸ ACCC analysis of Sensor Tower data found that there was an immediate and noticeable reduction in the number of feature occurrences of Netflix on the App Store beginning January 2019.

Figure 5.7 below charts the changes in feature occurrences of Netflix over time. According to Sensor Tower, prior to the feature occurrences dropping, there were no observable reductions in Netflix's user quality ratings or user numbers, which could have explained the sudden drop in feature occurrences.

³⁹³ Apple, [Discovery on the App Store and Mac App Store](#), *App Store Developer*, accessed 24 March 2021.

³⁹⁴ Apple, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 2 October 2020, p 10.

³⁹⁵ According to data provided by Sensor Tower to the ACCC, around 12% of apps that had a feature occurrence on the Today Tab, Apps Tab, and the Games Tab of the Australian App Store in 2020 were completely free apps. Around 29% of apps featured in these sections were free apps with in-app payments, around 49% were paid apps without in-app payments, and around 10% were paid apps with in-app payments.

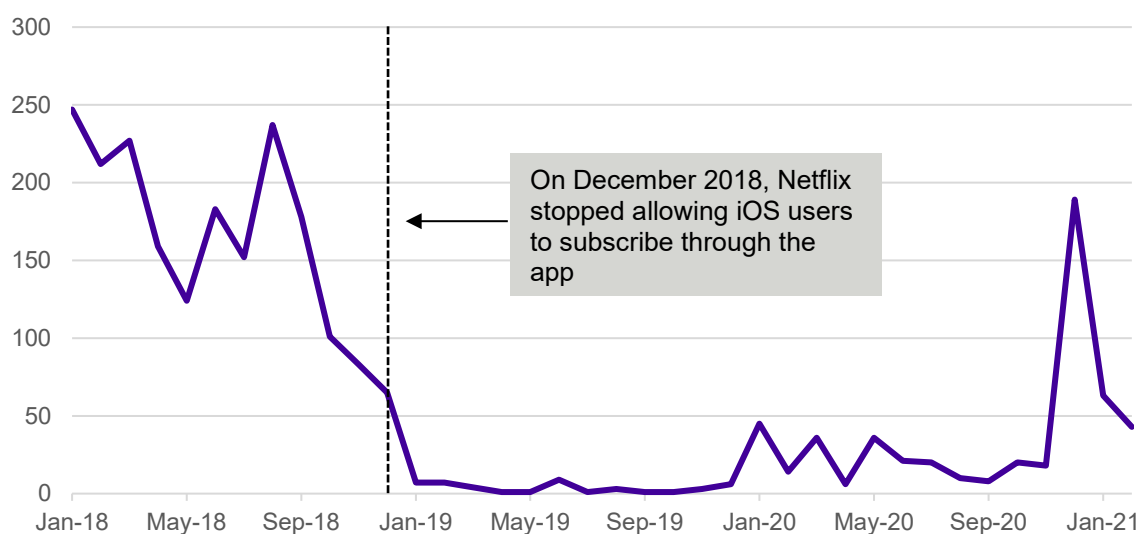
Further, data provided by Sensor Tower to the ACCC suggests that around 38% of apps that had a feature occurrence on the Today Tab, Apps Tab, and the Games Tab of the App Store worldwide in 2020 were completely free apps. Around 24% of apps featured in these sections were free apps with in-app payments, around 34% were paid apps without in-app payments, and around 4% were paid apps with in-app payments.

³⁹⁶ According to data from Sensor Tower. Includes appearance on Today Tab Stories, App of Day, App List, Large banners at the top of Apps/Games Tabs, and screenshots or video trailers on the Apps/Games Tabs. Appearance on lists without accompanying artworks on Apps/Games Tabs have been excluded.

³⁹⁷ According to data from Sensor Tower. Includes appearance on Today Tab Stories, App of Day, App List, Large banners at the top of Apps/Games Tabs, and screenshots or video trailers on the Apps/Games Tabs. Appearance on lists without accompanying artworks on Apps/Games tabs have been excluded.

³⁹⁸ J Clover, ['Netflix No Longer Offering In-App Subscription Options on iOS Devices'](#), *MacRumors*, 28 December 2018, accessed 24 March 2021.

Figure 5.7: Feature occurrences of Netflix on Today Tab worldwide falls after stopping in-app payments on iOS³⁹⁹



Other third-party apps which do not offer in-app payments, such as Stan, appear to be promoted much less than third-party apps that do, such as Disney+ and Amazon Video Prime. For example, in Australia in 2020, Disney+ and Amazon Prime were featured prominently on the App Store a total of 42 times and 27 times respectively, but Stan was not featured at all.⁴⁰⁰ Spotify, another popular app, rarely gets promoted on editorial tabs despite often being included on the App Store’s end-of-year list celebrating the ‘top apps of the year’.⁴⁰¹ Spotify does not have in-app payments and removed the option for iOS users to subscribe through the app in May 2016.

As discussed above, Apple may have a financial incentive to encourage developers to release apps with some form of paid component given they earn a share of this revenue. Increasing the visibility of apps with in-app payments may help increase downloads and purchases within these apps and ultimately increase revenue for Apple.

The ACCC considers that there is potential for consumers to be misled if they are being shown apps on the basis that they have in-app payments, rather than the ‘uniqueness’ or ‘user experience’ that Apple states it uses when featuring apps in the editorial sections of the App Store.⁴⁰²

In addition, if developers are incentivised to include a paid component in their app to achieve greater visibility (and potentially greater downloads) on editorial sections of the App Store, this may lead to higher prices for consumers, and may discourage developers from innovating and differentiating their products in the App Store.

³⁹⁹ Data sourced from Sensor Tower. Feature occurrences data on the Today Tab collected by Sensor Tower include Stories, App/Game of the Day, and App lists.

⁴⁰⁰ According to data from Sensor Tower. Includes appearance on Today Tab Stories, App of Day, App List, Large banners at the top of Apps/Games Tabs, and screenshots or video trailers on the Apps/Games Tabs. Appearance on lists without accompanying artworks on Apps/Games Tabs have been excluded.

⁴⁰¹ According to data from Sensor Tower, Spotify was featured once a year on the Today tab since 2018. In each year, Spotify was included in a Today Tab Story that listed the top apps of the relevant calendar year. See, also, Spotify, ‘[Time to Play Fair](#)’, accessed 24 March 2021.

⁴⁰² Apple, [Discovery on the App Store and Mac App Store](#), *App Store Developer*, accessed 24 March 2021.

Potential measure 2: to increase transparency and address risk of self-preferencing in app marketplace discoverability and display

There is a need for Apple and Google to be transparent to developers about changes to key algorithms and processes determining discoverability on the App Store and Play Store respectively. Apple and Google should notify third-party developers of impending changes to key parameters considered by the App Store and the Play Store's algorithms and editorial processes to enable third-party app developers to adapt to these changes in a timely way.

Potential measure 3: to provide an option for consumers to rate and review first-party apps

To enable third-party apps to compete on their merits with first-party apps and ensure informed consumer choice there is a need for consumers to be able to rate and write reviews on all apps put on the App Store by Apple and on the Play Store by Google, including first-party apps.

The ACCC notes the EU's Platform-to-Business Regulation (EU) ('P2B Regulation') which came into effect on 12 July 2020. Under the P2B Regulation, select digital platforms including the Play Store and the App Store are obliged to be more transparent and enable app developers to gain an adequate understanding of the functioning of the algorithms.⁴⁰³

The ACCC intends to observe the implementation and effectiveness of the P2B regulations, particularly as applied to app marketplaces including the Play Store and the App Store. The ACCC will continue to consider this issue and whether similar measures may be required in the future in Australia.

It is important that Apple and Google treat all apps equally on their merits and certain apps do not receive preferential treatment. The ACCC will continue to monitor these markets and explore allegations of self-preferencing.

The ACCC is also considering the broader issues that arise when digital platforms occupy critical roles (gatekeepers) and compete with those businesses which rely on access to the gatekeeper platform. As part of this process, the ACCC is considering both the extent of these concerns and the solutions being put forward overseas, including broad proposals put forward by the UK Competition and Markets Authority (the CMA),⁴⁰⁴ and by the European Commission proposals,⁴⁰⁵ which seek to address the risk of self-preferencing by vertically integrated digital platforms.

⁴⁰³ [Regulation \(EU\) 2019/1150 of the European Parliament and of the Council on promoting fairness and transparency for business users of online intermediation services](#), 20 June 2019.

⁴⁰⁴ In the UK, if Apple and Google were found to have strategic market status in relation to their respective app marketplaces, they could be required to act in accordance with a Code of Conduct based on the objectives of 'fair trading', 'open choices' and 'trust and transparency'. See CMA, [A new pro-competition regime for digital markets: Advice of the Digital Markets Taskforce](#), 8 December 2020, p 36.

⁴⁰⁵ European Commission, [Statement by Executive Vice-President Vestager on the Commission proposal on new rules for digital platforms](#), 15 December 2020, accessed 24 March 2021; European Commission, [Proposal for a Regulation of the European Parliament and of the Council on contestable and fair markets in the digital sector \(Digital Markets Act\)](#), 15 December 2020. During the announcement of the Digital Markets Act (DMA) and associated Digital Services Act, Executive Vice President Vestager identified types of conduct that the DMA seeks to address including gatekeeper platform obligations and prohibitions regarding the use of data, interoperability and self-preferencing. In relation to self-preferencing, Executive Vice-President Vestager commented, '[t]o end this practice, the Digital Markets Act will oblige the gatekeeper to adjust its search algorithm to make sure rival offers receive the same level of prominence as its own offers'.

5.3.3. There are greater discovery opportunities for Apple Arcade gaming apps

Gaming apps can be found in several parts of the App Store, such as the Games Tab and the Apple Arcade Tab. Apple Arcade, as discussed in chapter 3, is Apple's own subscription gaming service, launched in September 2019.⁴⁰⁶ At present, Apple charges AUD7.99 per month for users to be able to access a catalogue of around 150 games developed by third-party app developers, often in partnership with Apple.⁴⁰⁷

At the launch of Apple Arcade, Apple sent notifications (or 'push notifications') to iOS users which were displayed prominently on their devices promoting the new service.⁴⁰⁸ However, at that time the App Review Guidelines prohibited app developers from using push notifications for advertising purposes.⁴⁰⁹ The App Store's layout was also changed to give Apple Arcade a permanent and prominent tab.⁴¹⁰

The ACCC notes that Apple Arcade gaming apps are sometimes promoted on the Today Tab of the App Store,⁴¹¹ and that the Apple Arcade gaming apps may also be displayed in response to search queries where relevant.

The ACCC notes that there are commercial benefits to Apple in making Apple Arcade gaming apps more prominently displayed on the App Store or promoting it to iOS users over other gaming apps (such as those in the Games Tab) given the subscription fees paid to Apple by users of Apple Arcade.

Some third-party game developers included in Apple Arcade may benefit from additional discovery opportunities given the small number of games in the Apple Arcade and the limited additions since it launched.⁴¹² By contrast, gaming apps reliant on consumers discovering them in the App Store through the Games Tab or on search may be harder to find, as there are hundreds of thousands of other gaming apps on these tabs.⁴¹³ The ACCC considers there is potential for the greater discovery opportunities for Apple Arcade to put other gaming apps at some disadvantage in attracting users and being successful in the marketplace.

Some Apple Arcade developers are reported as commenting that they are 'in a privileged spot' given that discoverability is less of a challenge for them, while some are reported to have said that 'If you're one of 100... it's an attractive spot to be. The premium market for such apps is tough. This takes the risk away'.⁴¹⁴

⁴⁰⁶ Apple, [Apple introduces Apple Arcade — the world's first game subscription service for mobile, desktop and the living room](#), *Apple Newsroom*, 26 March 2019, accessed 24 March 2021.

⁴⁰⁷ M Forde, [Update: All 153 Apple Arcade games available now](#), *PocketGamer.biz*, 19 March 2021, accessed 24 March 2021.

⁴⁰⁸ K Leswing, [Apple releases its gaming subscription service, Apple Arcade](#), *CNBC*, 19 September 2019, accessed 24 March 2021. The ACCC notes that Apple has reportedly used push notifications to promote related services other than Apple Arcade such as Apple TV and Apple Music. See N Statt, [Apple sent iPhone owners unwanted push notifications to promote Carpool Karaoke](#), *The Verge*, 18 December 2018, accessed 24 March 2021; J Porter, [Apple bends its own rules by using push notifications to promote Apple Music](#), *The Verge*, 18 February 2019, accessed 24 March 2021.

⁴⁰⁹ Shape, [App Store Review Guidelines History](#), 11 September 2020, accessed 24 March 2021.

⁴¹⁰ Apple, [September Event 2019 – Apple](#), *YouTube*, 11 September 2019, minutes 03:20 to 5:00.

⁴¹¹ The ACCC conducted a small number of tests of the Australian App Store from 11 March 2021 to 19 March 2021 and on 24 March 2021 on three separate iOS devices. The ACCC found that Apple Arcade was promoted daily during the test period on the Today Tab; J Batchelor, [Why are developers betting on Apple Arcade?](#), *Gamesindustry.biz*, 25 November 2019, accessed 24 March 2021.

⁴¹² J Batchelor, [Why are developers betting on Apple Arcade?](#), *Gamesindustry.biz*, 25 November 2019, accessed 24 March 2021.

⁴¹³ Deloitte, [Mobile games: leading, but less lucrative](#), 2016.

⁴¹⁴ J Batchelor, [Why are developers betting on Apple Arcade?](#), *Gamesindustry.biz*, 25 November 2019, accessed 24 March 2021.

5.4. Pre-installation of apps and default settings

A number of first-party apps come pre-installed (or pre-loaded) on iOS and Android devices and may also be displayed on prominent locations on the device such as the on the first page of the home screen. Pre-installed apps therefore bypass the need to be ‘discovered’ by consumers on app marketplaces. Pre-installed apps are also often set as default apps.

5.4.1. An increasing number of apps come pre-installed on Android and iOS devices

Consumers tend to expect certain apps to come pre-installed on their device, with 70% of surveyed users stating that they preferred to buy devices with apps that provide core functionality already loaded.⁴¹⁵

Apple states it pre-installs apps that enable users to perform basic functions on their phone such as make phone calls, use the camera, view images and videos, or alter various operational settings of their device. Apple also pre-installs its own subscription service apps such as Apple Music, Apple TV, and Apple News to ‘help differentiate the iPhone in a competitive smartphone market’. Apple states it only pre-installs its own apps to ‘ensure the best iPhone experience out of the box’ and the logistical and technical challenges of integrating third-party apps that are consistent with Apple’s standards regarding quality, security, performance and privacy.⁴¹⁶

Google also pre-installs a number of first-party apps on its own smartphone device, the Google Pixel. However, in general, both Google-owned and third-party apps may come pre-installed on Android devices.

Some third-party app developers may strike deals with Android smartphone manufacturers to have their app pre-installed on the manufacturer’s device,⁴¹⁷ such as Facebook and WhatsApp,⁴¹⁸ Spotify and Microsoft apps.⁴¹⁹ However, this varies significantly depending on the device manufacturer, and for some manufacturers, depending on the device model. In general, more apps tend to be pre-installed on cheaper non-flagship Android devices.⁴²⁰

Figure 5.8 below illustrates the growth in pre-installed apps on Apple iPhone and Google Pixel devices since 2007.

⁴¹⁵ Application Developers Alliance, [Report on Android Device Customization and Consumers’ Choices](#), November 2016, p 5.

⁴¹⁶ T Cook, [Responses to Questions for the Record from the Honorable David N. Cicilline](#), *Subcommittee on Antitrust, Commercial and Administrative Law*, 2020.

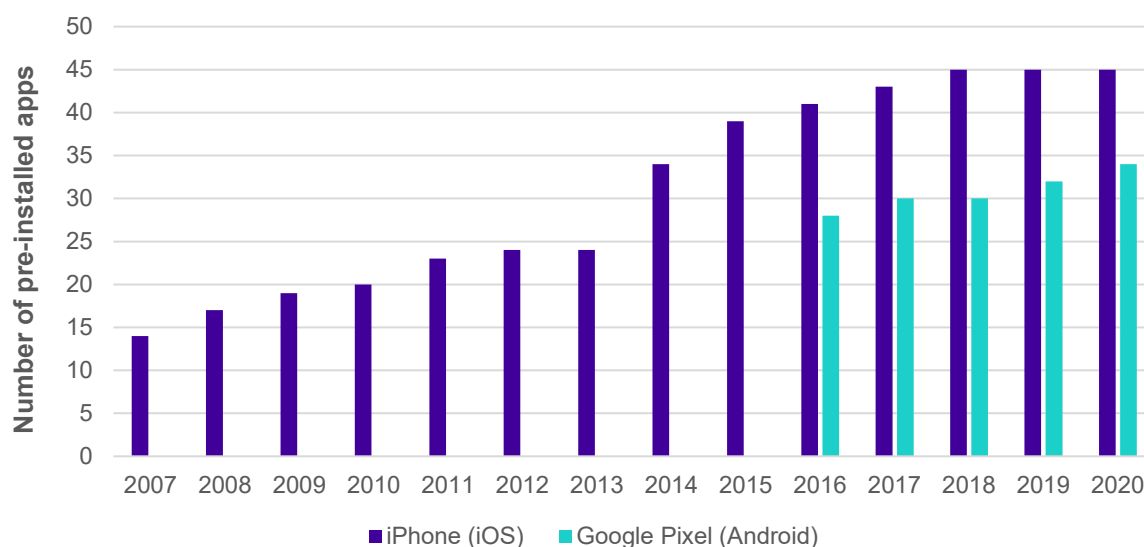
⁴¹⁷ See, for example, N Mor, [‘Pre-install campaigns for Android configuration and testing’](#), *AppsFlyer*, accessed 24 March 2021; S Morrison [“‘Privacy shouldn’t be a luxury’: Advocates want Google to do more to secure cheap Android phones’](#), 17 January 2020, accessed 24 March 2021; D Geradin and D Katsifis; [The Antitrust Case against the Apple App Store \(Revisited\)](#), *SSRN*, 15 December 2020, p 11.

⁴¹⁸ Facebook began pre-installing Facebook and WhatsApp on KaiOS mobile devices in India in 2018, and in 2019 rolled this out to more countries. See F Varela, [Facebook expands pre-install partnerships](#), *Tech@Facebook*, 5 September 2019, accessed 24 March 2021.

⁴¹⁹ C Gartenberg, [‘Spotify expands Samsung partnership with preinstalled app and six months of free Premium’](#), *The Verge*, 8 March 2019, accessed 24 March 2021; J Russell, [‘Xiaomi inks Microsoft patent deal and agrees to pre-install Office apps on its phones’](#), 1 June 2016, accessed 24 March 2021.

⁴²⁰ P Black, [‘What is bloatware and how can you remove it?’](#), *NordVPN*, 19 May 2019, accessed 24 March 2021; D Goodin, [‘US Government-funded Android phones come preinstalled with unremovable malware’](#), *Ars Technica*, 1 October 2020, accessed 24 March 2021.

Figure 5.8: Number of pre-installed apps on Apple iPhone and Google Pixel devices⁴²¹



A list of the apps that come pre-installed on iOS and Android devices is at Appendix B.

5.4.2. Pre-installation of apps may produce some benefits to third-party app developers and consumers

Pre-installed apps are typically displayed on prominent locations of iOS and Android devices such as the home screen, and are more easily discoverable by consumers. Pre-installation of apps may benefit consumers by reducing the time and effort needed to find the apps they need or want. It may be particularly helpful to those consumers that are less technologically capable, and may have more difficulty in navigating the app marketplaces to find relevant apps. Some stakeholders have also said that pre-installing apps can be helpful for those who live in areas that have limited connectivity,⁴²² such as users in remote areas or with low data broadband plans who may not always be able to download apps of large sizes.

Some Android app developers have said that pre-installation of apps is the best path to acquire users and these users tended to use the apps more often and longer.⁴²³ This benefit is explored in greater detail in section 5.4.3.

Third-party app developers have also indicated that the process of pre-installing apps allows them the opportunity to work with device manufacturers to improve the compatibility of their apps with the manufacturer's various device models. In particular, pre-installation allows developers to work with the smartphone manufacturer to optimise their app against potential differences in screen resolution, processors, available memory, and new technologies in various mobile devices to improve the performance of their app and maximise user experience.⁴²⁴

The ACCC understands that there have been cases where commercial arrangements between OEMs that license Android OS and third-party app developers have contributed to lower retail prices for mobile phones.⁴²⁵ For example, Blu and Motorola announced in 2016

⁴²¹ Based on information received by the ACCC.

⁴²² F Varela, [Facebook expands pre-install partnerships](#), *Tech@Facebook*, 5 September 2019, accessed 24 March 2021.

⁴²³ J Haslam, [Are pre-installs the best path to acquire high-value engaged users?](#), *Adjust*, 9 May 2018, accessed 24 March 2021.

⁴²⁴ F Varela, [Facebook expands pre-install partnerships](#), *Tech@Facebook*, 5 September 2019, accessed 24 March 2021.

⁴²⁵ Y Ryabova, [A good reason to avoid cheap Android smartphones](#), *Kaspersky Daily*, 11 June 2018, accessed 24 March 2021.

that they were able to offer certain Android smartphones for less than their retail price in exchange for having a number of Amazon apps pre-installed on prominent locations of the device and ads displayed on certain sections of the device.⁴²⁶

5.4.3. Pre-installation of first-party apps may impede downstream competition

Pre-installed apps tend to be placed in highly visible locations of iOS and Android devices, and in some cases may also be set as default apps. This can heighten barriers to entry and expansion in downstream app markets as discussed below.

Pre-installed apps are competitively advantaged given that they bypass the need to be discovered by consumers through the app marketplace. Consumers may also use the most visible app or default apps due to a lack of information about alternatives, which may be of higher quality, that are available to download on the app marketplace.⁴²⁷ Consumer inertia may also lead consumers to only seek better alternatives in the face of clear short-comings in the quality of pre-installed apps.⁴²⁸

Internal Google documents cited by the European Commission in 2018 acknowledged the advantage that pre-installed apps have after a Google executive was quoted saying that '[p]reloading remains valuable to users... because most users just use what comes on the device. People rarely change defaults.'⁴²⁹

App developers have also confirmed the advantage of being pre-installed on devices. In particular, Amazon said '[h]aving an app pre-installed on a device significantly improves that app's discoverability by end users. That benefit increases the more prominently the app appears on the device' and '[t]he presence of pre-installed mobile applications in many cases limits user willingness to try competing mobile applications'.⁴³⁰

Independent reports submitted to the European Commission and internal Google financial data analysed by the European Commission also found that apps are consistently used more and generate more revenue on devices where they come pre-installed on devices compared to where they have to be found on the app marketplace.⁴³¹

Pre-installation of Google apps on Android devices

In a number of jurisdictions, OEMs and mobile carriers that license the Android OS can choose to obtain a free license to pre-install a suite of proprietary Google apps on their smartphone devices by entering into a Mobile Application Distribution Agreement (MADA) with Google, as discussed in chapter 2.⁴³²

OEMs and mobile carriers may also enter into Revenue Sharing Agreements (RSAs) (more recent versions are called Mobile Incentive Agreements) with Google regarding the pre-

⁴²⁶ Amazon, '[Amazon Announces Exclusive Pricing Only for Prime Members on Newly Released, Unlocked Android Phones—Up to 50% Off the Full Retail Price, Starting at \\$49.99](#)', 29 June 2016, accessed 24 March 2021; R Price, '[Amazon is starting to sell cheaper phones with adverts on the lockscreen](#)', 30 June 2016, accessed 24 March 2021.

