# How platforms create value for their users: implications for the Digital Markets Act

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### About Oxera

Oxera has provided a leading voice in competition and regulatory policy across a range of industrial sectors for over 30 years. In the digital space, we are an active participant in the debate that is unfolding around Europe, having hosted roundtable discussions between regulators, policymakers, firms, and academics in Berlin, Brussels, London, and Paris.

Oxera works with many large and small platforms, as well as consumer bodies and regulators, to help build a robust and widespread understanding of the economic and social impact that technology has on its users and markets. We also advise and act as experts on antitrust cases, mergers, damages, and other disputes in the digital sector.

Through this experience, we have developed a deep understanding of the business models employed by online platforms, how they are used by consumers and businesses, and the effect—both positive and negative—that various policy and regulatory proposals are likely to have on consumer behaviour, commercial incentives, and market outcomes.

We also work closely with leading academic experts and former regulators, many of whom are Associates of or Special Advisers to Oxera. In this project, we have collaborated with Oxera Associate Professor Julian Wright, a leading academic on the issues of platform economics and network effects.

# Key messages

There are a substantial number of studies and investigations that highlight a wide range of theories of harm that may arise in the digital economy. However, significantly less attention has been given to the theories of benefit and value creation relating to online platforms.

Having an in-depth understanding of how platforms create value for their users and wider society is critical as policymakers seek to design regulatory interventions in these markets. This study aims to help provide this understanding by explaining how some of the practices that may be restricted by the European Commission's proposal for a Digital Markets Act (DMA) can enable value creation, both online and offline.

At their most basic level, platforms act as intermediaries, connecting one or more types of users to facilitate an interaction, and are often characterised by positive direct and/or indirect network effects. However, most modern-day platforms generate significant value over and above that offered by intermediation alone, playing active roles as:

- **aggregators**: helping to unlock scale economies for businesses while reducing transaction costs and increasing quality and trust for consumers ('value from aggregation');
- **innovators**: realising economies of scope as they extend their user offering by adding new features and services, thereby fostering innovation and dynamic competition both within and between ecosystems ('value from innovation and dynamic competition').

This study examines the academic literature (including economics, management science, and information technology) on platform markets and platform management to shed light on how practices involving bundling and tying, self-preferencing, and leveraging are used by platforms to help create this value for their users. We illustrate this with a large number of examples and case