⁴²⁷ C Sunstein, [Deciding by Default](#), *University of Pennsylvania Law Review*, December 2013, p 20.

⁴²⁸ C Sunstein, [Deciding by Default](#), *University of Pennsylvania Law Review*, December 2013, p 19–20; O Bar-Gill and O Ben-Shahar, [Rethinking Nudge: An Information-Costs Theory of Default Rules](#), *Harvard John M. Olin Center for Law, Economics, and Business*, April 2020, p 19.

⁴²⁹ European Commission, [Commission Decision, Case AT.40099 – Google Android](#), 18 July 2018, p 171.

⁴³⁰ European Commission, [Commission Decision, Case AT.40099 – Google Android](#), 18 July 2018, p 172.

⁴³¹ European Commission, [Commission Decision, Case AT.40099 – Google Android](#), 18 July 2018, pp 174–176.

⁴³² See section 2.2.3.

installation and placement of Google apps, in exchange for a share of the revenue earned by Google apps.⁴³³

Documents reviewed by the US House of Representatives Subcommittee found that some OEMs have expressed frustration at Google's ability to set the list of apps that they are required to pre-install and change them routinely.⁴³⁴ The Subcommittee also found that Google's ability to set the terms of commerce hurt OEMs as well as third-party app developers, both of which had their own apps they were seeking to distribute. The Subcommittee noted a 2016 discussion whereby Google employees explained how Android Pay (now known as Google Pay) would be given preferential display over the device manufacturer's own mobile payment app, as well as recent reports that Google is pressuring Samsung to promote Google apps over those offered by Samsung.⁴³⁵ In a submission to the Subcommittee, one third-party developer recalled being informed by a mobile device manufacturer 'that it could not provide home screen placement for our preloaded app due in part to contractual agreements to preload [Google's competing app].'⁴³⁶

The United States Department of Justice (DOJ), along with 11 State Attorneys General, filed a lawsuit against Google in October 2020, arguing that it engaged in unlawful exclusionary practices directed at maintaining its monopolies in certain online services in breach of US competition law.⁴³⁷ The DOJ alleges that Google has entered into a series of exclusionary agreements that collectively lock up the primary avenues through which users access search engines, and thus the internet, by requiring that Google apps and services to be set as default out of the box on billions of mobile devices worldwide and, in many cases, prohibiting the pre-installation of a competitor.⁴³⁸

According to the DOJ, the RSAs between Google and OEMs or mobile carriers generally require that Google Search be exclusively pre-installed as the search engine on the device.⁴³⁹ As technology evolved and more and more mechanisms within the device can be used to access web search services, Google expanded the RSAs to include exclusivity in these areas.⁴⁴⁰

Senior Google executives have said that RSAs provide for and protect the exclusivity of Google apps on Android devices,⁴⁴¹ and that these agreements are important in denying distribution opportunities to apps such as Yahoo or Bing that may compete with Google services.⁴⁴² According to the DOJ, Google paid more than USD1 billion to counterparties of these RSAs in the United States alone.⁴⁴³

⁴³³ *US Department of Justice v Google LLC*, [Complaint filed in the US District Court for the District of Columbia](#), 20 October 2020, pp 25–26.

⁴³⁴ 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 214–215.

⁴³⁵ 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 216.

⁴³⁶ 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 215.

⁴³⁷ See DOJ, [Justice Department Sues Monopolist Google for Violating Antitrust Laws](#), 20 October 2020, accessed 24 March 2021.

⁴³⁸ DOJ, [Justice Department Sues Monopolist Google for Violating Antitrust Laws](#), 20 October 2020, accessed 24 March 2021.

⁴³⁹ *US Department of Justice v Google LLC*, [Complaint filed in the US District Court for the District of Columbia](#), October 2020, p 26.

⁴⁴⁰ *US Department of Justice v Google LLC*, [Complaint filed in the US District Court for the District of Columbia](#), 20 October 2020, p 26.

⁴⁴¹ *US Department of Justice v Google LLC*, [Complaint filed in the US District Court for the District of Columbia](#), 20 October 2020, pp 45–46.

⁴⁴² *US Department of Justice v Google LLC*, [Complaint filed in the US District Court for the District of Columbia](#), 20 October 2020, p 47.

⁴⁴³ *US Department of Justice v Google LLC*, [Complaint filed in the US District Court for the District of Columbia](#), 20 October 2020, p 47.

The DOJ also stated that Google structures its RSAs to penalise OEMs and mobile carriers that might consider terminating the exclusivity agreements. The typical term of the RSA is two to three years. If the OEM or mobile carrier does not renew its RSA with Google, they face the financial risk of losing out on revenue share not only for new mobile devices but also for the phones and tablets previously sold and in the hands of consumers. The DOJ said these provisions are likely to be punitive to OEMs and mobile carriers and helps ensure that they do not terminate the exclusivity agreement with Google.⁴⁴⁴

The European Commission has investigated the agreements between Google and OEMs, and between Google and mobile carriers, for potential breaches of European competition law. In 2018, the European Commission found that the Play Store app was a 'must-have' app that consumers expect to be pre-installed on their devices. By making it impossible to only pre-install some apps (that is, pre-install only the Play Store app and not full the suite of other Google apps nominated by Google) Google had made sure that key Google apps such as Google Search and Google Chrome are pre-installed on Android devices. The European Commission stated that the pre-installation of these apps could create a status quo bias and customers will tend to use these apps rather than find alternatives.⁴⁴⁵ The European Commission found that Google's contracts reduced the incentives of OEMs and mobile carriers to pre-install competing search and browser apps, as well as the incentives of users to download such apps on the app marketplace, thus reducing the ability of rivals to compete effectively with Google apps.⁴⁴⁶

The European Commission also found that the financial incentives given by Google to OEMs and mobile carriers to exclusively pre-install the Google Search app reduced their incentives to pre-install competing apps.⁴⁴⁷

The ACCC has reviewed a number of current MADAs and RSAs between Google and Android OEMs that are applicable in Australia.

Some MADAs seen by the ACCC contain terms that require key Google apps (such as Google Play, Google Chrome, Google Search, Gmail, Google Maps, and YouTube) to be pre-installed on prominent locations of the relevant device, such as the home screen or a Google apps folder. Under these MADAs, OEMs are not restricted or limited in terms of pre-installing or determining the placement of any other non-Google apps on their devices, and users remain free to install the apps they want to use, and to change the placement of apps on their device.⁴⁴⁸

However, some RSAs seen by the ACCC contain incentives for the relevant OEM to set key Google apps, such as the Play Store, Google Search, Google Assistant, as default apps on their Android device. In some cases, to access financial incentives offered under the RSA, the OEM is required not to pre-install, or set as a default, alternatives to a limited number of Google's apps.⁴⁴⁹

The ACCC would be concerned if the terms tying key Google apps with other Google apps, or terms requiring the pre-installation of apps on prominent locations of the device have the purpose or effect of substantially lessening competition in downstream app markets.

⁴⁴⁴ *US Department of Justice v Google LLC*, [Complaint filed in the US District Court for the District of Columbia](#), 20 October 2020, p 48.

⁴⁴⁵ European Commission, [Antitrust: Commission fines Google €4.34 billion for illegal practices regarding Android mobile devices to strengthen dominance of Google's search engine](#), accessed 10 March 2021.

⁴⁴⁶ European Commission, [Antitrust: Commission fines Google €4.34 billion for illegal practices regarding Android mobile devices to strengthen dominance of Google's search engine](#), accessed 10 March 2021.

⁴⁴⁷ European Commission, [Antitrust: Commission fines Google €4.34 billion for illegal practices regarding Android mobile devices to strengthen dominance of Google's search engine](#), accessed 10 March 2021.

⁴⁴⁸ Information provided to the ACCC.

⁴⁴⁹ Information provided to the ACCC.

Potential measure 4: to provide for greater choice of default apps for consumers

There is a need for consumers to have more choice through an ability to change any pre-installed default app on their device that is not a core phone feature. This would provide consumers with more control to choose the app that best meets their needs, and promote more robust competition in downstream markets for apps.

The ACCC notes that for the third interim Digital Platform Services Inquiry Report, it will be examining the provision of web browsers and general search services to Australian consumers and the effectiveness of choice screens in facilitating competition and improving consumer choice. The ACCC will also be providing its advice to the Australian Government on Google's rollout of search engine choice options on new Android devices in Europe.⁴⁵⁰

Other advantages for pre-installed iOS and Android apps

In addition to possibly being placed on prominent locations of the device, pre-installed apps may also benefit where consumers are unable to delete or permanently remove the pre-installed app from their device, even if they don't want to use it. For example, for Google Pixel devices (which are distinct from Android devices manufactured by third-parties) there are 22 (of 33) pre-installed apps that cannot be permanently removed from the device, including Google TV, YouTube and YouTube Music.⁴⁵¹ For iPhone devices, there are 12 (of 44) pre-installed apps that cannot be permanently removed from the device, including the Health and Wallet app.⁴⁵² The ACCC notes that where users are unable to permanently remove pre-installed first-party apps on their Google Pixel or their iOS device, they can disable and hide these apps on their device.⁴⁵³

First-party apps may also benefit from being set as a default app and linked to other device features. For example, as discussed in the *US House Report on Competition in Digital Markets*, Apple continues to default to its own first-party apps in response to user requests made of its voice assistant, Siri, despite opening up the ability for some third-party apps to integrate with Siri.⁴⁵⁴ Requests for directions will open the Apple Maps app, for example, and requests for web searches will open the Safari app. In order to use a third-party app, users must specify to Siri the third-party name as part of their voice command that they would like to use. By continuing to set its apps as default in this way and reducing functionality available to its competitors, Apple may be impeding the ability of third-party apps to compete on level terms with Apple's apps.

Apple appears to be slowly opening up its default ecosystem, by providing users of iOS 14 with an option to change the default app on their device for pre-installed apps for email and web browser.⁴⁵⁵ Apple is also facilitating better integration of third-party music and podcasts apps with Siri beginning from iOS 14.5.⁴⁵⁶

Enabling users to set third-party apps as default is a positive step towards providing increased choice to consumers, as well as allowing third-party apps to better compete on their merits. However, the ACCC is not aware of any substantive moves by Apple to enable

⁴⁵⁰ See ACCC, [Digital Platform Services Inquiry Third Interim Report – Issues Paper](#), 11 March 2021.

⁴⁵¹ Information provided to the ACCC.

⁴⁵² Information provided to the ACCC.

⁴⁵³ Information provided to the ACCC.

⁴⁵⁴ 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 375.

⁴⁵⁵ A Hern, '[Apple update to allow iPhone users to choose default apps](#)', *The Guardian*, 23 June 2020, accessed 24 March 2021.

⁴⁵⁶ S Axon, '[Apple clarifies iOS default music app feature, and it's not what people thought](#)', *Ars Technica*, 5 March 2021, accessed 24 March 2021.

third-party apps to be set as defaults in broader app categories such as navigation and voice assistants.

While there are often a number of equivalent third-party apps that could compete with the pre-installed apps, it can be more difficult for a consumer to compare the pre-installed app with third-party apps and make an informed choice about which app will best suit their needs.

For example, as discussed in box 5.2, some Apple first-party apps are not listed on the App Store. This means these apps are not able to be reviewed or rated by consumers in the App Store, which allows comparison with rival apps, and consumers may not have easy access to the same information about these apps, as they would about other rival apps.

A particular piece of information that some consumers care about is the type of data that the app is collecting. In 2020, Apple announced a change to iOS 14 whereby developers will have to create and update a label for their apps in the App Store that shows the type of data the app is collecting, and whether it will be used to track the user. This is intended to help consumers make more informed choices about their app selection before downloading, as discussed in chapter 7. For Apple apps that are not listed in the App Store, this information is provided on Apple's website, requiring navigation through several pages, Apple > Privacy > Features > App Store > Learn more about privacy on the App Store.⁴⁵⁷ Third-party app developers, such as Facebook's WhatsApp, have raised concerns that users will be less aware of how third-party and first-party apps compare, as they are unlikely to seek out this information from Apple (even though it is available on the website).⁴⁵⁸

⁴⁵⁷ Apple, [About privacy information on the App Store and the choices you have to control your data](#), *Apple Support*, 18 December 2020, accessed 24 March 2021.

⁴⁵⁸ S Fischer, '[Scoop: WhatsApp goes after Apple over privacy label requirements](#)', *Axios*, 9 December 2020, accessed 24 March 2021.

6. Harms through malicious apps and complaints handling

- While the ACCC recognises that, in comparison to alternative sources of apps, apps downloaded from the Play Store and the App Store are far less likely to harm consumers or their devices, the ACCC has found that consumers continue to be exposed to harm through their use of certain apps available on the major app marketplaces.
- Some malicious apps disproportionately harm certain vulnerable consumer groups, including children. In particular, the ACCC has found that children continue to be exposed to age-inappropriate apps and apps that mimic gambling.
- The ACCC considers that both Apple and Google should take additional measures to prevent and remove apps that harm consumers, including apps that facilitate subscription traps and other scams, and apps that target vulnerable groups, such as children.
- The ACCC considers that consumers must have adequate access to avenues for redress from the app marketplaces for losses caused by malicious, exploitative or otherwise harmful apps. The internal dispute resolution mechanisms and ombudsman scheme recommended in the *DPI Final Report* would assist consumers obtain that redress.

This chapter discusses malicious, exploitative or otherwise harmful apps, and the effectiveness of the complaints handling measures of Apple and Google which provide the key distribution channels for apps in Australia, including harmful apps.

This chapter is structured as follows:

- **Sections 6.1-6.3** discuss the prevalence of apps with harmful, malicious or exploitative features available to consumers; describe some of the harms to consumers, including vulnerable consumer groups that result from exposure to these apps; and provide the ACCC's views on the balance of the obligations of the app marketplaces and of individual developers.
- **Section 6.4** discusses some concerns with the complaints handling processes of the App Store and the Play Store, and the need for robust internal and external dispute resolution mechanisms.

6.1. Harmful, malicious and exploitative apps on app marketplaces

Australian consumers are concerned about the safety of children, fraud and scams, and data breaches and hacks, among other online safety issues.⁴⁵⁹ Apps, and features within apps, which are designed to benefit the developer or a third party to the detriment of consumers who have installed the app, have the potential to result in a range of consumer harms that are reflected in these concerns.

As discussed in chapter 3, all apps are reviewed by Apple and Google before they are made available through their respective app marketplace. Further, additional review processes apply to apps already on the marketplace. Through their respective review processes, Apple and Google aim to prohibit apps that facilitate the malicious targeting of consumers and their devices, including apps that facilitate dishonest, deceptive, fraudulent or illegal activity to derive financial gain, or gain unauthorised access to device functionality or user data.⁴⁶⁰

Both platforms prevent the vast majority of apps containing malware from making it onto their marketplaces,⁴⁶¹ and their marketplaces are generally considered much safer for consumers than third-party sources of apps.⁴⁶²

Apple and Google promote the view that strict control of their marketplaces, including the ability to regulate the conduct of developers, is fundamental to their ability to provide consumers with safe platforms for accessing apps. Apple CEO Tim Cook has stated that Apple's control of software installation on iOS devices through the App Store ensures apps meet Apple's high standards for privacy, performance and security.⁴⁶³ Google promotes the view that its oversight of the Play Store ensures user safety.⁴⁶⁴

While Apple and Google protect consumers from many apps with the potential for harm, their marketplaces also provide singular targets for persistent bad actors to get malicious apps past the initial review processes of each marketplace.⁴⁶⁵ Apple does not appear to publicly report on the volume or nature of malicious apps identified on its marketplace, and Google only appears to report on malware found on its marketplace. Below we discuss the information the ACCC has considered regarding the availability of apps on the App Store and Play Store that seek to exploit consumers in some way.

Anecdotal consumer feedback provided in response to an ACCC Consumer Questionnaire indicated more than one in five respondents, or 88 of 400 consumers, had seen or downloaded an app they considered to be 'misleading' or a 'scam' app.⁴⁶⁶ Analysis of consumer complaints received by the ACCC through Scamwatch, and App Store and Play

⁴⁵⁹ Consumer Policy Research Centre, [Unfair Trading Practices in Digital Markets: Evidence and regulatory gaps](#), December 2020, Attachment 1, pp 27–28.

⁴⁶⁰ Apple, [App Store Review Guidelines](#), 1 February 2021, accessed 24 March 2021; Google, [Developer Program Policy](#), *Play Console Help*, 1 March 2021, accessed 24 March 2021.

⁴⁶¹ J Bergmayer, [Tending the Garden: How to Ensure That App Stores Put Users First](#), *Public Knowledge*, 23 June 2020, p 5. For example, Google's Google Play Protect API scans over 100 billion apps on users' devices per day for malicious behaviour. See Google, [Google Play Protect](#), accessed 24 March 2021.

⁴⁶² See, for example, S Symanovich, [The risks of third-party app stores](#), *Norton*, 18 July 2018, accessed 24 March 2021; RiskIQ, [2019 Mobile App Threat Landscape Report: The Mobile Ecosystem Swells, but Google Leads a Decline in Malicious Apps](#), February 2020; S Voelcker and D Baker, [Why There Is No Antitrust Case against Apple's App Store: A Response to Geradin & Katsifis](#), *SSRN*, 27 August 2020, p 44; ACM, [Market study into mobile app stores](#), 11 April 2019, p 102.

⁴⁶³ 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 97.

⁴⁶⁴ Google, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 19 October 2020, pp 9–10.

⁴⁶⁵ J Bergmayer, [Tending the Garden: How to Ensure That App Stores Put Users First](#), *Public Knowledge*, 23 June 2020, p 39.

⁴⁶⁶ ACCC, [App marketplaces report – Consumer questionnaire responses](#), 27 November 2020.

Store reviews, also indicate apps with the potential to harm consumers are present on both marketplaces.⁴⁶⁷

Harmful, malicious and exploitative apps often use dark patterns to manipulate app users. Dark patterns are techniques used in the design of websites and apps to take advantage of behavioural biases to coerce, steer, or deceive consumers into making unintended and potentially harmful decisions.⁴⁶⁸ A 2020 analysis of dark patterns in 240 'free' apps on the Play Store found that 95% contained one or more type of dark pattern, with an average of at least seven different types of deceiving interfaces per app.⁴⁶⁹ While the majority of dark patterns manipulated user interfaces, in some instances more sensitive actions were involved, such as actions resulting in unwanted data collection.⁴⁷⁰ Results from an experiment in which common tasks were performed to reach certain goals, such as visiting an app's settings page, indicated users often cannot identify the presence of certain dark patterns.⁴⁷¹

Key categories of potentially harmful apps found on the App Store and Play Store are discussed below.

6.1.1. Subscription traps

Subscription traps are services which fail to provide consumers with sufficient information or control over ongoing, often excessive, subscriptions that offer low or no useful functionality or are difficult to cancel, resulting in consumers feeling 'trapped' in the subscription.⁴⁷² Studies have shown that the cost of online subscription traps to consumers is considerable.⁴⁷³ Subscription traps in apps warrant particular scrutiny, as there are indications that this category of malicious app continues to cause significant financial detriment to consumers.

Both Apple and Google allow developers to offer automatic billing and trials at introductory prices or for 'free'.⁴⁷⁴ App developers may find subscription-based billing models an

⁴⁶⁷ The ACCC has cited mobile app data provided by Sensor Tower Inc. Sensor Tower provides enterprise-level data on mobile apps and publishers on the App Store and Play Store both in Australia and internationally, including download, revenue and engagement metrics. Macro app review data in this chapter, unless otherwise stated, is based on the global top 1,000 grossing and free apps combined (excluding duplicates) for the 2020 calendar year on each of the App Store and Play Store. Individual app review data is also provided on a global basis and is limited to the 2020 calendar year unless otherwise stated. All review data relied on keyword searches in negative review results i.e. reviews with a one or two star rating. Reviews were not checked individually except where noted.

⁴⁶⁸ Organisation for Economic Co-operation and Development, [OECD Digital Economy Outlook 2020, Chapter 8 - Consumer policy in the digital transformation](#), accessed 24 March 2021.

⁴⁶⁹ L Geronimo et al., [UI Dark Patterns and Where to Find Them: A Study on Mobile Applications and User Perception](#), *CHI '20: Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems*, April 2020, p 1.

⁴⁷⁰ L Geronimo et al., [UI Dark Patterns and Where to Find Them: A Study on Mobile Applications and User Perception](#), *CHI '20: Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems*, April 2020, p 6. For example, 31% of apps contained 'Privacy Zuckering', as defined by Gray et al., where a user is tricked into publicly sharing more information about themselves than intended, most commonly caused by privacy conditions accepted upon clicking some buttons or continuing with the registration process. See C Gray et al., [The Dark \(Patterns\) Side of UX Design](#), *CHI '18: Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems*, April 2018.

⁴⁷¹ L Geronimo et al., [UI Dark Patterns and Where to Find Them: A Study on Mobile Applications and User Perception](#), *CHI '20: Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems*, April 2020, p 2.

⁴⁷² J Chandiraiah, ['Fleeceware' apps overcharge users for basic app functionality](#), *Sophos News*, 25 September 2019, accessed 24 March 2021; J Bergmayer, [Tending the Garden: How to Ensure That App Stores Put Users First](#), *Public Knowledge*, 23 June 2020, p 38. Subscription trap apps often provide very short 'free' trials or a very low upfront price, misleading information about what a subscription or in-app purchase will include, and use dark patterns such as confusing subscription buttons.

⁴⁷³ Danish Competition and Consumer Authority, [Well-functioning markets: Misleading consumers online is a cross-border issue](#), 13 August 2018, p 4.

⁴⁷⁴ Google, [Subscriptions](#), *Play Console Help*, accessed 24 March 2021; Android Developers, [Google Play's billing system overview](#), 6 October 2020, accessed 24 March 2021; Apple, [Auto-renewable Subscriptions](#), *App Store Developer*, accessed 24 March 2021. For example, on the Play Store, 'NordVPN' offers users a seven-day free trial prior to purchasing or subscribing. See Google, [NordVPN: Best VPN Fast, Secure & Unlimited](#), *Google Play*, accessed 24 March 2021. On the App Store, YouTube offers a 1-month free trial for its YouTube premium service prior to being

attractive way to monetise their apps, due in part to the availability of these features,⁴⁷⁵ which can be convenient and provide consumers with the ability to try subscription-based apps for low or no upfront monetary cost.

The marketplaces provide simple processes and clear instructions for consumers to cancel subscriptions.⁴⁷⁶ Apple and Google updated their developer policies in 2019 and 2020 respectively to reduce the potential for misleading subscription prices and offer types. Their respective policies require that, among other things, developers clearly and accurately describe the duration, pricing and accessible content or service of 'free' trials and introductory offers, and clearly disclose how a subscription can be managed and cancelled.⁴⁷⁷

However, Apple and Google's respective policies, or marketplace enforcement of those policies, are not preventing the listing of subscription traps, which remain present on both marketplaces despite consumer concerns.

Subscription trap apps have the potential to harm consumers by, for example, enticing them to sign up to a 'free' trial period that then transitions into a paid subscription. Often consumers are not reminded closer to the end of the trial period and the paid subscription renews automatically at the end of each subscription period meaning the consumer may incur significant costs, and associated financial detriment, before the subscription is cancelled.⁴⁷⁸ These issues may be exacerbated where consumers face difficulties cancelling unwanted subscriptions or obtaining refunds,⁴⁷⁹ or when the price of the subscription is exorbitant compared to the value provided to the consumer.⁴⁸⁰ As discussed in box 6.1, analysis of marketplace reviews by the ACCC found indications that apps with subscription models may be causing issues for some consumers that use the App Store or Play Store.

Box 6.1: Potential subscription traps identified on the App Store and Play Store

ACCC analysis of consumer reviews of the top 1,000 grossing and 'free' apps on the App Store and Play Store in 2020 found that the term 'subscription' featured in 44,156 negative App Store reviews and 53,594 negative Play Store reviews.⁴⁸¹ Issues raised about a sample of apps included consumers not appearing to have understood that they were agreeing to a subscription or the price of the subscription, and consumers indicating they are unable to cancel. Two examples are set out below.

charged an automatically renewing monthly subscription fee. See Apple, [YouTube: Watch, Listen, Stream](#), *Play Store Preview*, accessed 24 March 2021.

⁴⁷⁵ K Williams, '[U.S. Subscription App Revenue Grew 21% in 2019 to \\$4.6 Billion](#)', *Sensor Tower Blog*, 23 January 2020, accessed 24 March 2021; S Chan, '[Consumer Spending in Top 100 Subscription Apps Climbed 34% to \\$13 Billion in 2020](#)', *Sensor Tower Blog*, 11 February 2021, accessed 24 March 2021.

⁴⁷⁶ Google, [Cancel, pause, or change a subscription on Google Play](#), *Google Play Help*, accessed 24 March 2021; Apple, [How to cancel a subscription from Apple](#), *Apple Support*, 16 March 2021, accessed 24 March 2021.

⁴⁷⁷ Google, [Subscriptions](#), *Play Console Help*, accessed 24 March 2021; Apple, [Auto-renewable Subscriptions](#), *App Store Developer*, accessed 24 March 2021; B Mayo, '[Apple revamps documentation for app subscriptions, details how billing amounts should be clearly presented to users](#)', *9to5Mac*, 25 January 2019, accessed 24 March 2021.

⁴⁷⁸ See European Commission, [Misleading << free >> trials and subscription traps for consumers in the EU](#), 7 September 2017, pp 31–48.

⁴⁷⁹ See, for example, A Carman, '[Chris Hemsworth's workout app has been surprising people with \\$99 subscription charges](#)', *The Verge*, 13 May 2020, accessed 24 March 2021.

⁴⁸⁰ See J Chandriah, '[Fleeceware apps persist on the Play Store](#)', *Sophos News*, 14 January 2020, accessed 24 March 2021.

⁴⁸¹ Subscription issues in 2020 appear to be most prevalent in the 'Weather' (7%) 'Health & fitness' (7%), 'Sports' (6%) and 'Books' (3%) categories on the App Store and the 'Health and fitness' (5%) 'Dating' (4%), 'Weather' and 'Music & audio' (3%) categories on the Play Store, based on the number of negative reviews in each category that cited the keyword 'subscription'.

QR code reader app

Some top-grossing apps on both marketplaces offer functionality that is already built into most smartphones or is available elsewhere for 'free'.⁴⁸² For example, a QR code reader on the App Store charges AUD3.99 for a weekly subscription following a three-day 'free' trial, and offers only limited functionality beyond the native QR code-reading feature built into iOS devices.⁴⁸³

BetterMe Widget Workout & Diet app

In 2020, on the Australian App Store, the BetterMe Widget Workout & Diet iOS app, which generated USD375,956 in gross revenue, received 112 negative reviews, with users citing unauthorised debits, an inability to cancel their subscription and advertised services not being provided.⁴⁸⁴

User review dated 12 December 2020:

I don't know how to unsubscribe from this. Apple says that I have no subscriptions to cancel. And whenever I try to cancel on the app it crashes. This is not what I expected when signing up for this. I don't want to be charged I am not planning on using this app. Please cancel my subscription!

The complexity of the guidance Apple and Google provide to developers about handling subscriptions may contribute to some of the concerns consumers raise with subscriptions in consumer reviews, particularly where developers may be supporting several offer types at the same time.⁴⁸⁵

The ACCC considers that both Apple and Google could do more to protect consumers from the risk of potentially ongoing financial harm caused by subscription traps.

6.1.2. Other types of apps that may harm consumers

Four additional types of apps, or characteristics of apps, that have the potential to harm consumers and which have been found on both the App Store and the Play Store, are discussed below.

'Real prize' scams

Apps that represent users can earn or win real money or prizes in order to encourage app use or spending, when in fact the user cannot obtain any such rewards, or the odds of winning are significantly misrepresented, are a form of 'real prize' scam. These apps sometimes have a 'cash out' minimum that users can never reach or, once users attempt to claim a prize, records of the claim and associated credits disappear. In some instances, advertising for an app may also exaggerate the odds of a consumer winning real prizes.⁴⁸⁶

For example, in 2020, the 'Puppy Town' game app received 4,985 negative reviews on the Play Store globally that cited the term 'scam', and 108 negative reviews on the Australian App Store, with some also indicating the app was a scam.⁴⁸⁷ While the description of the app

⁴⁸² J Bergmayer, [Tending the Garden: How to Ensure That App Stores Put Users First](#), *Public Knowledge*, 23 June 2020, p 38.

⁴⁸³ Apple, [QR Code Reader & QR Scanner](#), *App Store Preview*, accessed 24 March 2021.

⁴⁸⁴ Apple, [BetterMe: Home Workout & Diet](#), *App Store Preview*, accessed 24 March 2021.

⁴⁸⁵ Apple, [App Store Server Notifications](#), *Apple Developer*, accessed 24 March 2021; Apple, [Handling Subscriptions Billing](#), accessed 22 March 2021; Apple, [Handling Refund Notifications](#), *Apple Developer*, accessed 24 March 2021; Google, [Manage you app's orders & issue refunds](#), *Play Console Help*, accessed 24 March; Google, [Billing, reporting, & order cancellation issues](#), *Play Console Help*, accessed 24 March 2021.

⁴⁸⁶ For example, the United Kingdom Advertising Standards Authority (ASA) has ruled that an ad for an app depicting a user winning money was misleading because it exaggerated the chances of winning prizes when using the app. See ASA, [ASA Ruling on Lucky Go Studio Ltd](#), 1 April 2020, accessed 24 March 2021.

⁴⁸⁷ See Apple, [Puppy Town](#), *App Store Preview*, accessed 24 March 2021.

and images in the Play Store listing represent that users can earn money by playing the game, reviews suggest users are unable to ever reach the minimum amount required to cash out earnings, suggesting the app may be a 'real prize' scam.⁴⁸⁸

Bait and switch features

Apps that use bait and switch tactics mislead consumers by representing that they can access certain features, functions or services at specific prices (or for 'free'), when in fact those features or functions are unavailable, must be paid for, or cost more than was disclosed.

For example, the UK Advertising Standards Authority recently ruled that ads for two popular game apps were misleading because their content was not reflective of the games they were purported to feature. The ads depicted gameplay that was only accessible after a significant amount of gameplay that was of a different style to the gameplay depicted in the ads.⁴⁸⁹ One of these apps, 'Gardenscapes', had 496,493 downloads from the Australian Play Store and generated USD4,830,762 in revenue in 2020, and was an 'Editor's Choice' app in 2021.⁴⁹⁰ User reviews suggest some consumers who downloaded the app in early 2021 continue to perceive a difference between the app's advertised gameplay and the gameplay generally available to them.⁴⁹¹ For example, on 2 February 2021, a Play Store review stated:

I thought this game would be a series of puzzles like all the ads I've been watching for the past six months, but it is just another variation of the match three games. Ok for some but not my thing. Pity the advertising was misleading.

Fake product or service scams

Some apps facilitate fake product or service scams by representing they have particular features, functions or services, when in fact once a user pays for the app or makes the required in-app purchase, the app does not provide the feature, function or service. Apps identified by the ACCC that may facilitate this type of scam include the dating apps 'MyDates',⁴⁹² and 'iDates',⁴⁹³ which are marketed as being 'free' and providing users with the ability to pay to talk to other matched users in their geographic area. While both apps have a high proportion of five-star ratings, common complaints raised in reviews about these apps is that users receive a large number of 'matches' with other users and then pay for the ability to communicate with those users, only to discover that most, or potentially all, matched users are bots. In 2020, 'MyDates' had 23,286 downloads, was ranked 22nd in the 'Social Networking' category and earned USD417,664 on the Australian App Store. In 2020, 'iDates' had 20,548 downloads, was the 8th highest ranked dating app and earned USD488,995 in revenue on the Australian Play Store.

Malware in apps

ACCC analysis of negative consumer reviews using Sensor Tower supports other sources that indicate a very low prevalence of apps containing malware (any type of code or program that is used for a malicious purpose) on the Play Store, and an even lower prevalence on the

⁴⁸⁸ Pictures in the Play Store as of 22 March 2021 represent users can win money and 'big prizes' such as mobile phones or watches. See Google, [Puppy Town – Merge & Win](#), *Google Play*, accessed 24 March 2021.

⁴⁸⁹ ASA, [ASA Ruling on PLR Worldwide Sales Ltd t/a Playrix](#), 30 September 2020, accessed 24 March 2021.

⁴⁹⁰ See Google, [Gardenscapes](#), *Google Play*, accessed 24 March 2021.

⁴⁹¹ Over the period of 1 January to 1 March 2021, negative Gardenscapes reviews on Google Play cited 'false advertising' 57 times, the term 'misleading' 90 times and included concerns about advertisements a further 191 times. Sensor Tower, *App Intelligence*, accessed 24 March 2021.

⁴⁹² Apple, [MyDates – Long lasting love](#), *App Store Preview*, accessed 24 March 2021.

⁴⁹³ Google, [iDates – Chat, Flirt with Singles & Fall in Love](#), *Google Play*, accessed 24 March 2021.

App Store.⁴⁹⁴ Similarly, consumer feedback provided to the ACCC indicates a general perception that levels of malware may be particularly low on the App Store.⁴⁹⁵ However, there have been instances where sophisticated malware, particularly malware that is unlikely to be noticed and reported by users, has been identified by digital security firms on both marketplaces.⁴⁹⁶

Some malware facilitates the collection of user data without consent. Google's *Transparency Report*, which provides data on the prevalence of malware detected in apps on the Play Store, indicates that spyware, a type of malware that transmits personal data off the device without adequate notice or consent, was the most common type of malware downloaded from the Play Store in the quarter ending September 2020,⁴⁹⁷ with an install rate of 0.07%.⁴⁹⁸ Given Google has approximately a 50% share of the mobile OS market in Australia,⁴⁹⁹ and there are over two billion Android users globally, the scale of potential detriment is sizable.

Box 6.2: Example of an app on the Play Store that appears to contain malware

The 'Weather Home – Live Radar Alerts & Widget' Android app was downloaded 104,290 times by consumers in Australia in 2020 and had 3,244 global negative user reviews, 68 of which suggested the app contained malware.⁵⁰⁰ The main issue raised by users in reviews was that the app changed the user's device display once installed by adding unwanted icons, promoting third-party apps, hiding the user's other content and making it difficult for the user to remove the app by disabling the uninstall action on the user's device.

User review dated 17 August 2020:

This App that I thought was the Weather Channel App hijacked my phone. It added other Apps and changed my home screen and my icons. Had a hard time uninstalling as the App uninstall was dimmed out. I had to force close several times and had to change the permissions to get it uninstalled. I'm not sure why it's still in the Google play list as people have reported this strange behavior as far back as three years ago. Scanned my phone several times after and shows no malware or virus.

6.2. Consumer detriment attributable to apps

Like other popular digital platform services, the major app marketplaces provide a platform that enables consumers to be targeted by bad actors. Consumer detriment from apps falls

⁴⁹⁴ For example, the ACM has noted complaints about malware spread via the App Store are rare, while a downside of Google's comparatively swift approval process is a higher number of apps that carry malware in the Play Store. See ACM, [Market study into mobile app stores](#), 11 April 2019, p 105. Apple's submission to the DPSI cites a 2018 report by Nokia that found the iOS platform accounted for less than 1% of malware infections globally, compared to over 47% attributable to Android. See Apple, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 2 October 2020, p 13; ACCC analysis was based on keyword analysis of negative reviews of the top 1,000 free and paid apps combined (excluding duplicates) on each of the App Store and Play Store in the 2020 calendar year. For example, no single app category contained more than 1% total negative reviews citing the term 'malware' on either marketplace.

⁴⁹⁵ ACCC, [App marketplaces report – Consumer questionnaire responses](#), 27 November 2020.

⁴⁹⁶ For example, in 2019, 42 apps that contained malware facilitating ad fraud were identified on the Play Store, and 17 apps that contained a similar type of malware were found on the App Store. See ESET, [ESET discovers Android adware affecting millions and tracks down its developer](#), 24 October 2019, accessed 24 March 2021; In 2020, malware was found in an SDK called Mintegral used to monetise apps using third-party ads, reportedly used by more than 1,200 iOS apps, and also used by Android apps. See A Miller and D Grander, [SourMint: iOS remote code execution, Android findings, and community response](#), *Snyk Blog*, 15 October 2020, accessed 24 March 2021. See, also L Porta, [Trojan malware infecting 17 apps on the App Store](#), *Wandera*, 24 October 2019, accessed 24 March 2021.

⁴⁹⁷ This was followed by toll fraud (accounting for 7.5% of PHA installs), Trojan, phishing, SMS fraud, privilege escalation and commercial spyware (each accounting for less than 1% of PHA installs).

⁴⁹⁸ Google, [Android ecosystem security](#), *Google Transparency Report*, accessed 24 March 2021.

⁴⁹⁹ Kantar reports estimated smartphone sales shares of around 54% for Android OS and 46% for iOS for the three months ending December 2020. See Kantar, [Smartphone OS market share](#), 2020, accessed 24 March 2021. StatCounter reports estimated mobile OS shares of 54% for iOS and 46% for Android OS for December 2020, based on mobile OS shares of webpage views. See StatCounter, [Mobile operating system market share Australia](#), 2021, accessed 24 March 2021.

⁵⁰⁰ Google, [Weather Home - Live Radar Alerts & Widget](#), *Google Play*, accessed 24 March 2021.

on a continuum, with some apps putting consumers at greater risk of detriment than others, from inconvenience to privacy violations or financial losses.

It would be difficult to accurately quantify the scale of financial detriment or other harms incurred by Australian consumers due to apps that target consumers in the ways discussed. For example, consumers may not be sufficiently incentivised to seek a refund for losses due to malicious apps, particularly if losses incurred by an individual consumer are small.

However, total losses from malicious and exploitative apps incurred by Australian consumers may be considerable. Losses from scams generally are underreported,⁵⁰¹ and financial losses from malicious apps are likely to also be underreported. For example, in 2020, 4,348 Australian consumers reported a total of AUD20.5 million in losses through mobile apps,⁵⁰² and anecdotal consumer feedback provided in response to the Consumer Questionnaire indicated that 95 respondents out of 400 had lost money to an app they considered to be a scam app, or knew someone who had, including 21 children.⁵⁰³ Further, although research in this area is lacking, some consumers are likely to incur substantial losses from apps that may be malicious or exploitative.⁵⁰⁴

In addition, apps that misrepresent their purpose, functionality, content and/or age suitability, or that otherwise manipulate user behaviour or their mobile devices, result in non-financial harm to consumers by reducing their ability to make meaningful choices about the apps they use and may also reduce consumers' trust in online activity.

Box 6.3: Example of an app that may result in financial harm to consumers

'Shaw Academy – Online Courses' is an app that enables users to undertake courses by online learning provider Shaw Academy. Courses are available to download for free on both the App Store and Play Store if users sign up to a 'free trial', or users can sign up for a subscription that requires additional in-app purchases to access content. For example, monthly subscriptions cost AUD59.99, and 'Toolkits' (course materials) and 'E Certificates' cost AUD59.99 each on the App Store.⁵⁰⁵

In 2020, the app had 6,256 negative reviews on the Play Store and 2,028 negative reviews on the App Store globally. Some of these reviews cited the terms 'subscription' (10.21% on the Play Store and 17.06% on the App Store) and 'scam' (12.45% on the Play Store and 38.51% on the App Store).⁵⁰⁶

A number of users indicated they had difficulties unsubscribing from the app, suggesting individual consumers are being charged hundreds of dollars for content and services they do not want, and for which they may not have provided properly informed consent (and further that the app may therefore constitute a subscription trap).⁵⁰⁷

For example, on 25 February 2021, an Australian App Store user posted the following review:

I believe this company is a scam. After signing up for a one-month trial, I quickly realised what they had on offer was not suited to my needs and tried to cancel. You have to telephone them in the USA and only get a robot response, not human. The robot tries to talk you out of cancelling with all sorts of offers but in the end I received confirmation that my sub[scription] had been cancelled—except that a month later they've taken an auto payment from my account without authority. DONT FALL FOR THIS.

⁵⁰¹ See ACCC, [Targeting scams 2019: A review of scam activity since 2019](#), 22 June 2020, p xii.

⁵⁰² Scamwatch, [Scam statistics – 2020](#), accessed 24 March 2021.

⁵⁰³ ACCC, [App marketplaces report – Consumer questionnaire responses](#), 27 November 2020.

⁵⁰⁴ See, for example, box 6.3.

⁵⁰⁵ Apple, [Shaw Academy – Online Courses](#), *App Store Preview*, accessed 24 March 2021.

⁵⁰⁶ Sensor Tower, *App Intelligence*, accessed 24 March 2021.

⁵⁰⁷ These issues may extend beyond the 'Shaw Academy – Online Courses' app with Trustpilot currently investigating similar consumer complaints about the company. See S Bearne, ['Big online learning provider faces calls for refunds after complaints'](#), *The Guardian*, 13 June 2020, accessed 24 March 2021.

6.2.1. Detriment to vulnerable consumer groups

The ACCC has previously noted that certain groups of consumers are at particular risk when engaging in online activities due to limitations with respect to, for example, their technical, critical and social skills.⁵⁰⁸ Some consumers are likely to be disproportionately harmed through their use of certain apps. For example, older Australians generally have lower digital fluency than younger age groups,⁵⁰⁹ and children can generally be manipulated more easily than adults.⁵¹⁰

The impacts of the COVID-19 pandemic may also heighten consumer harms associated with the use of apps. For example, 47% of Australians have downloaded an app or signed up to a new digital service due to COVID-19,⁵¹¹ signalling increased reliance on apps during the pandemic.

6.2.2. Display of age-inappropriate apps to children

Without adequate supervision and preventative measures, content and services accessible through apps have the potential to cause significant harm to younger consumers. Children and teenagers face a range of risks and potential harms when interacting with apps.⁵¹²

Almost half of Australian children aged six to 13 years use a smartphone, with 68% of those using apps.⁵¹³

The ACCC recognises that parents play a crucial role in assisting their children to safely navigate their use of apps, which cannot be replicated by the app marketplaces. For example, in circumstances where it cannot be apparent to the app marketplace operator that a child is accessing apps via their marketplace (such as if a child is using a parent's device), the marketplaces have very limited ability to restrict the child's access to age-inappropriate apps. However, the ACCC's review has indicated that more could be done to ensure in-appropriate apps are not displayed to children (one key example of a vulnerable consumer group).

Apple and Google promote the view that apps in their 'Family' and 'Kids' sections are appropriate for children. For example, Apple describes the 'Kids' section of the App Store as 'carefully curated to be a great space for children', and a Google disclosure to parents states 'your trust is a priority for us'.⁵¹⁴ Such statements reinforce the expectation that apps in those categories are suitable for children and do not need to be closely scrutinised. However, the mechanisms used by the app marketplaces which are intended to prevent children from being exposed to apps that are inappropriate for their age group due to their content, features or data practices, appear to be inadequate in a number of ways, as discussed below.

In Australia, users under the age of 13 are not able to create their own account to access the Play Store or the App Store.⁵¹⁵ If a parent or guardian creates an account for their child

⁵⁰⁸ ACCC, [Digital Platform Services Inquiry First Interim Report](#), 23 October 2020, p D33.

⁵⁰⁹ Deloitte, [Digital Consumer Trends 2020: Unlocking lockdown \(Australian edition\)](#), 2020, p 35.

⁵¹⁰ L Geronimo et al., [UI Dark Patterns and Where to Find Them: A Study on Mobile Applications and User Perception](#), *CHI '20: Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems*, April 2020, p 2.

⁵¹¹ Consumer Policy Research Centre, [Unfair Trading Practices in Digital Markets: Evidence and regulatory gaps](#), December 2020, p 15.

⁵¹² See, for example, eSafety Commissioner, [The digital lives of Aussie teens](#), February 2021.

⁵¹³ ACMA, [Kids and mobiles: How Australian children are using mobile phones](#), December 2020, accessed 24 March 2021, pp 2, 6. Many younger children also have their own mobile device or tablet, or use their parents' devices. See J Radesky et al., [Young Children's Use of Smartphones and Tablets](#), *Pediatrics*, 146 (2020).

⁵¹⁴ Apple, [Families](#), accessed 24 March 2021; Google, [Family Link Disclosure for Parents of Children under 13 \(or applicable age in your country\)](#), accessed 24 March 2021.

⁵¹⁵ Apple, [Family Sharing and Apple ID for your child](#), *Apple Support*, 15 February 2021, accessed 24 March 2021; Google, [Age requirements on Google Accounts](#), *Google Account Help*, accessed 24 March 2021.

(which requires them to include the child's date of birth), they may use parental control software (such as the Family Link app for Play Store and the Screen Time iOS feature for the App Store), which enables remote monitoring and management of their child's smartphone activities, including by requiring approval for app downloads and by setting age rating limits on available apps.

Apple and Google both display age ratings for apps,⁵¹⁶ and group apps into categories, including categories for children and some that are inappropriate for younger users, such as 'Dating', 'Social Networking' and 'Casino' games. Apple and Google also require apps targeting children under 13 years to comply with additional policies or guidelines that govern the treatment of children's data.⁵¹⁷

However, while usage levels are unclear, research suggests awareness and use of parental control software is likely to be relatively low.⁵¹⁸ Moreover, from 13 years, teenagers can create their own account and access apps without restrictions, including apps rated for adults.⁵¹⁹ Further, the availability of age-inappropriate apps on the App Store and Play Store for children, discussed below, suggests some developers are failing to comply with marketplace policies, and that marketplace oversight mechanisms are failing to identify a proportion of these apps. On both marketplaces, developers are responsible for assigning age ratings and categories for their apps.⁵²⁰ Both Apple and Google indicate they may review these ratings but do not commit themselves to doing so.⁵²¹ Some developers appear to be selecting inappropriately low age ratings, inadvertently or otherwise, which are not being identified through initial marketplace screening processes.

ACCC review has identified apps on the App Store and Play Store that appear to have inappropriate age or content ratings.⁵²² For example, social casino apps and other game apps that mimic traditional gambling are available and popular on both the App Store and Play Store.⁵²³ The key distinction between apps that facilitate real-money gambling and social casino apps is that, in the case of the latter, players may wager real money but are unable to cash out their virtual winnings for real money. While they are not subject to

⁵¹⁶ Google uses the Australian Classification Board's rating standards for games (G, PG, M, MA15+ and R18+) and the International Age Rating Coalition's generic ratings for all other apps (3+, 7+, 12+ 16+, 18+). See Google, [Apps & Games content ratings on Google Play](#), *Google Play Help*, accessed 24 March 2021.

⁵¹⁷ Google, [Families](#), *Play Console Help*, accessed 24 March 2021; Apple, [App Store Review Guidelines](#), 1 February 2021, accessed 22 March 2021, guideline 1.3.

⁵¹⁸ Ofcom, [Children and parents: media use and attitudes report 2019](#), 4 February 2020, p 31; Family Zone, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 20 November 2020, p 3.

⁵¹⁹ Adult ratings are '17+' in the App Store and 'Restricted 18+' in the Play Store in Australia (age ratings vary by country).

⁵²⁰ Apple, [App ratings](#), *App Store Connect Help*, accessed 24 March 2021; Google, [Apps & Games content ratings on Google Play](#), *Google Play Help*, accessed 24 March 2021.

⁵²¹ Apple indicates it may review ratings selected by developers. See Apple, [App Store Review Guidelines](#), 1 February 2021, accessed 24 March 2021, guideline 2.3.6; Google indicates its ratings may be reviewed by the International Age Rating Coalition (IARC). See Google, [Content Ratings](#), *Play Console Help*, accessed 24 March 2021. In Australia the IARC is represented by the Australian Classification Board. Google states that ratings are the responsibility of app developers and the IARC. See [Google, Apps & Games content ratings on Google Play](#), *Google Play Help*, accessed 24 March 2021. Google also requires developers to declare a target audience, which Google may review. See Google, [Designing apps for children and families](#), *Play Console Help*, accessed 24 March 2021.

⁵²² For example, the Play Store appears to have a number of dating apps marketed at children and teenagers, such as 'Teen Dating', which is rated 18+ but the description states the app is for 13–19 year olds, and 'Teenage Chat & Dating Pro', which is rated 3+ but the description states the app is a teen dating and meet up app. Google, [Teen Dating - Chat & Meet](#), *Google Play*, accessed 24 March 2021; Google, [Teenage Chat & Dating Pro](#), *Google Play*, accessed 24 March 2021. Apps that are similarly inappropriate appear on the App Store. See, for example, StreamKar – Live Video Chat (rated 12+), which has features usually restricted to the 17+ age rating such as live streaming and chatting with strangers: Apple, [StreamKar – Live Video Chat](#), *App Store Preview*, accessed 24 March 2021. See, also, Episode – Choose Your Story (rated 12+) and Hometown Romance Game (rated 9+), which are story-based games aimed at teenagers with suggestive themes that some parents may find inappropriate for the age rating: Apple, [Episode – Choose Your Story](#), *App Store Preview*, accessed 24 March 2021; Apple, [Hometown Romance Game](#), *App Store Preview*, accessed 24 March 2021.

⁵²³ App Annie, [The State of Mobile 2021](#), 2021, accessed 24 March 2021. Though casino apps only accounted for 2% of all gaming app downloads, they generated 11% of all gaming app revenue on the App Store and Play Store combined in 2020.

restrictions that apply to online gambling in Australia,⁵²⁴ these apps simulate real-money gambling in their game design, as players must wager something, such as in-game coins, on an event with uncertain odds, and are encouraged to spend money, such as through the provision of initial allotments of free in-game currency.

These apps also mimic real-money gambling and casinos in their names and appearance, for example depicting slot machines, coins or gaming chips.⁵²⁵ In-app purchasing features are used as part of gambling-like game mechanics, such as loot boxes,⁵²⁶ and pay-to-win features,⁵²⁷ and some apps also have a social element which may further encourage users to continue using the app. Loot boxes have been highlighted as a specific concern in games generally.⁵²⁸ At the same time, the marketplaces receive commissions on in-app payments made in these games, creating an apparent conflict with their incentives to prevent financial detriment associated with children accessing these types of apps.

Some of these apps on both marketplaces are rated as suitable for children, who may be attracted to them. Of the top 1,000 'free' and top 1,000 grossing casino apps on the App Store globally (combined, excluding duplicates), 176 apps were rated appropriate for children aged four years and above, six for those nine years and above, and 71 for consumers aged 12 years and above.⁵²⁹

For example, in the 'Island King' app, which is rated appropriate for children aged four years and above on the App Store and G for General on the Play Store, users spin a wheel to win in-game currency and progress, and can purchase additional spins with in-app payments.⁵³⁰ The App Store app listing indicates that users can '[S]pin & [W]in' in this 'free slot game'. This makes a feature of uncertain odds a central aspect of gameplay. Similarly, '8 Ball Pool', which is rated appropriate for children from four years on the App Store (whereas M for Mature audiences on the Play Store), contains gambling-like features such as virtual slot machines and scratch-and-win games.⁵³¹

⁵²⁴ For example, real-money gambling apps on both marketplaces must be free to download. Real-money gambling apps are available on the Australian App Store, and Google intends to allow real-money gambling apps in Australia from 1 March 2021. See Apple, [App Store Review Guidelines](#), 1 February 2021, accessed 24 March 2021; Google, [Developer Program Policy Preview: Real-Money Gambling, Games, and Contests](#), *Play Console Help*, 1 March 2021, accessed 24 March 2021.

⁵²⁵ In Australia, the Australian Communications and Media Authority (ACMA) has responsibility for regulating online gambling services under the *Interactive Gambling Act 2001* (IGA). The ACMA does not regard casino-style games as gambling services because they are not 'played for money or anything else of value' and so do not meet the IGA's definition of a gambling service. However, there are differences in opinion about whether in-game objects and currencies have value for the purposes of the IGA. See Senate Environment and Communications Reference Committee, [Gaming micro-transactions for chance-based items](#), 27 November 2018, pp 3, 16.

⁵²⁶ Loot boxes are chance-based (randomly selected) virtual items which can be redeemed in-game to receive further virtual items.

⁵²⁷ J Bergmayer, [Tending the Garden: How to Ensure That App Stores Put Users First](#), *Public Knowledge*, 23 June 2020, p 7.

⁵²⁸ See Senate Standing Committees on Environment and Communications, [Gaming micro-transactions for chance-based items](#), 27 November 2018; House of Representatives Standing Committee on Social Policy and Legal Affairs, [Protecting the age of innocence](#), February 2020. For example, in 2019 the Australian Government indicated it would continue to examine regulatory frameworks that apply to loot boxes in video games. See Department of Infrastructure, Transport, Regional Development and Communications, [Australian Government response to the Senate Environment and Communications References Committee report: Gaming micro-transactions for chance-based items](#), 6 March 2019, pp 2–3.

⁵²⁹ Sensor Tower, *Store Intelligence, Top Apps, Casino app category data for 2020*, accessed 24 March 2021. Similar findings were made on the Play Store.

⁵³⁰ See Apple, [Island King](#), *App Store Preview*, accessed 24 March 2021; Google, [Island King](#), *Google Play*, accessed 24 March 2021.

⁵³¹ Apple, [8 Ball Pool](#), *App Store Preview*, accessed 24 March 2021; Google, [8 Ball Pool](#), *Google Play*, accessed 24 March 2021.

Some app developers have also been found to be collecting personal information from children, allegedly in violation of privacy laws governing children's data, and engaging in other harmful practices.⁵³²

Box 6.4: Examples of apps that may cause harm to children

- In 2018, 22 consumer groups alleged to the FTC that Google's representations that apps in the 'Family' category of the Play Store were suitable for children were misleading, as many apps contained age-inappropriate content or deployed unfair and deceptive advertising practices. The complaint also alleged that many of the apps collected personal information from children without giving notice to parents and obtaining verifiable consent, in violation of a law intended to protect the privacy of children online. The complaint noted that parents necessarily rely on Google's categorisation of apps and age ratings, and would reasonably expect that apps approved for children's use by Google would not violate laws intended to protect this age group.⁵³³
- In 2019, Apple and Google respectively removed three dating apps – FastMeet, Meet24 and Meet4U – after the FTC alleged the apps represented in their privacy policies that they prohibited users under the age of 13 years from using the app but failed to do so, posing a serious health and safety risk, and appeared to be collecting personal information from children.⁵³⁴
- In 2020, a coalition of 20 consumer groups alleged popular video sharing app TikTok, which is available on both the major marketplaces, was violating an agreement to protect children's privacy, including by not deleting videos posted by underage users.⁵³⁵ Separately, in 2021, European consumer group members of the Bureau Européen des Unions de Consommateurs (BEUC) alleged to the European Commission that several terms in TikTok's 'Terms of Service' are unfair; TikTok fails to protect children and teenagers from hidden advertising and potentially harmful content on its platform, and some of the information TikTok provides to users about its collection and use of their personal data is misleading.⁵³⁶

6.2.3. Apple and Google should do more to protect consumers from harmful, malicious and exploitative apps

The apparent prevalence of harmful, malicious and exploitative apps that consumers may reasonably expect to have been identified through initial marketplace review processes, or ongoing marketplace surveillance processes, indicates that Apple and Google's processes

⁵³² For example, a 2018 analysis of 5,855 popular 'free' Android children's apps found that 19% collect identifiers or other identifiable information via SDKs. See I Reyes et al., ["Won't Somebody Think of the Children"? Examining COPPA Compliance at Scale](#), *Proceedings on Privacy Enhancing Technologies*, 3 (2018), p 63.

⁵³³ The alleged unfair and deceptive advertising practices related to manipulating children to watch advertisements or make in-app purchases in order to advance in a game, in violation of Google's advertising and content policies. See Centre for Digital Democracy, [Google Play Store complaint with exhibits](#), 19 December 2018, pp 2–3:

⁵³⁴ FTC, ["App Stores Remove Three Dating Apps After FTC Warns Operator about Potential COPPA, FTC Act Violations"](#), 6 May 2019, accessed 24 March 2021. Subsequently in 2019, Google amended its policies for children's apps to better ensure app developers were meeting existing Google policies and regulatory requirements for apps targeting children, with respect to content, advertisements and the handling of personally identifiable information. See S Perez, ["Following FTC complaint, Google rolls out new policies around kids' apps on Google Play"](#), *TechCrunch*, 29 May 2019, accessed 24 March 2021.

⁵³⁵ N Singer, ["TikTok Broke Privacy Promises, Children's Groups Say"](#), *The New York Times*, 14 May 2020, accessed 24 March 2021. In 2019, TikTok had agreed to pay USD5.7 million to settle FTC allegations the company illegally collected personal information from children, the largest civil penalty ever obtained by the Commission in a children's privacy case. See FTC, ["Video Social Networking App Musical.ly Agrees to Settle FTC Allegations That it Violated Children's Privacy Law"](#), 27 February 2019, accessed 24 March 2021. These examples are from the US where, under the [Children's Online Privacy Protection Act 1998](#) and the FTC's [Children's Online Privacy Protection Rule \(2013\)](#), the operators of websites and online services (in this case, app developers) are liable for requirements regarding the collection of personal information from children under the age of 13, rather than the app marketplaces.

⁵³⁶ BEUC, ["BEUC files complaint against TikTok for multiple EU consumer law breaches"](#), 16 February 2021, accessed 24 March 2021. BEUC is the umbrella group for 45 independent consumer organisations from 32 countries.

are failing to adequately protect consumers from harms associated with their use of certain apps.

Individual app developers are, and should be, obligated to comply with the Australian Consumer Law (ACL), relevant privacy laws, marketplace policies and their own terms and conditions of service to prevent consumer detriment.

However, given the gatekeeper role performed by Apple and Google and the representations they make to consumers about the safety and security of their marketplaces, there is a clear case that Apple and Google should take additional measures to ensure apps on their marketplaces do not harm their users.

Further, given their ability to monitor apps on their marketplaces and consumer feedback about apps, Apple and Google appear well positioned to take more proactive action to prevent and remove apps that harm consumers, including apps that facilitate subscription traps and other scams, and apps that target vulnerable groups, such as children.

Potential measure 5: to address the risks of malicious, exploitative or otherwise harmful apps

The ACCC considers that app marketplaces should do more to address the risks associated with harmful or malicious apps (such as subscription traps or real prize scams). While both Apple and Google have publicly stated their commitment to protect consumers from harmful apps, and both have policies in place that are intended to facilitate this, the ACCC considers that Apple and Google should take steps to more proactively monitor those apps which have made it through their review processes and are available on their app marketplaces for continued compliance with their marketplace policies.

There appear to be a number of ways Apple and Google could potentially do this, including through their monitoring of consumer app reviews and the implementation of a process for active consideration and intervention if certain triggers are met (based on, for example, the substantiality or duration of non-compliance, or the numbers of consumers affected).

Given the lack of comprehensive information about the risks consumers are exposed to when using apps, there is also an opportunity for Apple and Google to provide greater transparency and clarity in their public reporting on the effectiveness of their measures designed to protect consumers.

Further, proactive monitoring as set out above would enable Apple and Google to report on malicious apps, or age-inappropriate apps that target children.

The ACCC's findings with respect to harmful and malicious apps and the role of the app marketplaces in the distribution of such apps are similar to findings the ACCC previously made in the final report of the DPI. The *DPI Final Report* noted the ACCC's concerns about the increasing use of digital platforms to facilitate scam conduct, including scams that are either unique to, or more easily facilitated by, digital platforms.⁵³⁷ The ACCC's *First DPSI Interim Report* also highlighted the increase in targeting of consumers on digital platforms.⁵³⁸

As set out below, the ACCC considers it important that consumers who have suffered detriment as a result of harmful apps, including scam apps, have access to appropriate dispute resolution processes; the application of the ACCC's previous proposals for both

⁵³⁷ ACCC, [Digital Platforms Inquiry Final Report](#), 26 July 2019, recommendations 20 and 21, pp 504–507.

⁵³⁸ ACCC, [Digital Platform Services Inquiry First Interim Report](#), 23 October 2020, p 13.

internal dispute resolution and a digital platform ombudsman scheme, to consumer complaints to app marketplaces is discussed below.

6.3. Other potential measures to address harmful, malicious and exploitative apps

The ACCC considers it vital that consumer protection measures are capable of addressing the potential for harms caused by apps that are malicious or exploitative, or harmful for particular vulnerable consumer groups. The ACCC will continue to consider the suitability of measures to address these issues, including any feedback received from interested parties on the measures discussed below.

A range of measures being implemented or considered internationally are likely to be useful for addressing harms caused by malicious and exploitative apps. These would supplement the important programmes the e-Safety Commissioner is leading to help protect Australians online.⁵³⁹

Measures aimed at addressing dark patterns relevant to digital platforms generally, and app marketplaces in particular, are likely to be of value. For example, relevant consumer protection authorities, such as the ACCC, could undertake the following:

- Further investigations to better understand the prevalence and characteristics of apps that mislead consumers, and the effectiveness of prevention measures, such as through coordinated app 'sweeps' by consumer protection authorities, would assist to mitigate misleading and deceptive conduct facilitated by apps.⁵⁴⁰
- Business guidance on how existing consumer laws apply to dark patterns would assist businesses to avoid using them. For example, the Netherlands Authority for Consumers & Markets (ACM) has developed guidance to help businesses ensure online persuasion techniques they use do not exploit consumers.⁵⁴¹
- Consumer awareness campaigns and other measures to improve the digital literacy of consumers generally may assist consumers to protect themselves when using apps. For example, the UK's Behavioural Insights Team has advocated for the development of apps, or additions to the curriculum, that provide 'training wheels' to young people first using social media and interacting online to counter the exploitation of consumer biases online.⁵⁴² In Australia, important work is already being done in this area by the e-Safety Commissioner.⁵⁴³
- In addition, collaboration with businesses on the development of voluntary standards may assist to address harmful behaviour by businesses online that may not breach existing consumer laws. For example, a 'corporate digital responsibility' initiative of the German Federal Ministry of Justice and Consumer Protection encourages businesses to exceed minimum statutory requirements and provide digital services in accordance with key societal values such as fairness, trust and transparency.⁵⁴⁴

Measures that assist parents to navigate their children's use of apps are also beneficial. The e-Safety Commissioner provides guides to social media, apps and games to assist online

⁵³⁹ eSafety Commissioner, [Key issues](#), accessed 24 March 2021.

⁵⁴⁰ A 'sweep' is a set of checks carried out on websites or apps simultaneously to identify breaches of consumer law. See, for example, ICPEN, [International Internet Sweep Day](#), accessed 24 March 2021.

⁵⁴¹ ACM, [Guidelines on the protection of the online consumer](#), February 2020.

⁵⁴² E Costa and D Halpern, [The behavioural science of online harm and manipulation, and what to do about it](#), The Behavioural Insights Team, 15 April 2019.

⁵⁴³ See, for example, eSafety Commissioner, [Use your device safely](#), accessed 24 March 2021.

⁵⁴⁴ German Federal Ministry of Justice and Consumer Protection, [CDR Initiative](#), accessed 24 March 2021.

safety.⁵⁴⁵ Other helpful sources are also available, for example, the Australian Council on Children and the Media (ACCM) provides reviews of games and other popular apps that may appeal to young children on its website, prepared by child development professionals, intended to assist parents to make informed decisions about their appropriateness for children, including whether the apps contain gambling elements.⁵⁴⁶ The ACCM is also undertaking research into covert tracking by popular children's apps, with results to be published on the ACCM's website to better inform parents about data practices of concern and support them to protect the privacy of their children.⁵⁴⁷

6.4. Complaints handling processes

The ACCC recognises that the app marketplaces receive large volumes of consumer feedback, and that some apps subject to complaints, or large numbers of negative reviews (for example, some popular apps), are not necessarily harmful to consumers. However, it is crucial that Apple and Google provide consumers with effective avenues to report their concerns with apps available on their marketplace.

In some circumstances, there are clear practical reasons for the platforms to require developers to address the complaint, such as a technical problem within an app.

A critical first step is therefore that a consumer is able to contact the owner of an app should they have concerns or a complaint.

Box 6.5: Consumer access to developer contact details

Both Apple and Google's policies require an app developer to ensure consumers are able to contact the developer.

Apple requires developers to provide a link in their app listing on the App Store to the developer's support webpage that includes accurate and up-to-date contact information.⁵⁴⁸

Google also requires developers to provide contact information for display in the app listing on the Play Store. In addition, Google requires developers to respond to customer inquiries within three business days, and within 24 hours where concerns are stated to be urgent by Google.⁵⁴⁹

However, in relation to other types of complaints, particularly if a consumer has not received a satisfactory response from a developer, consumers are likely to expect that, if they contact Apple or Google directly, the marketplace will address their problem, or at a minimum provide a clear explanation of why the marketplace has or has not taken particular actions.

The ACCC has identified a number of apparent deficiencies with the complaints handling processes of both the App Store and Play Store, including with respect to app removal processes, the provision of refunds and the ability of developers to access information to support their complaints handling role. In part, these issues appear to be connected with the extent to which the marketplaces place the onus on developers to address complaints, and limit their own role in complaints handling.⁵⁵⁰

⁵⁴⁵ eSafety Commissioner, [The eSafety Guide](#), accessed 24 March 2021.

⁵⁴⁶ ACCM, [Know Before You Load App Reviews](#), accessed 24 March 2021.

⁵⁴⁷ ACCM, [Apps Can Trap](#), accessed 24 March 2021; The ACCM's research is funded by a grant from the Australian Communications Consumer Action Network (ACCAN). See ACCAN, [2020 ACCAN Grants projects announced](#), 29 July 2020, accessed 24 March 2021.

⁵⁴⁸ Apple, [App Store Review Guidelines](#), 1 February 2021, accessed 24 March 2021, guideline 1.5.

⁵⁴⁹ Google, [Google Play Developer Distribution Agreement](#), 15 April 2019, accessed 24 March 2021, para 4.7.

⁵⁵⁰ For example, of 37 consumers who indicated in response to the ACCC Consumer Questionnaire that they had lodged a complaint with an app marketplace about a scam app, 29 were dissatisfied with how their complaint was handled. Common reasons for dissatisfaction included not receiving a response after the report was made; the app remaining on

6.4.1. Deficiencies in marketplace app removal processes

Both Apple and Google reserve the right to remove third-party apps that do not comply with marketplace policies.⁵⁵¹ The ACCC recognises that there may be a potential tension between app developer concerns about being removed from the app marketplaces and the benefits of consumers not being exposed to malicious apps.⁵⁵² However, the prevalence and nature of complaints about harmful apps available to consumers on the marketplaces suggests the initial review, ongoing monitoring and app removal functions of both marketplaces are not meeting the robust standards Apple and Google purport to uphold. The ACCC is concerned that there may be a disconnect between the public representations made by the app marketplaces, and the effectiveness of their processes in this area, and that this may exacerbate the harms to consumers caused by a proportion of apps.

Further, communication by the app marketplaces with consumers with respect to app reporting and removal processes appears to be insufficient.

While both Apple and Google provide avenues for raising initial complaints with the marketplace or developers,⁵⁵³ which assists consumers to report apps that may be harmful, neither marketplace provides clear guidance about anticipated timeframes for the resolution of complaints, nor do they commit to updating a user about the status or outcome of their report or request.⁵⁵⁴ Further, Apple does not provide consumers with the ability to report an app from within the App Store, and does not provide a clear way to directly flag that an app may not comply with marketplace policies.⁵⁵⁵ The ACCC is concerned that, if consumers are not informed of the status or outcome of their complaint, they may be discouraged from making subsequent reports about other apps or developers.

Further, in the case of the Play Store, some of Google's guidance about consumer reviews may create expectations for consumers that it is not meeting. Google indicates that consumers can leave a review on the app listing after they have contacted a developer with an issue about their app.⁵⁵⁶ While Google does indicate the reviews are to provide feedback to the developer and inform other users, this guidance may confuse some consumers about the extent of Google's oversight of each review submitted for an app. For example, some consumers have addressed reviews to 'Google' or the 'Play Store', with the expectation that the platform will closely monitor consumer reviews and take timely action in response to a review raising an issue with an app that a developer has not addressed. It is not clear to the ACCC that any such action is taking place.⁵⁵⁷

the marketplace after the report was made; and dissatisfaction with the onerous nature of the reporting process. See ACCC, [App marketplaces report – Consumer questionnaire responses](#), 27 November 2020.

⁵⁵¹ Apple, [App Store Review Guidelines](#), 1 February 2021, accessed 24 March 2021; Google, [Google Play Developer Distribution Agreement](#), 15 April 2019, accessed 24 March 2021, paras 4.11, 8.

⁵⁵² Developer concerns about marketplace review processes are discussed in chapter 3.

⁵⁵³ For example, Play Store users can report inappropriate apps to Google through a 'Report Inappropriate Apps' web form. See, also, Google, [Report content issues or violations](#), *Google Play Help*, accessed 24 March 2021; Apple, [Get Support](#), accessed 24 March 2021. Apple provides guidance on how to contact Apple or a developer. See Apple, [App Store Support](#), accessed 24 March 2021.

⁵⁵⁴ For example, while useful for users, Google's 'Report Inappropriate Apps' web form does not indicate if or when the user will receive an update about their report from Google. Apple's guidance indicates Apple will respond to a contact by phone, chat or email but does not indicate a time period for a response. See Apple, [Get Support](#), accessed 24 March 2021.

⁵⁵⁵ For example, Apple directs App Store users to its 'Get Support' website that provides a number of information pages and contact options. See Apple, [Get Support](#), accessed 24 March 2021, ('What's happening with your iPhone?').

⁵⁵⁶ Google, [Contact an Android app's developer](#), *Google Play Help*, accessed 24 March 2021.

⁵⁵⁷ Sensor Tower Review Analysis, Play Store, 'Shaw Academy – Online Courses with Certification' and 'Slotomania™ Free Slots: Casino Slot Machine Games', negative reviews from 2010–2021, keyword, 'Play Store'. For example, Play Store users of 'Shaw Academy' and 'Slotomania' have posted the following reviews: 'Can play store please have this app removed. So many people have been scammed, including myself [...]' (Shaw Academy on 15 December 2020) and 'It is like 2020 education scam. They just deducted the money without conformation. Play store please Ban this app [...]' (Shaw Academy on 26 November 2020) and 'Would give it ZERO STARS...App should be pulled from Play Store as its full of false advertising and full of glitches [...]' (Slotomania on 8 February 2018).

6.4.2. Inadequate consumer access to remedies

The Australian Consumer Law (ACL) provides consumers with automatic guarantees that apply when they buy products or services.⁵⁵⁸ These include guarantees that products will be of acceptable quality and will match descriptions in advertising, and that products and services will be fit for purpose.⁵⁵⁹

A consumer can claim a remedy from the app marketplace or app developer, depending on the circumstances, if the app does not meet the consumer guarantees. Where there is a major failure with the app a consumer can seek their choice of a refund, repair or replacement. A major failure of an app may include a situation where the app is significantly different from the description provided in the app listing (for example, apps with bait and switch characteristics), or if the app has a problem that would have stopped a reasonable consumer from purchasing it had they known about it (for example, apps that have persistent technical issues which significantly impede the functioning of the app, or the functioning of the consumer's device).⁵⁶⁰

The ACL also prohibits conduct that is misleading or deceptive, and the making of false or misleading representations. An app developer or app marketplace that makes a misrepresentation about an app (for example, the app's features or cost) may contravene the ACL, and an affected consumer may be entitled to a remedy.

A consumer who accesses a harmful app from an app marketplace may also be entitled to a remedy under the terms of use of the marketplace or the particular app, although this will depend on the application of the policies or terms of the app marketplace, or the particular scenario for which they are claiming a remedy.

The ACCC is concerned that both Apple and Google appear to place much of the responsibility on developers for providing refunds which consumers are entitled to under the contractual terms on which consumers' access apps through Apple and Google's respective app marketplaces, and seek to limit their own role in refunds processes, while at the same time promoting the value of their centralised purchase systems for consumers.⁵⁶¹

On the Play Store, within an initial period of 48 hours, consumers may be able to access a refund by contacting Google if they are dissatisfied with an app, in-app payment or subscription but after this period, consumers are advised to contact the developer directly to report an issue or request a refund.⁵⁶² Apple's guidance to consumers also indicates they should contact the developer directly regarding app payment issues.⁵⁶³

Some Play Store users can access third-party dispute resolution in limited circumstances, while App Store users have no external avenue to access redress. If supported by their mobile device carrier, Play Store users in Australia may pay for apps through their carrier.⁵⁶⁴ Consumers are able to dispute app marketplace charges made through their carrier with the

⁵⁵⁸ *Competition and Consumer Act 2010* (Cth) sch 2 ('Australian Consumer Law').

⁵⁵⁹ See ACCC, [Consumer guarantees](#), accessed 24 March 2021.

⁵⁶⁰ ACCC, [Repair, replace, refund](#), accessed 24 March 2021. See this website for a list of major problems with products or services for which Australian consumers are entitled to a refund or replacement.

⁵⁶¹ For example, Google states that *Play's billing system provides users with a safe, convenient, and consistent way to make purchases... ensuring users can manage purchases including cancelling subscriptions and obtaining refunds. All of this increases user trust, which in turn increases user willingness to make purchases...* See Google, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 19 October 2020, p 9.

⁵⁶² Play Store users also have 120 days to report an unauthorised charge on their account. See Google, [Learn about refunds on Google Play](#), *Google Play Help*, accessed 24 March 2021.

⁵⁶³ Apple, [How to contact an app developer](#), *Apple Support*, 23 December 2020, accessed 24 March 2021. Apple does not publicly indicate any initial refund period. If a consumer submits a refund request to Apple directly, Apple will convey the request to the developer for response. Apple will then provide the consumer with an update within 48 hours before issuing a refund (if deemed eligible). See Apple, [Handling Refund Notifications](#), *Apple Developer*, accessed 24 March 2021; Apple, [Handling Subscriptions Billing](#), *Apple Developer*, accessed 24 March 2021.

⁵⁶⁴ Google, [Accepted payment methods on Google Play](#), *Google Play Help*, accessed 24 March 2021.

Telecommunications Industry Ombudsman (TIO) if they are not satisfied with Google's handling of a report of unauthorised charges made through their carrier. However, Google's guidance on payment methods available to Australian users does not identify the TIO as an external avenue for billing complaints,⁵⁶⁵ and it is likely that many consumers are not aware of this external avenue for resolving such disputes.

The ACCC considers that clear guidance about a consumer's entitlements to access a refund, and the pathway for doing so if a developer or the marketplace does not issue one in a timely manner, is necessary for consumers to access refunds for app purchases, subscriptions and in-app payments. Where such guidance is not provided, consumers are likely to be discouraged from escalating refund requests to the marketplaces if a developer has failed to issue a refund.

6.4.3. Communications between app marketplaces and developers

In addition, information imbalances between the app marketplaces and app developers appear to impede complaints handling. Concerns have been raised about the extent to which gatekeeper digital platforms such as Apple and Google control third-party access to information and consumers.⁵⁶⁶ In some instances, developers have been frustrated when attempting to address consumer complaints about their apps. For example, Match Group submits that Apple and Google take ownership of customer relationships away from app developers and, by not making transaction and billing data available to developers, prevent developers from adequately assisting customers in relation to refund requests, hardship exceptions and other matters.⁵⁶⁷ This suggests consumer access to redress would likely improve if Apple and Google took steps to better facilitate communications between developers and the consumers who use their apps.

Further, as discussed in chapter 3, developers have identified the potential for inconsistencies in how Apple and Google respectively interpret and apply their terms during the app review process, which can lead to inconsistency in how Apple and Google respectively handle reports of apps that breach marketplaces policies. This may negatively impact consumers as well as developers.

6.4.4. Effective internal and external dispute resolution mechanisms are required

The ACCC considers that consumers must have adequate access to avenues for redress from the app marketplaces for losses caused by malicious apps, low quality apps, unauthorised billing issues and where they are otherwise entitled to a remedy under the ACL. This includes the ability to escalate their complaints to an external body if they are not satisfied with the outcome of marketplace dispute resolution processes.

In the ACCC's view, Apple and Google are not achieving a balance that best serves their users; between providing streamlined, consistent processes for consumer complaints on the one hand, and supporting developers to fulfil the complaints handling functions required of them by the marketplaces on the other.

As set out in chapter 3, the ACCC considers that the proposals for minimum internal dispute resolution requirements (recommendation 22 of the *DPI Final Report*) and an ombudsman scheme to resolve complaints and disputes with digital platforms (recommendation 23 of the *DPI Final Report*) could address concerns raised by third party app developers about the

⁵⁶⁵ Google, [Accepted payment methods on Google Play](#), *Google Play Help*, accessed 24 March 2021.

⁵⁶⁶ D Geradin and D Katsifis, [The Antitrust Case Against the Apple App Store](#), *SSRN*, 19 May 2020, p 3.

⁵⁶⁷ Match Group, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 16 October 2020, p 16; See, also, A Sharifulin, [Top 7 challenges of mobile data management and analysis in App Store Connect and Google Play Console](#), *AppFollow*, 11 July 2019, accessed 24 March 2021.

app review process. The ACCC also considers that these mechanisms could address deficiencies in how consumer complaints with the operation of apps on the App Store and Play Store, or app billing, are dealt with.⁵⁶⁸ For example, minimum internal dispute resolution standards may set out a clear route for a user to directly notify the marketplace that an app does not comply with marketplace policy, prescribed timeframes for the resolution of complaints, and a commitment to updating a user about the status or outcome of their report or request. Such standards could also be developed in such a way that app developers, required by the marketplaces to address consumer complaints and authorise refunds, are provided with sufficient information and support to do so. Importantly, these standards could also make it clear that Apple and Google retain responsibility for addressing reports of scams and other harmful activity facilitated by apps, and for handling complaints and disputes that developers have not resolved.⁵⁶⁹

As the TIO has noted, app users do not have a single pathway to help them resolve complaints where internal dispute resolution avenues have failed.⁵⁷⁰ The lack of robust internal complaints handling processes by the major app marketplaces also reinforces the merits of an external dispute resolution body for digital platforms such as Apple and Google.

The proposed Privacy code of practice (recommendation 18 of the *DPI Final Report*), which would enable proactive and targeted regulation of digital platforms' data practices (including children's data), inclusive of requirements to establish effective and timely mechanisms to address consumer complaints, also has the potential to address deficiencies with the internal dispute resolution measures of the app marketplaces.⁵⁷¹

⁵⁶⁸ ACCC, [Digital Platforms Inquiry Final Report](#), 26 July 2019, recommendations 22 and 23, pp 509–510.

⁵⁶⁹ The minimum internal dispute resolution standards would set out requirements for the visibility, accessibility, responsiveness, objectivity, confidentiality and collection of information of digital platforms internal dispute resolution processes, and would include mechanisms for accountability for breaches. See ACCC, [Digital Platforms Inquiry Final Report](#), 26 July 2019, p 509.

⁵⁷⁰ TIO, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 2 October 2020, p 1.

⁵⁷¹ The ACCC recommended the privacy code for digital platforms be developed by the Office of the Australian Information Commissioner, in consultation with industry stakeholders, and apply to all digital platforms supplying online search, social media, and content aggregation services to Australian consumers and which meet an objective threshold regarding the collection of Australian consumers' personal information. See ACCC, [Digital Platforms Inquiry Final Report](#), 26 July 2019, recommendation 18, p 497.

7. Data practices

Competition issues

- Apple and Google make available a range of data and analytics to third-party app developers to help them track and measure their app performance. However, some information may be withheld from developers leaving them at an information disadvantage compared to Apple and Google.
- Apple and Google have superior access to information about the entire app ecosystem that enables them to monitor the performance of all apps and hence gain valuable competitive insights. There are potential competition concerns arising from Apple and Google's intelligence gathering given their own apps compete in downstream app markets.
- Apple and Google may have the ability and the incentive to use information to assist strategic or commercial decisions about first-party app development. Such conduct may insulate first-party apps from competition, reduce developers' incentives to innovate, and reduce the quality and choice of apps for consumers.
- Apple seeks to mitigate potential future conflict with third-party app developers by way of its Developer Agreement that requires developers to forgo their right to confidentiality over information they provide to Apple (aside from patents and copyright).

Consumer issues

- Many consumers express strong preferences for limitations on tracking through apps, and data practices permitted by app marketplaces. However, the data practices of apps available on the major app marketplaces often do not align with the data use and privacy preferences of those consumers.
- While both Apple and Google highlight the extent of control consumers have over the collection and use of their data by app developers and other third parties, the utility of these measures varies. Changes Apple has made to app tracking technologies, including requirements that developers gain opt-in consent for tracking, are positive for consumers. However, Google continues to limit the ability of consumers to opt out of data collection, for example by not allowing users to disable a unique identifier used for tracking. This is consistent with findings previously made by the ACCC that digital platforms do not always provide consumers with meaningful control over the collection and use of their data.⁵⁷²
- Certain consent-based measures required by the app marketplaces are not sufficient for protecting the privacy of app users, as many consumers lack the information, awareness and practical ability to provide informed consent for data collection practices. The benefits of such measures are also limited by the potential for consumers to misunderstand the extent to which Apple and Google verify disclosures provided by app developers.

This chapter discusses how Apple and Google's access to information about apps under development, and the performance of third-party apps, may give rise to potential competition concerns where information is used to inform strategic or commercial decisions about first-party app development. In addition, this chapter discusses the extensive tracking of

⁵⁷² See ACCC, [Digital Platforms Inquiry Final Report](#), 26 July 2019, p 374; ACCC, [Digital Platform Services Inquiry First Interim Report](#), 23 October 2020, p 44.

consumers' activity through apps, and the adequacy of app marketplace measures intended to provide consumers with choice and control over their data.

This chapter is structured as follows:

- **Section 7.1** discusses how Apple and Google's access to data and information may have potential impacts for competition.
- **Section 7.2** sets out how consumers are tracked through apps and the prevalence of apps that facilitate intrusive data practices; the effectiveness of app marketplace notice, consent and control measures and the respective responsibilities of the app marketplaces and developers to protect the privacy of app users; and other measures to address unwanted tracking.

7.1. Data practices impacting competition

As operators of app marketplaces and mobile operating systems, Apple and Google have significant access to information and data about apps under development, consumer use and engagement with apps, and the performance of third-party apps. Apple, and particularly Google, both also have access to information from various other sources across their respective ecosystems that they may be able to leverage to inform their strategic or commercial decisions about first-party app development.

7.1.1. Apple and Google have many avenues to gather information from app developers

Throughout the various stages of app development and distribution in the app marketplaces, Apple and Google both have the opportunity to collect information about apps, app developers and users. For example, diagnostic, analytics and usage data are collected via development tools (if developers opt-in).⁵⁷³

During the app review process, developers must provide the name, a description, screenshots, search keywords, listing details and price information,⁵⁷⁴ which provides Apple and Google with early oversight about potential rival apps, or about novel concepts for apps. While this information is necessary to review apps and may not be particularly commercially sensitive, as discussed in chapter 3, the ACCC is aware of reports about third-party apps being held up in the submission process or where apps are rejected, only to see Apple subsequently release an app or built-in OS feature with similar or equivalent functionality. The ACCC notes it is unclear what procedures or policies Apple and Google have in place to ring-fence information collected during the app review and submission process, as discussed further below.

Apple and Google both also require app developers to use a number of first-party systems within their apps or within the app marketplace. For example, both Apple and Google require the use of their billing systems to process payments in apps, as discussed in chapter 4, which enables access to information such as customer lists, the purchasing activity of individual users and the success of subscriptions.⁵⁷⁵ Apple and Google also collect information about consumers through their advertising networks, using unique identifiers as discussed in box 7.5 below.

7.1.2. Apple and Google's first-party apps may benefit from information advantages over rival third-party apps

Apple and Google make available a range of data and analytics to third-party app developers to help them track and measure their app performance, make improvements to app quality and user experience, and for business insights such as marketing.

Apple, through App Store Connect,⁵⁷⁶ offers developers three tools – App Analytics, Sales and Trends, and Payments and Financial Reports – to measure their app's financial performance and user engagement.⁵⁷⁷ Apple submits that it applies its policies in a non-

⁵⁷³ Match Group, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 16 October 2020, p 16.

⁵⁷⁴ Apple, [Required, localizable, and editable properties](#), *App Store Connect Help*, accessed 24 March 2021. Google, [Create and set up your app](#), *Play Console Help*, accessed 24 March 2021.

⁵⁷⁵ Match Group, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 16 October 2020, p 16.

⁵⁷⁶ Apple submits it developed and uses App Store Connect software to provide app developers with comprehensive data relating to their customer-initiated transactions and app engagement. See Apple, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 2 October 2020, p 17; Apple, [Gain Insights with Analytics](#), *App Store Connect*, accessed 24 March 2021.

⁵⁷⁷ This includes metrics such as the number of times an app was viewed on the App Store, installations and re-installations, purchases made on the App store and active devices. See Apple, [Submission to the ACCC Digital Platform Services](#)

discriminatory way and that no one group of developers are given more information than others.⁵⁷⁸ Apple also notes it does not share users' personally identifiable information with third-party app developers.⁵⁷⁹

Google, through the Play Console,⁵⁸⁰ shares data with third-party app developers to help them understand the lifecycle of their app, from how it is discovered in the Play Store, to how users engage with it, and what users pay for.⁵⁸¹ This data is generally aggregated and anonymised to protect user privacy. Google also provides developers with access to aggregated data to '...benchmark their performance across the ecosystem, for example, a game developer could compare their user acquisition rates against similar game genres in the same region.'⁵⁸²

Although app developers have access to this information, it is typically only related to their individual app(s), whereas Apple and Google have access to information about all the apps in their respective app marketplaces. In contrast, third-party app developers do not benefit from the same level of information, as Apple does not allow third-party app developers to aggregate their analytical information provided through App Analytics with other developers' analytical information, or contribute this information to a repository for cross-developer analytics under the Developer Program License Agreement.⁵⁸³

Access to complete market information combined with Apple and Google's vertically-integrated positions as device and mobile operating system providers affords Apple and Google a significant opportunity to gather and benefit from valuable competitive insights across their extensive ecosystems. For example, Apple and Google may be able to see which apps are successful and use this to inform the development of their own apps.

Apple and Google may also be able to leverage this information more readily than third-party app developers due to their comparative cost and hence, pricing advantages, in developing new apps or operating system features.

In situations where Apple and Google choose not to share information with third-party app developers, they likely receive additional benefits. For example, the European Commission's preliminary investigation into Apple's App Store rules observed that Apple's requirement to use its IAP system appears to disintermediate third-party developers (such as Spotify) from customer data obtained through the billing process, and allows Apple an opportunity to obtain valuable data about the activities and offers of its competitors.⁵⁸⁴

Additionally, Apple and Google may collect or have access to more information about app usage through their first-party apps, which is not made available to third-party developers. For example, Google is able to collect usage data across most Android devices through third-party use of Google Mobile Services (including Google Search, Google Chrome, YouTube, and the Google Play Store), as this is pre-installed on many third-party devices.⁵⁸⁵

[Inquiry Second Interim Report](#), 2 October 2020, p 17; Apple, [Gain Insights with Analytics](#), *App Store Connect*, accessed 24 March 2021.

⁵⁷⁸ Apple, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 2 October 2020, p 18.

⁵⁷⁹ Apple, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 2 October 2020, p 17.

⁵⁸⁰ Android Developers, [Google Play Console](#), accessed 24 March 2021.

⁵⁸¹ This data includes device information and when the device has accessed Google's systems, in-store user activities (searches, listing impressions), user triggered events (installs, updates, uninstalls, purchases), subscription initiation and status, user ratings and review, app usage (app opens, game achievement), and app technical performance data (crashes and security vulnerabilities). See Google, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 19 October 2020, p 10; Google, [Data Access](#), *Play Console Help*, accessed 24 March 2021.

⁵⁸² Google, [Data Access](#), *Play Console Help*, accessed 24 March 2021.

⁵⁸³ Information provided to the ACCC.

⁵⁸⁴ European Commission, ['Antitrust: Commission opens investigations into Apple's App Store rules'](#), 16 June 2020, accessed 24 March 2021.

⁵⁸⁵ Android, [The best of Google, right on your devices](#), accessed 24 March 2021.

In some limited cases, some Google apps may have access to information that is not shared with all developers, such as where Google apps have direct access to its own apps' aggregate data to undertake custom analysis.⁵⁸⁶ However, Google notes its ability to share some data outside Google to all developers may be limited due to '...legal, privacy, security concerns, to protect Google's confidential, proprietary information, or other business considerations.'⁵⁸⁷

As a result of these differences in access to information, third-party app developers may be at a competitive disadvantage compared to Apple and Google, as discussed further in section 7.1.3.

7.1.3. Misuse of information may stifle competition in downstream markets for apps

Apple and Google, by way of their superior access to information about the entire app ecosystem, as discussed above, have the ability to monitor the performance of all apps and in doing so are likely able to gain valuable competitive insights. While such conduct may not be anti-competitive in itself, there is potential concern given the gatekeeper positions of Apple and Google, and the way in which they obtain information to assist strategic or commercial decisions about first-party app development.

As academic Lina Kahn notes, an associated risk of such conduct is deterring entry and chilling innovation in a relevant market. Where developers rely on Apple or Google to reach customers, but also face the constant risk of Apple or Google appropriating their business value, they may be less likely to secure funding and develop their product in the first place.⁵⁸⁸ Further, a study assessing how app developers reacted to perceived or actual entry by Google found that the threat of direct competition with Google led developers to 'significantly reduce' updates on affected apps, and to reallocate their efforts to markets without Google.⁵⁸⁹

As outlined in box 7.1, Google has reportedly used Android to collect data and utilised this to closely monitor competing apps.

⁵⁸⁶ For example, total spend or total installs in a given category of apps in a specific market. See Google, [Availability of Features and Services](#), *Play Console Help*, accessed 24 March 2021.

⁵⁸⁷ Google, [Availability of Features and Services](#), *Play Console Help*, accessed 24 March 2021.

⁵⁸⁸ L Kahn, [The Separation of Platforms and Commerce](#), *Columbia Law Review*, 119:4 (2019), p 1,008.

⁵⁸⁹ L Kahn, [The Separation of Platforms and Commerce](#), *Columbia Law Review*, 119:4 (2019), p 1,011.

Box 7.1: Google and Android Lockbox

In July 2020, The Information reported that Google had been accused of selectively monitoring how users interact with non-Google apps, to help advance its own competing apps, as part of an internal program known as 'Android Lockbox'.⁵⁹⁰

Google employees reportedly must request permission to see data in some cases, and sometimes these requests are denied. Google reportedly states it uses app data to 'analyse and improve services'.⁵⁹¹

While developers can access the same types of data as Google, they are only able to see the data related to devices where their app is installed and if they have been given access, whereas Google can access data across all Android devices due to the installation of Google Mobile Services on most Android devices.⁵⁹²

At a hearing for the US Subcommittee investigation, Alphabet CEO Sundar Pichai was asked about these allegations and noted '... we try to understand what's going on in [the] market and we are aware of, you know, popularity of apps ... But, in general, the primary use for that data is to improve the health of Android.'⁵⁹³

The *US House Report on Competition in Digital Markets* also noted complaints from app developers that Apple leverages its control of iOS and the App Store to gather business intelligence and enable it to better compete against third-party apps.⁵⁹⁴ In response to the requests for information, Match Group told the US House Subcommittee on Antitrust, Commercial, and Administrative Law that Apple has a history of 'closely monitoring the success of apps in the App Store, only to copy the most successful of them and incorporate them in new iPhones' as a pre-installed app.⁵⁹⁵ One example of this is discussed in box 7.2. By adopting similar features of third-party apps, Apple is able to encourage users to stay within its own ecosystem and leverage the benefits of this.

⁵⁹⁰ A Heath, N Bastone and A Efrati, '[Internal Google Program Taps Data on Rival Android Apps](#)', *The Information*, 23 July 2020, accessed, 24 March 2021.

⁵⁹¹ A Heath, N Bastone and A Efrati, '[Internal Google Program Taps Data on Rival Android Apps](#)', *The Information*, 23 July 2020, accessed, 24 March 2021.

⁵⁹² A Heath, N Bastone and A Efrati, '[Internal Google Program Taps Data on Rival Android Apps](#)', *The Information*, 23 July 2020, accessed, 24 March 2021.

⁵⁹³ 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 218.

⁵⁹⁴ 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 362.

⁵⁹⁵ 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 363.

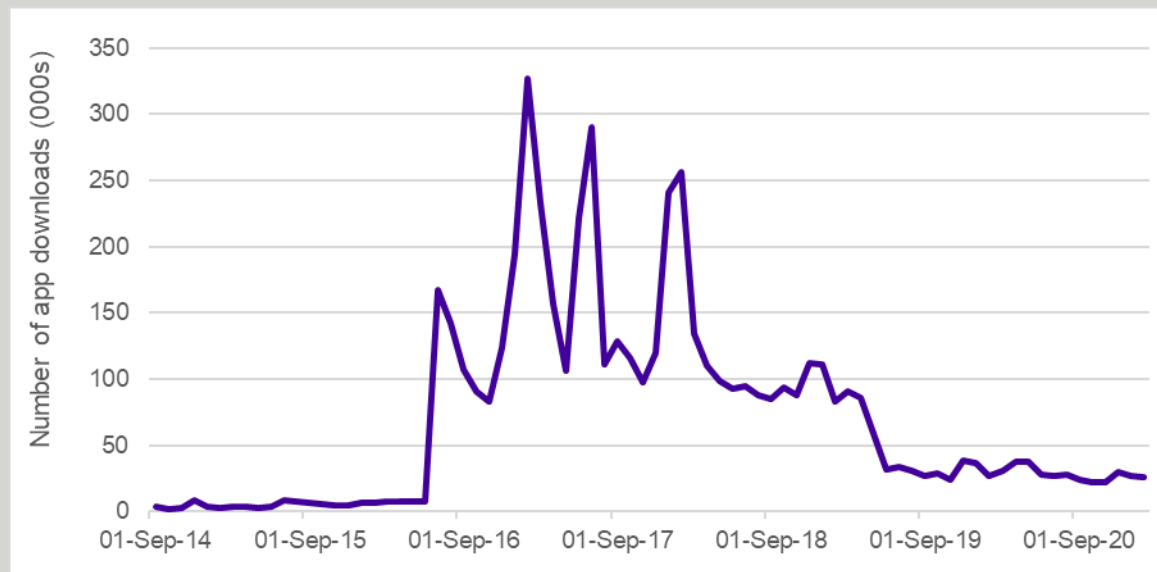
Box 7.2: Memoji and Bitmoji

'[Bitmoji](#)', launched in 2014,⁵⁹⁶ is an app that enables users to create their own personal emoji cartoon avatar.⁵⁹⁷ According to Sensor Tower data, Bitmoji was the most downloaded iPhone app in the United States in 2017, and the third most downloaded app in Australia.⁵⁹⁸

In iOS 12, released in September 2018, Apple included '[Memoji](#)', a feature that enabled users to design cartoon avatars of their face and use in messages.

In 2018, Bitmoji fell to the 7th and 8th most downloaded app in the United States and Australia respectively. By 2019, Bitmoji was no longer in the top 25 most downloaded apps in the United States or Australia.⁵⁹⁹ As shown in figure 7.1 and figure 7.2, from January 2019 onwards, the number of downloads of Bitmoji declined in Australia as did the number of active users of the app, respectively.

Figure 7.1: Number of downloads of Bitmoji (iPhone) in Australia⁶⁰⁰



Source: Sensor Tower data.

Figure 7.2: Weekly active users of Bitmoji (iPhone) in Australia⁶⁰¹



Source: Sensor Tower data.

As reported by The Washington Post, Apple's former Director of App Store Review, Phillip Shoemaker, commented, 'The App Store ... collects a vast amount of information on which kinds of apps are successful ... That data is shared widely among leaders at the tech giant and could be used to make strategic decisions on product development.'⁶⁰²

Apple appears to recognise the potential concern from app developers about such conduct, and includes a provision in its Developer Agreement, which all developers must sign up to, likely to mitigate potential future conflict with developers. This provision under Item 11 in the Agreement, 'Apple Independent Development' states:

Nothing in this Agreement will impair Apple's right to develop, acquire, license, market, promote, or distribute products, software or technologies that perform the same or similar functions as, or otherwise compete with, any other products, software or technologies that you may develop, produce, market or distribute. In the absence of a separate written agreement to the contrary, Apple will be free to use any information, suggestions or recommendations you provide to Apple pursuant to this Agreement for any purpose, subject to any applicable patents or copyrights.⁶⁰³

From the ACCC's review, the Google Play Developer Distribution Agreement does not appear to include a similar provision.⁶⁰⁴

In contrast, Apple requires that third-party app developers follow different obligations to avoid being 'copycats' and to 'come up with your own ideas', because it 'isn't fair to your fellow developers.'⁶⁰⁵ As The Washington Post comments, 'Developers have come to accept that, without warning, Apple can make their work obsolete by announcing a new app or feature that uses or incorporates their ideas.'⁶⁰⁶

Both Apple and Google have been subject to speculation and legal action regarding the adoption of similar features or releases of new apps based on intelligence gathering through the app marketplace or operating system, as discussed in box 7.3.

⁵⁹⁶ A Hern, '[Bitmoji: the emoji avatar app taking on Apple and Facebook](#)', *The Guardian*, 17 July 2018, accessed 24 March 2021. S Emerson, '[Apple's Memoji is copying Bitmoji and Snapchat](#)', *Vice*, 6 May 2018, accessed 24 March 2021.

⁵⁹⁷ Apple, '[Bitmoji](#)', *App Store Preview*, accessed 24 March 2021.

⁵⁹⁸ Sensor Tower data. Each year listed reflects the period 1 January to 31 December for the relevant year. In 2017, Bitmoji had 2,103,969 downloads in Australia, and 31,252,535 downloads in the United States.

⁵⁹⁹ Sensor Tower data.

⁶⁰⁰ This data reflects a date range of 1 September 2014 to 28 February 2021.

⁶⁰¹ This data reflects a date range of 1 October 2015 to 22 February 2021. Sensor Tower defines active users as any iPhone user or iPad user (selecting a specific device is allowed) that has at least one [session](#) in a specific time period. If a user has more than one session in the selected time period, they will only count as one active user for that time period. A weekly active user is a user that has at least one or more sessions within a week. See Sensor Tower, '[How does Sensor Tower recognize an Active User?](#)', accessed 24 March 2021.

⁶⁰² R Albergotti, '[How Apple uses its App Store to copy the best ideas](#)', *The Washington Post*, 5 September 2019, accessed 24 March 2021.

⁶⁰³ Apple, '[Apple Developer Agreement](#)', *Apple Developer*, accessed 24 March 2021, p 4.

⁶⁰⁴ Google, '[Google Play Developer Distribution Agreement](#)', 15 April 2019, accessed 24 March 2021.

⁶⁰⁵ Apple, '[App Store Review Guidelines](#)', 1 February 2021, accessed 24 March 2021.

⁶⁰⁶ R Albergotti, '[How Apple uses its App Store to copy the best ideas](#)', *The Washington Post*, 5 September 2019, accessed 24 March 2021.

Box 7.3: Adoption of similar features to third-party apps

'Sign in with Apple' and Blix

In October 2019, app developer Blix sued Apple for patent infringement and illegal monopolisation,⁶⁰⁷ claiming Apple's 'Sign in with Apple' feature (announced in June 2019) was copied from an existing feature in Blix's email management app, Blue Mail.

Blue Mail's feature, added in August 2018, allows users to sign in to websites with an anonymous email if they do not wish to disclose their personal email.

'Sign in with Apple' provides users with an option to set up an account (on an app or website) using their Apple ID. Users can also hide their personal email when setting up an account, using Apple's private email relay service. Apps that use a third-party, or social login service,⁶⁰⁸ to set up or authenticate the user's primary account with the app are required by Apple to offer 'Sign in with Apple' as an option from 30 June 2020.⁶⁰⁹

On 30 November 2020,⁶¹⁰ the US District Court for the District of Delaware dismissed some of Blix's claims, but directed the parties to confer before informing the court whether additional motions regarding other claims would be filed.⁶¹¹ In February 2021, Blix filed an amended complaint regarding 'Sign in with Apple' and Blix's sign-in service 'Messaging Bridge', claiming that Apple infringed its patented technology within Messaging Bridge.⁶¹²

YouTube Shorts and TikTok

In September 2020, Google launched a new YouTube feature for beta testing in India called 'YouTube Shorts'. YouTube describes the feature as '... a new short-form video experience for creators and artists who want to shoot short, catchy videos using nothing but their mobile phones.'⁶¹³

This launch follows the ban of TikTok in India in July 2020, with The Information reporting that YouTube was able to use Lockbox data to understand the behaviour of Indian Android users on TikTok to help speed up its launch.⁶¹⁴

The ACCC is concerned about the ability and incentive of both Apple and Google to use their positions as app marketplace operators to monitor the downstream competitors to their own first-party apps.

Such conduct has the potential to impede competition in downstream app markets by reducing incentives for third-party app developers to innovate and pursue novel ideas for apps, given the risk of Apple and/or Google free-riding on their development and potentially limiting the success of their app.

In such circumstances, there are also potential downsides for consumers if there are fewer apps in the market and/or if the quality and user experience of apps declines as a result of third-party app developers having less incentives to invest in and improve their apps.

⁶⁰⁷ P McGee, '[Blix calls for developers to revolt against Apple](#)', *The Financial Times*, 5 February 2020, accessed 24 March 2021.

⁶⁰⁸ For example, Facebook Login, Sign in with Twitter, Login with Amazon, and Google Sign-In.

⁶⁰⁹ Apple, '[Make signing in easy](#)', *Apple Developer*, accessed 24 March 2021.

⁶¹⁰ *Blix Inc v Apple Inc*, United States District Court for the District of Delaware, '[Memorandum Opinion](#)', 30 November 2020.

⁶¹¹ M Allsup, '[Apple Beats Claims that App Store Suppresses Competition](#)', *Bloomberg Law*, 1 December 2020, accessed 24 March 2021.

⁶¹² B Collins, '[Apple accused of "bullying" app developer Blix](#)', *Forbes*, 13 February 2021, accessed 24 March 2021.

⁶¹³ C Jaffe, '[Building YouTube Shorts, a new way to watch & create on YouTube](#)', *YouTube Official Blog*, 14 September 2020, accessed 24 March 2021.

⁶¹⁴ A Heath, N Bastone and A Efrati, '[Internal Google Program Taps Data on Rival Android Apps](#)', *The Information*, 23 July 2020, accessed, 24 March 2021.

The ACCC will continue to explore this issue during the course of the DPSI but at this stage is of the view that there is an opportunity to support improved competition in the market for apps through measures that address misuse of commercially sensitive information.

Potential measure 6: to address the risk of misuse of commercially sensitive information

There is a need for information collected by Apple and Google in their capacity as app marketplace operators to be ring-fenced from their other operations and business decisions. This would minimise the risk of this information being used to provide Apple and Google with an unfair competitive advantage over third-party app developers in downstream markets for apps.

7.2. Data practices impacting consumers

Apple and Google both set the terms on which the app marketplaces themselves, and third-party app developers, collect and use user data. Both promote their app marketplaces as protecting user privacy and providing control over data collection. Apple has stated it does not seek to monetise personal data collected from users and believes privacy is a fundamental human right, and that it uses ‘innovative privacy technologies and techniques designed to minimise how much user data Apple – or anyone else – can access.’⁶¹⁵ Google describes the tools it provides users to manage and control their data as ‘industry-leading’.⁶¹⁶ Both also actively promote that they vet apps thoroughly and require developers to provide accurate information. Each has review and surveillance processes to identify data-intrusive apps, and rejects thousands of apps each year that have the potential to violate user privacy.⁶¹⁷

However, the ACCC’s findings suggest Google, and to a lesser extent Apple, are not taking sufficient steps to protect user privacy, and that information asymmetries and bargaining power imbalances between consumers and the app marketplaces continue to negatively impact the privacy of app users.

A key question for lawmakers and regulators seeking to address these issues is the appropriate balance of obligations that should apply to third-party developers who make apps, and to the major app marketplaces. The following discussion illuminates some of the ways in which the current balance of responsibilities appears to be leaving app users open to potentially invasive data practices.

7.2.1. Consumer attitudes to data collection by apps

Tracking and profiling through apps decreases consumer welfare by reducing privacy.⁶¹⁸ Recent surveys demonstrate persistent consumer concerns about the collection and use of their data online. For example, responses to the ACCC’s Consumer Questionnaire identified high levels of dissatisfaction with the information provided about the data apps collect, and

⁶¹⁵ Apple, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 2 October 2020, p 3.

⁶¹⁶ Google, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 19 October 2020, pp 10–11.

⁶¹⁷ For example, Apple rejected more than 150,000 apps in 2019 for violating privacy guidelines. See Apple, [Submission to the ACCC Digital Platform Services Inquiry Second Interim Report](#), 2 October 2020, p 12.

⁶¹⁸ ACCC, [Digital Platforms Inquiry Final Report](#), 26 July 2019, p 444; Bergmayer contends that incentivising ad-supported apps is inherently problematic, in part because ads may present a risk to user privacy, and depend on or incentivise intrusive data-collection. J Bergmayer, [Tending the Garden: How to Ensure That App Stores Put Users First](#), *Public Knowledge*, 23 June 2020, p 28.

who can access that data, although responses varied.⁶¹⁹ Some responses are set out in box 7.4.

Box 7.4: Consumer comments about app marketplaces' notice, consent and control measures for data practices

Apple lets me control each app's access to location, microphone, camera access, etc. But there are so many other ways that apps try to track users (for example, with fingerprinting techniques and advertising identifiers) that make me uncomfortable.

[I would like] [s]uccinct, easy to understand statements of what the data is and who will have access, as planned in iOS 14. But the bigger problem is the data being collected in the first place.

I regularly get prompts from google [*sic*] asking about how I want the app to use my data. I feel totally in control.

I trust Apple to ensure that data collected by third party Apps is not used for nefarious purposes. Not so on Android, where multiple stores result in varying degrees of quality control and generally they don't inspect the source code of App developers to ensure safety.

The Consumer Policy Research Centre (CPRC) found most Australian consumers surveyed (85%) consider it unfair for companies to share their personal information with other companies, and unfair for companies to collect more information than is necessary to deliver a product or service (88%).⁶²⁰ A 2020 Deloitte survey found 78% of Australian consumers surveyed are very or fairly concerned about how companies online use their personal data, and many do not consider they can adequately restrict the use of their data.⁶²¹ These findings are broadly consistent with international evidence.⁶²²

7.2.2. Tracking of consumers through apps

Many developers monetise apps through targeted in-app display advertising, using ad networks and advertising interfaces.⁶²³ Targeted advertising requires the tracking of users through direct user or contextual data,⁶²⁴ and generates higher revenues than display advertising that is not targeted.⁶²⁵ Apple and Google collect data for advertising purposes from app users and via third parties that use their services,⁶²⁶ including to serve search ads

⁶¹⁹ Of 395 responses on this issue to the ACCC's Consumer Questionnaire, 70% (282) of respondents indicated that they were not satisfied with the information provided. See ACCC, [App marketplaces report – Consumer questionnaire responses](#), 27 November 2020.

⁶²⁰ CPRC, [CPRC 2020 Data and Technology Consumer Survey](#), 7 December 2020, p 4.

⁶²¹ Deloitte, [Digital consumer trends 2020: Unlocking lockdown](#), 2020, pp 34–35.

⁶²² For example, a survey of US consumers found 81% are very or somewhat concerned about the amount of data platforms hold and considered that they acquire it to build out more comprehensive consumer profiles, and 84% agree that '[o]nline platforms should be required to respect privacy laws that protect the users' personal information so that the user cannot be manipulated or exploited by that information. See Consumer Reports, [Platform perceptions: Consumer attitudes on competition and fairness in online platforms](#), 24 September 2020, pp 2, 22. A 2020 UK Office of Communications (Ofcom) report found many consumers are not well placed to manage their personal data online, in part because they lack awareness of the ways in which tracking occurs. For example, 45% of consumers are not aware of information being collected through apps. See Ofcom, [Adults' media use and attitudes report 2020](#), 24 June 2020, p 17.

⁶²³ Examples of ad networks include Facebook's Audience Network and Google's AdMob.

⁶²⁴ User level data includes, for example, demographics, browsing history, location and transaction history. Contextual data includes, for example, format and location of an ad when served. Personalised targeting requires data about a specific individual's behaviour and interests and is more likely to involve personal information, whereas contextual targeting requires information about the context of an ad and is less likely to involve personal information. See ACCC, [Digital Advertising Services Inquiry Interim Report](#), 28 January 2021, pp 50, 59.

⁶²⁵ Display advertising on mobile devices is a particularly fast-growing area of display advertising, with Australian advertising expenditure almost doubling to AUD4.2 billion from 2017 to 2019. See ACCC, [Digital Advertising Services Inquiry Interim Report](#), 28 January 2021, p 59.

⁶²⁶ See ACCC, [Digital Advertising Services Inquiry Interim Report](#), 28 January 2021, p 59.

that appear at the top of app marketplace search result lists to users through advertising services such as Apple Search Ads and Google Ads.⁶²⁷

While key mobile tracking technologies are discussed in more detail in earlier ACCC reports, box 7.5 summarises some of the key technologies applicable to app marketplaces below.

Box 7.5: Unique identifiers and SDKs

Unique identifiers for mobile devices are strings of numbers and letters that enable user data to be collected in de-identified form.⁶²⁸ Advertisers use Apple's Identifier for Advertisers (IDFA) and Google's Android Advertising ID (AAID) to track users and display targeted ads in apps.

Software Development Kits (SDKs) are configurable pieces of code that developers can include in an app's code to perform specific functions. Many SDKs use unique identifiers to collect user, device and contextual data for advertising and analytics (for example, the Google Ads SDK). Developers typically use SDKs to monetise apps by sending data to third-party advertisers and data brokers. Some SDKs may transmit data without the developer's knowledge as a result of deception built into the SDK or accidental misconfiguration.⁶²⁹ While unique identifiers allow data to be collected from various sources, combining de-identified datasets can lead to the data being re-identified.⁶³⁰

SDKs and the app marketplaces

Google currently tracks consumers extensively and combines data across first and third-party apps, its consumer-facing services and trackers on third-party websites and apps.⁶³¹ Google trackers have been found in 92% of popular apps on the Australian Play Store.⁶³² Recently, Google has taken steps to reduce the prevalence of tracking on the web.⁶³³

Apple does not derive significant revenue from targeted advertising, and states that it does not combine user or device data collected from Apple apps with data collected from third parties for targeted advertising or analytics, and does not create comprehensive user data profiles across apps and services.⁶³⁴

Differences in Apple and Google's monetisation strategies appear to influence their treatment of app user data. Apple emphasises user privacy and security within a closed mobile ecosystem, while Google, with its advertising-based revenue model, places less emphasis on limiting developer access to user data and device functionality and thereby provides users more choices for apps, including more 'free' and lower priced apps relative to the App Store.

⁶²⁷ Apple, [Apple Search Ads](#), accessed 24 March 2021; Google, [Google Ads](#), accessed 24 March 2021.

⁶²⁸ See ACCC, [Digital Advertising Services Inquiry Interim Report](#), 28 January 2021, p 48.

⁶²⁹ AppCensus, [1000 Mobile Apps in Australia: A Report for the ACCC](#), 24 September 2020, p 21.

⁶³⁰ ACCC, [Digital Advertising Services Inquiry Interim Report](#), 28 January 2021, p 49.

⁶³¹ ACCC, [Digital Advertising Services Inquiry Interim Report](#), 28 January 2021, p 56; Google is able to, for example, link AAIDs to advertising cookies on the same device to coordinate ads across an app and a web browser. See Google, [Advertising, Google Privacy & Terms](#), accessed 24 March 2021. Google states that it may collect first party data about a user's activities across any device through their Google Account or use of Google apps and services and combine this with data collected indirectly (third-party data) through its extensive network of partners, which includes over two million websites and apps that show ads through Google. Advertisers may also share their own first party data collected through their advertising campaigns with Google when they use Google's advertising products. See Google, [Google Privacy Policy](#), 4 February 2021, accessed 24 March 2021.

⁶³² ACCC, [Digital Platform Services Inquiry First Interim Report](#), 23 October 2020, p 4; AppCensus, [1000 mobile apps in Australia: a report for the ACCC](#), 24 September 2020, pp III–IV. The most prevalent type of user information transmitted by apps to third parties was the user's AAID, following by the Android ID and location data.

⁶³³ For example, in 2020 Google announced plans to phase out third-party cookies from its Chrome browser and in 2021 pledged that it will not build alternate identifiers to track users. See D Temkin, [Charting a course towards a more privacy-first web](#), *Google Ads & Commerce Blog*, 3 March 2021, accessed 24 March 2021.

⁶³⁴ Apple, [Apple Advertising & Privacy](#), *Apple Support*, 13 December 2020, accessed 24 March 2021; Apple, [A day in the life of your data](#), 28 January 2021, p 5.

Data intrusive apps are prevalent on the app marketplaces

Apple and Google permit apps that facilitate extensive collection of user data by third parties.⁶³⁵ Research by Privacy International and Mobilsicher in 2019 found many Android apps and iOS versions of popular apps share information with Facebook as soon as they are opened, including potentially sensitive personal information.⁶³⁶ A study of nearly one million apps on the US and UK Play Stores found that, on average, apps send data to 10 third parties.⁶³⁷

Further, Google has been reported to be hosting apps that appear to violate its policies, such as thousands that violated its prohibition on transmitting and connecting other identifiers with the AAID without explicit user consent, including popular apps available on the Australian Play Store.⁶³⁸ In October 2020, Google removed three apps intended for children that used certain SDKs after the International Digital Accountability Council research found versions of those SDKs enabled the simultaneous collection of users' AAID and Android ID, enabling advertisers to track users over time across devices even if they reset their AAID.⁶³⁹ It is unclear whether the apps were available on the Australian Play Store in 2020. As noted in chapter 6, Apple has also been reported to be hosting apps that violated its data policies.

7.2.3. Notice and consent measures for app data practices

Apple and Google require developers that collect user data to provide access to their privacy policy in app listings,⁶⁴⁰ and to provide other disclosures to users about their data practices in response to different triggers. These are positive measures that assist consumers to make informed choices about the apps they use. However, as discussed below and in previous ACCC reports,⁶⁴¹ some consent-based measures, particularly those that seek consent for a wide range of data practices using click wrap agreements and bundled consents, have limitations.⁶⁴²

Limitations of certain consent-based measures

Engagement with privacy policies for digital platforms and apps remains low, likely due to their length and complexity.⁶⁴³ Further, consent-based measures with take-it-or-leave-it terms deprive consumers of a real choice with respect to whether they use a relevant service

⁶³⁵ G Fowler, '[It's the middle of the night. Do you know who your iPhone is talking to?](#)', *The Washington Post*, 28 May 2019, accessed 24 March 2021.

⁶³⁶ ACCC, [Digital Platforms Inquiry Final Report](#), 26 July 2019, Appendix I: Overview of third-party data sharing with app developers, p 608.

⁶³⁷ R Binns et al., '[Third Party Tracking in the Mobile Ecosystem](#)', *WebSci '18: Proceedings of the 10th ACM Conference on Web Science*, May 2018.

⁶³⁸ S Egelman, '[Ad IDs behaving badly](#),' *AppCensus Blog*, 14 February 2019, accessed 24 March 2021; Google, [Ads, Play Console Help](#), accessed 24 March 2021.

⁶³⁹ International Digital Accountability Council, [IDAC researchers alert Google to policy-violating third-party data practices](#), accessed 24 March 2021.

⁶⁴⁰ Google, [Prepare your app for review](#), *Play Console Help*, accessed 24 March 2021; Apple, [App Store Review Guidelines](#), 1 February 2021, accessed 24 March 2021, guideline 5.1.1(i).

⁶⁴¹ See ACCC, [Digital Platforms Inquiry Final Report](#), 26 July 2019, p 394; ACCC, [Digital Platform Services Inquiry First Interim Report](#), 23 October 2020, p 44.

⁶⁴² Click wrap agreements request consent to online terms and policies without requiring the user to fully engage with the terms and policies of use. Bundled consent occurs where a request for consent contains several requests to collect, use and disclose personal information without allowing the user to choose which specific requests they do or do not consent to. See Office of the Australian Information Commissioner, [Consent to the handling of personal information](#), accessed 24 March 2021.

⁶⁴³ For example, the word count of the twenty most popular mobile apps' privacy policies are on average 58% longer than those in 2008 and reading privacy policies of the 20 most-used mobile apps takes 6h40m. See PN Schwab, '[Reading privacy policies of the 20 most-used mobile apps takes 6h40](#)', *IntoTheMinds*, 28 May 2018, accessed 24 March 2021. See, also, CMA, [Online platforms and digital advertising market study](#), 1 July 2020, Appendix L, p L7. In 2016, the NCC found reading the terms of service of all apps on an average smartphone aloud in real time took around 32 hours. See NCC, '[The Consumer Council and friends read app terms for 32 hours](#)', 25 May 2016, accessed 24 March 2021.

(or product) in the first place, and whether they continue to use it after data practices are revealed or unilaterally amended by a supplier.⁶⁴⁴ For example, recent surveys indicate 69% of consumers who read privacy policies accept terms that they are not comfortable with,⁶⁴⁵ and some use apps despite concerns about their data practices.⁶⁴⁶

Reports of confusion about the implications of changes to WhatsApp's privacy policy, which WhatsApp sought consent for on a take-it-or-leave-it basis, summarised in box 7.6 below, are illustrative.

Box 7.6: WhatsApp's privacy policy changes

In January 2021 the Facebook-owned WhatsApp messaging service announced changes to its privacy policy, intended to account for the potential for businesses to interact with users across Facebook apps, which would include the sharing of user data to facilitate customer service and other interactions between consumers and businesses.⁶⁴⁷ The changes were summarised to hundreds of millions of users in an in-app pop-up. Many consumers interpreted the changes as applying to private messages and groups.⁶⁴⁸ While public discourse highlighted dissatisfaction about the changes allowing WhatsApp to share user data with Facebook,⁶⁴⁹ WhatsApp's policies had confirmed that it had been sharing data with Facebook since it changed its terms in 2016.⁶⁵⁰ Citing 'rumours going around', WhatsApp subsequently published lengthier guidance about the changes on its webpage and delayed implementation for several months.⁶⁵¹

Further, in the context of app designs that may provide options to opt-out, but through design nudge consumers into consenting to privacy-intrusive settings, such as by framing a choice not to accept a particular setting as risky, consumers may not be able to provide properly informed consent to the use of their data.⁶⁵²

The ACCC has previously raised similar concerns about the suitability of particular notice and consent-based measures, which have been used as a means of gaining informed consent from consumers.⁶⁵³ The *DPI Final Report*, for example, highlighted the ACCC's view that consumers are limited in their ability to provide well-informed and freely given consent to the collection, use and disclosure of their data, which digital platforms often seek through click wrap agreements and bundled consents that are insufficient to overcome information asymmetries between consumers and businesses online.⁶⁵⁴ The *First DPSI Interim Report* cited research indicating most consumers are unclear about what they are consenting to and express concern about tracking online.⁶⁵⁵

⁶⁴⁴ K Kemp, [Concealed data practices and competition law: why privacy matters](#), *European Competition Journal*, 16 (2020), p 639.

⁶⁴⁵ CPRC, [CPRC 2020 Data and Technology Consumer Survey](#), 7 December 2020, p 18.

⁶⁴⁶ In response to a 2019 Deloitte survey, 38% of the 1,000 Australian consumers surveyed indicated they use the apps of brands they trust the least but would cease using those apps if there was a better alternative, due to their poor privacy practices. See Deloitte, [Trust: Is there an app for that? Deloitte Australian privacy index 2019](#), May 2019, p 9.

⁶⁴⁷ WhatsApp, [About new business features and WhatsApp's Privacy Policy update](#), accessed 24 March 2021.

⁶⁴⁸ N Statt, [WhatsApp to delay new privacy policy amid mass confusion about Facebook data sharing](#), *The Verge*, 15 January 2021, accessed 24 March 2021.

⁶⁴⁹ See L Newman, [WhatsApp Has Shared Your Data With Facebook for Years, Actually](#), *Wired*, 8 January 2021, accessed 24 March 2021.

⁶⁵⁰ WhatsApp, [WhatsApp Privacy Policy](#), 25 August 2016, accessed 24 March 2021.

⁶⁵¹ WhatsApp, [Answering your questions about WhatsApp's Privacy Policy](#), accessed 24 March 2021.

⁶⁵² NCC, [Deceived by Design](#), 27 June 2018, p 22. The NCC provided the example of Facebook's emphasis on the positives of data sharing and the risks of not providing consent for the collection of biometric data as part of a facial recognition feature offered by Facebook, in a pop-up message (mandated under the GDPR).

⁶⁵³ See ACCC, [Digital Platforms Inquiry Final Report](#), 26 July 2019, pp 27, 394; ACCC, [Digital Platform Services Inquiry First Interim Report](#), 23 October 2020, p 44.

⁶⁵⁴ ACCC, [Digital Platforms Inquiry Final Report](#), 26 July 2019, pp 394, 399.

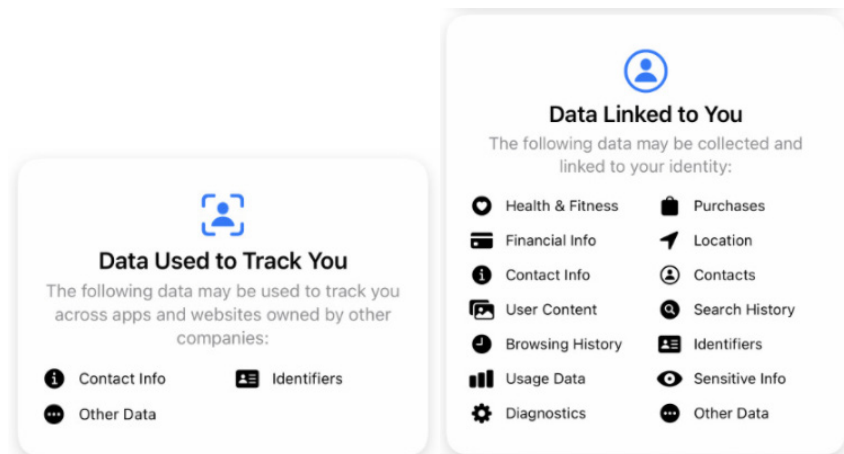
⁶⁵⁵ ACCC, [Digital Platform Services Inquiry First Interim Report](#), 23 October 2020, p 6.

Overview of app marketplace notice and consent measures

Apple and Google both require developers to disclose their use of users' personal information,⁶⁵⁶ and to prompt users to grant access to certain device resources and data via permission pop-ups.⁶⁵⁷

In late 2020, Apple began requiring developers to disclose the data their apps collect, including through third-party SDKs, and whether it is used to track users.⁶⁵⁸ Disclosures appear on app product pages prior to download as 'privacy nutrition labels'.⁶⁵⁹ Users may select a label to view additional information. Some labels for popular apps are quite long. For example, figure 7.3 shows the Facebook app label. The list of data and uses in 'Data Linked to You' reportedly requires 14 screens worth of scrolling.⁶⁶⁰

Figure 7.3: Facebook's App Store privacy nutrition labels



Source: Apple, App Store Preview – Facebook⁶⁶¹

⁶⁵⁶ Apple and Google have their own definitions of 'personal information' according to their respective privacy policies. Apple requires app developers to identify the data their app collects, and how it is collected and used. See Apple, [App Store Review Guidelines](#), 1 February 2021, accessed 24 March 2021, guideline 5.1.1(i); Google requires app developers to disclose any access, collection, use and sharing of users' personal and sensitive data (and to limit use of data to purposes disclosed). See Google, [User Data, Play Console Help](#), accessed 24 March 2021.

⁶⁵⁷ Apple requires permission requests the first time an app attempts to access 'protected resources', which include Bluetooth, Calendar, Camera/Microphone, Contacts, Face ID, Files/Folders, Health, Home, Location, MediaPlayer, Motion, Networking, NFC, Photos, Scripting, Security, Sensors, Siri, Speech, TV and Wi-Fi. See Apple, [Protected Resources, Apple Developer](#), accessed 24 March 2021. Google requires permission requests for access to 'restricted data', such as contacts, and 'restricted actions', such as recording audio. See Android Developers, [Permissions on Android](#), 24 February 2021, accessed 24 March 2021. The pop-ups may provide descriptions explaining why an app needs access to certain data or functionalities. See Apple, [Requesting Permission, Human Interface Guidelines](#), accessed 24 March 2021; Android Developers, [Request app permissions](#), 25 February 2021, accessed 24 March 2021. The pop-ups may also give users the option to allow access on a one-off basis, always or only while the app is in use. See Apple, [About privacy and Location Services in iOS and iPad OS, Apple Support](#), 22 February 2020, accessed 24 March 2021; From Android 11 onwards, users have the option to grant one-time permissions. See Android Developers, [Privacy in Android 11](#), 18 February 2021, accessed 24 March 2021.

⁶⁵⁸ Apple defines tracking as 'linking data collected from your app about a particular end-user or device, such as a user ID, device ID, or profile, with Third-Party Data for targeted advertising or advertising measurement purposes, or sharing data collected from your app about a particular end-user or device with a data broker.' See Apple, [App privacy details on the App Store, App Store Developer](#), accessed 24 March 2021.

⁶⁵⁹ Apple, [User Privacy and Data Use, App Store Developer](#), accessed 24 March 2021. Apple announced these changes following an international effort led by the CMA, the Netherlands Authority for Consumers and Markets, and the Norwegian Consumer Authority, to improve information available on the use of personal data by apps available in the App Store, following ongoing work from the International Consumer Protection and Enforcement Network (ICPEN). See ICPEN, [CMA and global partners secure privacy changes to the App Store](#), 11 December 2020, accessed 24 March 2021. Following criticism from WhatsApp, on 9 December 2020 Apple clarified that the labels will also apply to Apple's own apps. See C Gartenberg, [Apple's privacy labels are coming to all apps, including its own](#), *The Verge*, 9 December 2020, accessed 24 March 2021.

⁶⁶⁰ G Fowler, [I checked Apple's new privacy 'nutrition labels.' Many were false.](#), *The Washington Post*, 29 January 2021, accessed 24 March 2021.

⁶⁶¹ Apple, [Facebook, App Store Preview](#), accessed 24 March 2021.

Notably, in late 2020 through to early 2021 Google stopped updating most of its iOS apps, which had the effect of delaying its need to comply with Apple's requirement to provide the disclosure labels when an app is updated.⁶⁶²

While Apple's more stringent disclosure requirements are a positive measure that assist consumers to make more informed choices about apps based on their data practices, the privacy nutrition labels may encourage some developers to provide consumers with an incorrect understanding about the collection of their data.

Developers, rather than Apple, are responsible for self-reporting all the data they or their third-party partners collect for display in the privacy nutrition label.⁶⁶³ Apple confirms via a disclaimer on the App Privacy page of app listings that it does not verify the information provided by developers.

In addition, Apple indicates that although developers are responsible for ensuring the information is accurate and up to date,⁶⁶⁴ it has confirmed that it conducts audits of information provided and that non-compliant apps may have future updates rejected or be removed from the App Store, according to The Washington Post.⁶⁶⁵ However, it is unclear whether and how Apple effectively identifies and enforces breaches. For example, The Washington Post reported it spot-checked more than twenty apps with labels indicating they collected no or limited data, and found more than twelve with misleading or inaccurate labels.⁶⁶⁶ As the US House Commerce Committee noted in a letter to Apple CEO Tim Cook, '[w]ithout meaningful, accurate information, Apple's tool of illumination and transparency may become a source of consumer confusion and harm.'⁶⁶⁷

In comparison, Google does not require developers to provide short-form disclosures prior to download. Google requires developers to disclose collection and use of the AAID (for advertising and analytics) in their privacy policies,⁶⁶⁸ and use of personal or sensitive data that a user may not reasonably expect will be required by the app (for example, for app functionality) must be disclosed in-app.⁶⁶⁹

In addition, these disclosure practices do not address two key matters in relation to both the information asymmetry and bargaining power imbalance facing consumers. Firstly, neither Apple nor Google's notifications provide consumers with the ability to ensure genuine opt-in consent to practices that are, or are not, related to the functionality or content of the app. That is, while they provide standardised information to assist consumers to better understand what information may or may not be collected, they do not provide the ability to opt-in or out of particular terms, leaving consumers with the binary choice of taking or leaving a given app. Further, Google's upfront disclosures also do not assist consumers to determine the extent to which the collection of particular data may be specifically required for the service to function, or extraneous to it.

Secondly, where developers are found to have breached their obligations, it is unclear what processes the app marketplaces have in place to ensure individual app users and the

⁶⁶² See A Hern, '[Google apps feel strain as firm's privacy standoff with Apple drags on](#)', *The Guardian*, 12 February 2021, accessed 24 March 2021.

⁶⁶³ This is the case unless the data meets specific criteria for optional disclosure. Apple, [App privacy details on the App Store](#), *App Store Developer*, accessed 24 March 2021.

⁶⁶⁴ Apple, [App privacy details on the App Store](#), *App Store Developer*, accessed 24 March 2021.

⁶⁶⁵ G Fowler, '[I checked Apple's new privacy 'nutrition labels.' Many were false.](#)', *The Washington Post*, 29 January 2021, accessed 24 March 2021.

⁶⁶⁶ G Fowler, '[I checked Apple's new privacy 'nutrition labels.' Many were false.](#)', *The Washington Post*, 29 January 2021, accessed 24 March 2021.

⁶⁶⁷ Congress of the United States House of Representatives, Committee on Energy and Commerce, [Letter to Tim Cook, CEO, Apple Inc.](#), 9 February 2021, p 2.

⁶⁶⁸ Google, [Ads](#), *Play Console Help*, accessed 24 March 2021.

⁶⁶⁹ Google, [User Data](#), *Play Console Help*, accessed 24 March 2021.

broader public are informed, so that they may have the opportunity to take remedial action in relation to the developer. This is particularly acute where such breaches may impact vulnerable consumers, including children. As indicated in chapter 6, breaches are often identified and publicised by third parties such as consumer protection organisations and regulators, rather than the app marketplaces.

Developers are responsible for complying with relevant consumer laws, app marketplace policies and the developer's own terms and conditions, and should be liable for their conduct. However, the ACCC also considers that app marketplaces could take more action to ensure the accuracy of information about data practices developers provide to consumers, particularly where they have promoted the benefits of particular disclosure measures to consumers. In addition, where they have identified issues (such as developers that have misrepresented their data practices to their users), the app marketplaces could ensure consumers and the public are notified. For example, the app marketplaces could require app developers found to have breached an app marketplace data policy to provide a disclosure in their app listing or a pop-up message to users, for a certain period of time, after they have addressed the breach, or could manage a webpage that lists recent breaches of app marketplace data policies by apps.

7.2.4. Consumer control of data collection by apps

Depending on how choices to alter device settings are presented, providing consumers with the option to opt out of certain data collection may not be sufficient to protect their privacy, including because engagement with information about data controls available on digital platforms is very low.⁶⁷⁰ A 2020 CPRC survey indicated consumers often do not opt out of data collection, as set out in box 7.7.⁶⁷¹

Box 7.7: CPRC 2020 Data and Technology Consumer Survey – consumer use of opt-out settings

- 30% of consumers reported they 'always' opt out of data being shared with third parties, the most common measure 'always' taken to protect information.
- 36% of consumers 'rarely', 'never' or 'don't know how' to check mobile and tablet app permissions before downloading an app to see what the app gains access to. This is one of the least common measures consumers take to protect personal information.
- 54% of consumers 'often' or 'always' deny apps permission to access information from their mobile after installing and opening an app, and 63% 'often' or 'always' select opt-out options where available.

The Norwegian Consumer Council (NCC) has described how the information imbalance between consumers and companies in the ad tech system makes it extremely difficult for consumers to opt out from tracking, even if they have the ability to do so.⁶⁷² However, compared to consent-based measures, measures that provide users with control of their data can be more effective for aligning data practices with consumer preferences.

⁶⁷⁰ See CMA, [Online platforms and digital advertising market study: Final report](#), 1 July 2020, p 172; NCC, [Out of control: How consumers are exploited by the online advertising industry](#), 14 January 2020, p 32.

⁶⁷¹ CPRC, [CPRC 2020 Data and Technology Consumer Survey](#), 7 December 2020, p 21.

⁶⁷² NCC, [Out of control: How consumers are exploited by the online advertising industry](#), 14 January 2020, p 45.

Compared to the range of options available on web browsers,⁶⁷³ consumers have limited ability to restrict tracking by apps.⁶⁷⁴ However, Apple and Google do provide some controls for consumers to manage the collection of data by apps.⁶⁷⁵ As discussed below, the ability of consumers to control unique identifiers and other settings differs between iOS and Android.

Apple tracking controls

On iOS devices, users can adjust device settings to prevent tracking and targeted ads,⁶⁷⁶ which will have the effect of replacing the IDFA with a string of zeroes.⁶⁷⁷ Apple also allows users to separately opt out of location-based advertising in device settings.⁶⁷⁸ Apple uses contextual information, such as device information and location data, to serve targeted ads without using identifiers even when users have turned off ad tracking.⁶⁷⁹

In early 2021, as an update to its App Tracking Transparency framework,⁶⁸⁰ Apple intends to require that developers obtain opt-in user consent to collect the IDFA by prompting consumers the first time they use an app.⁶⁸¹ Rates of consumers choosing not to consent to collection of the IDFA will likely be high given the opt-in nature of the measure, in contrast to the limited opt-in rates for the 'Limit Ad Tracking' feature.⁶⁸² Apple's ad network API 'SKAdNetwork',⁶⁸³ is likely to become the main way advertisers track conversions and attribute ads on iOS devices.⁶⁸⁴ SKAdNetwork limits tracking by enabling advertisers to measure the success of their ad campaigns without the IDFA. Apple verifies ad conversions by notifying ad networks without revealing information about the user who clicked on an ad. These changes make it easier for consumers to prevent unwanted tracking and are a positive step towards genuine consumer control over data collection through apps.⁶⁸⁵

Android tracking controls

Consistent with findings previously made by the ACCC, Google continues to provide consumers with limited control over the collection and use of their data.⁶⁸⁶ In contrast to

⁶⁷³ For example, the ACCC has noted that there has been a recent trend towards browsers blocking the use of third-party cookies. See ACCC, [Digital Advertising Services Inquiry Interim Report](#), 28 January 2021, p 72.

⁶⁷⁴ For example, while Google allows ad blockers on its Chrome browser, it does not allow apps that block or interfere with another app displaying ads. See Google, [Device and network abuse](#), *Play Console Help*, accessed 24 March 2021.

⁶⁷⁵ Apple, [Apple Privacy Policy](#), 14 December 2020, accessed 24 March 2021; Google, [Google Privacy Policy](#), 4 February 2021, accessed 24 March 2021.

⁶⁷⁶ See Apple, [Control personalized ads on the App Store, Apple News, and Stocks](#), *Apple Support*, 7 January 2021, accessed 24 March 2021.

⁶⁷⁷ Apple, [AdSupport](#), *Apple Developer*, accessed 24 March 2021.

⁶⁷⁸ Apple, [Apple Advertising & Privacy](#), *Apple Support*, 13 December 2020, accessed 24 March 2021.

⁶⁷⁹ Apple, [Apple Advertising & Privacy](#), *Apple Support*, 13 December 2020, accessed 24 March 2021.

⁶⁸⁰ Apple, [Data Privacy day at Apple: Improving transparency and empowering users](#), *Apple Newsroom*, 27 January 2021, accessed 24 March 2021.

⁶⁸¹ Apple, [Details for app privacy questions now available](#), *Apple Developer*, 3 September 2020, accessed 24 March 2021; Apple, [iOS 14](#), accessed 24 March 2021.

⁶⁸² For example, a 2019 study on cookie consent notices showed that if consumers were asked to actively opt in to third-party tracking for personalisation and advertising, less than 0.1% of respondents agreed to be tracked. See NCC, [Out of control: How consumers are exploited by the online advertising industry](#), 14 January 2020, p 44. The CMA has cited research that only 17% of UK iOS 10 users were reported as having enabled its Limit Ad Tracking feature in its first month. See CMA, [Online platforms and digital advertising market study: Final report](#), 1 July 2020, p 187.

⁶⁸³ SKAdNetwork was created in 2018. To date, it has not been widely adopted due to the prevalence of other options that rely on the IDFA, which are perceived to be more robust for advertisers.

⁶⁸⁴ Apple, [iOS 14](#), accessed 24 March 2021.

⁶⁸⁵ Concerns have been raised about the potential for competitive detriment resulting from the impact of Apple's IDFA changes on the ability for developers and advertisers to monetise tracking are discussed. See, for example, J Koetsier, ['Apple privacy change may cost Facebook, Google \\$25 billion over next 12 months'](#), *Forbes*, 22 January 2022, accessed 24 March 2021.

⁶⁸⁶ See ACCC, [Digital Platforms Inquiry Final Report](#), 26 July 2019, p 374; ACCC, [Digital Platform Services Inquiry First Interim Report](#), 23 October 2020, p 44.

Apple, Google only allows users to reset but not disable the AAID.⁶⁸⁷ Google has not announced any changes to AAID consent measures that are comparable to Apple's changes to the IDFA. Further, while Android users can select to 'opt out of ads personalisation' in their account settings, this option appears to be used by consumers to a lesser extent than Apple's 'Limit Ad Tracking' feature.⁶⁸⁸

When users opt out of ads personalisation, Android devices will still send the AAID but will signal the user's preference to opt out, rather than providing native platform support to limit ad tracking.⁶⁸⁹ This mechanism appears to require developers to check for and voluntarily respect the consumer's preference.⁶⁹⁰ Technical testing by the NCC found that use of system-level opt-out settings have very limited effects on the collection of personal data – many third parties receive the AAID even if the user opts out.⁶⁹¹

Similar to Apple, Google permits location-based targeting of ads even when a user has opted to turn off personalised advertising.⁶⁹² However, in contrast with Apple, Android users cannot disable location-based ads through any single setting and must take multiple steps to limit or prevent location-based ads.⁶⁹³

In comparison with Google, Apple provides its users with more effective and accessible controls over whether their data can be used for ad personalisation and tracking. This is likely to increase further with the implementation of Apple's announced privacy settings regarding the IDFA.

7.2.5. Consumers require greater protections from invasive tracking by apps

Apple and Google should strengthen their data policies and enforcement practices to ensure consumers have information that is sufficiently accurate, clear and succinct enough to enable them to provide fully informed consent for app data practices, and have adequate control over their data. However, additional measures would also assist to protect consumers from harmful data practices facilitated by apps.

The ACCC continues to support the following *DPI Final Report* recommendations:

- Recommendation 20 regarding amending the CCA so that unfair contract terms are prohibited (not just voidable) and subject to civil pecuniary penalties, which would help address information asymmetries and power imbalances between app marketplaces and consumers with respect to the collection, use and disclosure of their personal data by the app marketplaces and by app developers.⁶⁹⁴

⁶⁸⁷ CMA, [Online platforms and digital advertising market study: Final report](#), 1 July 2020, p 186.

⁶⁸⁸ Analysis by analytics firm Singular indicates that the percentage of people who have enabled Limit Ad Tracking has doubled on iPhones over the last four years in the US, while engagement with equivalent settings on Android has declined: J Koetsier, '[Privacy checkup: Limit Ad Tracking up 216% on iOS, but down 85% on Android](#)', *Singular*, 27 March 2020, accessed 24 March 2021.

⁶⁸⁹ There are other 'allowed activities', for example, contextual advertising and conversion tracking that use AAID. See Google, [Ads, Play Console Help](#), accessed 24 March 2021.

⁶⁹⁰ NCC, [Out of control: How consumers are exploited by the online advertising industry](#), 14 January 2020, p 13.

⁶⁹¹ Mnemonic, [Technical report: Out of control – A review of data sharing by popular mobile apps](#), 14 January 2020, p 67.

⁶⁹² Google, [Advertising, Google Privacy & Terms](#), accessed 24 March 2021.

⁶⁹³ See, for example, B Krasnoff, '[Android 101: How to stop location tracking](#)', *The Verge*, 25 August 2020, accessed 24 March 2021.

⁶⁹⁴ Data practices the ACCC considers to be significantly detrimental to consumers which are not expressly prohibited by the ACL were set out in the *DPI Final Report*, and included businesses collecting and/or disclosing consumer data without express informed consent, businesses failing to adequately protect consumer data, and businesses inducing consumer consent or agreement to data collection and use by relying on long and complex contracts, or all or nothing click wrap consents, and providing insufficient time or information that would enable consumers to properly consider the contract terms. See ACCC, [Digital Platforms Inquiry Final Report](#), 26 July 2019, recommendation 20, pp 497–498; The CPRC has recently also expressed support for prohibitions on unfair trading practices to address harms related to poor data practices. See CPRC, [Unfair Trading Practices in Digital Markets: Evidence and regulatory gaps](#), December 2020, p 15.

- Recommendation 21 regarding amending the CCA to include a prohibition on certain unfair trading practices which are not expressly prohibited by the Australian Consumer Law, including certain practices that are significantly detrimental to consumers.⁶⁹⁵

Regarding recommendation 20, on 6 November 2020, federal, state and territory consumer affairs ministers agreed to strengthen the existing unfair contract term protections in the Australian Consumer Law, including by making unfair contract terms unlawful and giving courts the power to impose a civil penalty.⁶⁹⁶ Regarding recommendation 21, on 6 November 2020, federal, state and territory consumer affairs ministers agreed to further explore the problem and the extent of consumer harm arising from potential gaps in the current law.⁶⁹⁷

As noted in chapter 6, the ACCC considers an enforceable privacy code for digital platforms (per recommendation 18 of the *DPI Final Report*) may also have merit in the context of app marketplaces. The ACCC previously recommended that any such code require, among other matters, that:

- consumers be provided with specific, opt-in controls for any data collection that is for a purpose other than the purpose of supplying the core consumer-facing service;
- where consents relate to the collection of a child's personal information, additional requirements to verify that consent is given or authorised by the child's guardian.⁶⁹⁸

The Australian Government has confirmed it will introduce legislation enabling the development of a binding code to apply to social media platforms and other online platforms that trade in personal information. In particular, the Government indicated that any code would require these entities to be more transparent about data sharing; to meet best practice consent requirements when collecting, using and disclosing personal information; to stop using or disclosing personal information upon request; and to include specific rules to protect personal information of children and vulnerable groups.⁶⁹⁹

On 12 December 2019, the Australian Government announced a review of the *Privacy Act 1988* (Cth) (Privacy Act) to ensure privacy settings empower consumers and protect their data.⁷⁰⁰ Amendments to the Privacy Act have the potential to address several of the issues raised in this chapter.⁷⁰¹

There are efforts internationally to ensure the obligations of large digital platforms reflect their outsized significance in digital markets, including with respect to user privacy and other

⁶⁹⁵ ACCC, [Digital Platforms Inquiry Final Report](#), 26 July 2019, recommendation 21, p 498. As the ACCC noted in the *DPI Final Report*, the scope of such a prohibition should be sufficiently defined and targeted, with appropriate legal safeguards and guidance.

⁶⁹⁶ See Treasury, [Enhancements to Unfair Contract Term Protections](#), accessed 24 March 2021.

⁶⁹⁷ Consumer Affairs Forum, [Meeting 12: Meeting of Ministers for Consumer Affairs](#), 6 November 2020, accessed 24 March 2021.

⁶⁹⁸ ACCC, [Digital Platforms Inquiry Final Report](#), 26 July 2019, recommendation 18, pp 36–37.

⁶⁹⁹ Australian Government, [Regulating in the digital age: Government response and implementation roadmap for the Digital Platforms Inquiry](#), December 2019, p 18.

⁷⁰⁰ The Attorney-General's Department is considering submissions received in response to its October 2020 issues paper. See Attorney-General's Department, [Review of the Privacy Act 1988 \(Cth\) – Issues paper](#), 30 October 2020.

⁷⁰¹ For example, the issues paper addresses the definition and scope of personal information under the Privacy Act, and notice of and consent to the collection of personal information and pro-consumer defaults. For instance, the issues paper identifies notice as a key component of privacy and observes it will only be effective in assisting an individual to make an informed decision where presented in a way that can be easily understood. See Attorney-General's Department, [Review of the Privacy Act 1988 \(Cth\) – Issues paper](#), 30 October 2020, p 37. The paper also recognises that individuals are often unaware of what they are consenting to, in light of evidence that they do not read notices and because of the length and complexity of terms of service. See Attorney-General's Department, [Review of the Privacy Act 1988 \(Cth\) – Issues paper](#), 30 October 2020, p 43. For example, recommendation 16 of the *DPI Final Report* proposed that the Privacy Act be amended to, among other things, strengthen notification and consent requirements. See ACCC, [Digital Platforms Inquiry Final Report](#), 26 July 2019, recommendation 16, p 456.

aspects of consumer protection. For example, the European Commission's proposed Digital Services Act and Digital Markets Act, are intended to create a safer digital space for users of digital services and establish a level playing field for companies that provide digital services, which would help address invasive data practices and other detrimental conduct by providing legal certainty, clarification of liability and improved compliance mechanisms for certain 'gatekeeper' platforms such as Apple and Google.⁷⁰² The UK's Digital Market's Taskforce has also proposed measures to protect user privacy, which would include specific obligations for firms deemed to have 'strategic market status'.⁷⁰³

Increased cooperation across borders, and across consumer protection and competition policy areas is also likely to be fundamental to effectively addressing invasive app data practices.⁷⁰⁴

⁷⁰² The DMA would place obligations on gatekeeper platforms with respect to their collection and use of data, with fines based on turnover for non-compliance. The DSA would include measures intended to keep users safe from illegal goods, content or services, and 'very large platforms' would be subject to additional oversight, including auditing and higher standard of transparency and accountability for their advertising practices. See European Commission, [The Digital Markets Act: Ensuring fair and open digital markets](#), accessed 24 March 2021; European Commission, [Digital Services Act: Deepening the internal market and clarifying responsibilities for digital services](#), accessed 24 March 2021; European Commission, [Proposal for a regulation of the European Parliament and of the Council on a single market for digital services \(Digital Services Act\) and amending Directive 2000/31/EC](#), 15 December 2020, p 2.

⁷⁰³ CMA, [Digital Markets Taskforce](#), 3 April 2020, accessed 24 March 2021.

⁷⁰⁴ For example with respect to cooperation across policy areas, competition authorities clarifying that diminished privacy, including due to concealed data practices, will be taken into account in assessments of market power. See K Kemp, [Concealed data practices and competition law: why privacy matters](#), *European Competition Journal*, 16 (2020), p 38.

Glossary

Term	Description
AAID	Android Advertising ID—A type of persistent unique identifier used for advertising and related purposes, which allows an Android device user's behaviour to be tracked over time
ABSIA	Australian Business Software Industry Association
ACCC	Australian Competition and Consumer Commission
ACL	Australian Consumer Law
ACM	Authority for Consumers and Markets, Netherlands
ACMA	Australian Communications and Media Authority
Algorithm	A sequence of instructions that performs a calculation or other problem-solving operation when applied to defined input data. In this Report, 'algorithm' generally refers to the algorithms used by platforms to rank and display content on their services
Android	Google's operating system for supported devices, such as mobile devices
API	Application Programming Interface—A computing interface that allows interactions between multiple software programs, such as apps and the OS, for the purpose of simplifying programming
App	Application—A software program that performs functions online or on a device
App developer	An individual or group that creates, maintains and updates apps. An app developer can be the same business as the app provider, or be a third-party business commissioned by the app provider to develop the app
App Developer Questionnaire	An online app developer questionnaire conducted by the ACCC from September to October 2020 as part of the DPSI to provide a streamlined process for app developers to make a submission
App marketplace	A digital distribution platform or storefront for apps that typically allows users to search and review software titles offered electronically, and provides associated services for app providers, app developers and consumers
App provider	A business offering content or a service via an app under its own brand such as through an app marketplace
App Store	The app marketplace operated by Apple for iOS devices
App Store Connect	Apple's portal for app providers to publish, and review the performance of, their apps on the App Store
Bundled consent	A request for consent containing several requests to collect, use and disclose personal information without allowing the user to choose which specific requests they do or do not consent to
CCA	<i>Competition and Consumer Act 2010 (Cth)</i>
Click wrap agreement	An agreement that requests consent to online terms of use and policies without requiring the user to fully engage with either

Term	Description
Closed source	Software where the source code is not published publicly nor freely licensed Compare to <i>open source</i>
CMA	Competition and Markets Authority, United Kingdom
Consumer Questionnaire	An online consumer questionnaire conducted by the ACCC from September to October 2020 as part of the DPSI to provide a streamlined process for individuals to make a submission
COPPA	Children’s Online Privacy Protection Act (US)
CPRC	Consumer Policy Research Centre
Cross side network effects	Where an increase in the number of users on one side of the platform affects the value of the service to users on other sides of the platform
Dark pattern	An interface designed to deceive a user into performing actions they did not intend to undertake
Direction	Ministerial direction from the Australian Government to the ACCC on 10 February 2020 to conduct an inquiry into markets for the supply of digital platform services
DMA	The proposed Digital Markets Act (EU)
DOJ	Department of Justice, United States
DPI	Digital Platforms Inquiry—An inquiry conducted by the ACCC into digital search engines, social media platforms and other digital content aggregation platforms, and their effect on media and advertising services markets
DPI Final Report	The final report of the DPI, published on 26 July 2019
DPSI	Digital Platform Services Inquiry 2020-2025—The ACCC’s five-year inquiry into the supply of digital platform services
DSA	The proposed Digital Services Act (EU)
EC	European Commission
EU	European Union
First DPSI Interim Report	The first interim report of the DPSI, published on 23 October 2020
First-party app	An app developed, distributed, or owned by the operator of the app marketplace or operating system
FTC	Federal Trade Commission, United States
GDPR	General Data Protection Regulation (EU), which commenced on 25 May 2018
GMS	Google Mobile Services—a collection of Google apps, including Google Search, Google Chrome, YouTube, and the Play Store that support functionality across Android devices
GPS	Google Play Services or Global Positioning System – depending on context

Term	Description
IAP	In-app payment—payments made within an app. Payments can be for additional features, functionality or content to be consumed within the app, or for physical goods and services to be consumed outside the app
IARC	International Age Rating Coalition
ICPEN	International Consumer Protection and Enforcement Network
IDAC	International Digital Accountability Council
IDFA	Identifier for Advertisers—A type of persistent unique identifier used for advertising and related purposes, which allows an iOS device user's behaviour to be tracked over time
iOS	Apple's operating system for devices including the iPhone. The iPad runs iPadOS, which is based on iOS
IoT	Internet of Things— the use of internet-connected technology in physical devices that have not traditionally featured such technology, such as cars, household appliances and speakers
MADA	Mobile Application Distribution Agreement—An agreement entered into between Google and OEMs, giving OEMs the right to pre-install GMS.
Malicious app	An app that features exploitative or opportunistic designs to the benefit of a developer or third-party and which has the ability to result in user harm
Malware	Any type of code or program that is used for a malicious purpose. Malware can be distributed in several ways, including via apps
MDM	Mobile device management—technology that allows the remote monitoring and administration of mobile devices
Mobile app	Apps designed specifically for and installed on mobile devices such as smartphones, tablets or watches
Mobile device	A device capable of running apps that is portable and usable while moving, such as a smartphone, tablet or smart watch
Mobile ecosystem	Mobile operating systems and the mobile devices and software products that make use of mobile operating systems
Multi-sided platform	A platform which is characterised by the following pair of properties: <ul style="list-style-type: none"> • two or more distinct types of users or parties interact on the platform, and • an increase in usage by one type of user or party increases the value of the platform to users or parties of another type
Native app	An app developed for use on a particular platform or device Compare to <i>web app</i>
NCC	Norwegian Consumer Council
Network effects	The effect whereby the more users there are on a platform, the more valuable that platform tends to be for its users Also see <i>cross side network effects</i>

Term	Description
NFC	Near field communication—Technology that allows devices within a few centimetres of each other to exchange information wirelessly, and is used, amongst other things, to facilitate ‘tap-and-go’ payments through an app on a mobile device
OAIC	Office of the Australian Information Commissioner
OEM	Original equipment manufacturer—A company that manufactures and supplies an electronic product that integrates and uses applications (for example, Apple, Samsung, Sony, Huawei and Xiaomi) Also referred to as a device manufacturer, manufacturer, or device maker
Ofcom	Office of Communications, United Kingdom
Open source	Software where the source code is publically available for use, modification, or distribution Compare to <i>closed source</i>
OS	Operating system—Software that controls the hardware and other software on a device
P2B Regulation	Platform-to-Business Regulation (EU), which commenced on 12 July 2020
Personal information	Defined in the Privacy Act as: Information or an opinion about an identified individual, or an individual who is reasonably identifiable: <ul style="list-style-type: none"> • whether the information or opinion is true or not, and • whether the information or opinion is recorded in a material form or not
Play Console	Google’s portal for app providers to publish, and review the performance of, their apps on the Play Store
Play Store	The app marketplace operated by Google for Android devices
Pre-installed / pre-loaded app	An app that is installed on a device prior to purchase by end-users
Privacy Act	<i>Privacy Act 1988</i> (Cth)
Read only app	An app that allows users to view or consume content purchased outside the app, but does not enable users to purchase content within the app
Scamwatch	A website run by the ACCC to provide information to consumers and small businesses about how to recognise, avoid and report scams
SDK	Software Development Kit—A configurable piece of code that can be embedded in an app’s code to perform specific functions
Sideload	The installation of an app on a mobile device without using the device’s official application-distribution method (that is, the app marketplace associated with the device’s OS)
Smartphone	A mobile phone with a touch screen, variety of hardware sensors and multimedia functionality
Third-party app	An app created by someone other than Apple or Google

Term	Description
Third-party app developer	An app developer that is not Apple or Google
TIO	Telecommunications Industry Ombudsman
Unbundle	To separate the products and services provided by a firm that were previously offered together
Unique identifier	A unique string of numbers and letters that identifies a mobile device and enables data collected from the device to be associated with it
US House Report on Competition in Digital Markets	Majority Staff Report and Recommendations of the Investigation of Competition in Digital Markets by the Subcommittee on Antitrust, Commercial and Administrative Law of the Committee of the Judiciary, published on 6 October 2020
UWB	Ultra wideband—Considered to be the ‘next-step’ from Bluetooth and facilitates accurate, short-range proximity tracking (including better spatial awareness) and data transfer
Web app	An app that runs on a server and is accessed through an internet browser typically with an active internet connection rather stored locally on a device Compare to <i>native app</i>

Appendix A: 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

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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);

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- (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 or 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*.

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

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- (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.

Appendix B: Apps that come pre-installed on iOS and Android devices

iOS	Android	
iPhone devices ⁷⁰⁵	Google Pixel devices ⁷⁰⁶	Third-party devices ⁷⁰⁷
App Store	Play Store	Play Store
Messages	Messages	Messages
Phone	Phone	Google Phone
Settings	Settings	
Contacts	Contacts	Contacts
Clock	Clock	Clock
Calculator	Calculator	Calculator
Camera	Google Camera	
Photos	Google Photos	Google Photos
Calendar	Google Calendar	Google Calendar
FaceTime	Google Duo	Google Duo
Files	Google Files	Google Files
Safari	Chrome	Google Chrome
Siri		Google Assistant
Mail	Gmail	Gmail
Maps	Google Maps	Google Maps
Music	YouTube Music	YouTube Music
News	Google News	Google News
Podcasts	Google Podcasts	Podcasts
Notes	Google Keep	Keep

⁷⁰⁵ Information provided to the ACCC.

⁷⁰⁶ Information provided to the ACCC.

⁷⁰⁷ Information provided to the ACCC.

Wallet	Google Pay	Google Pay
Home	Google Home	
TV	Google TV	
Voice Memos	Recorder	
Translate		Translate
Numbers		Google Sheets
Health	YouTube	YouTube
Apple Store	Google Drive	Google Drive
iTunes Store	Google Docs	Google Docs
Measure	Google One	Google One
Find My	Google	Google Slides
Books (as iBooks)	Safety App	Digital Wellbeing
Clips	Downloads	Google Search
Compass	My Telstra	Google Play Movies
GarageBand	My Optus	Wallpaper
iMovie	Pokemon Wave Hello	
Keynote		
Pages		
Reminders		
Shortcuts		
Stocks		
Tips		
Watch		
Weather		



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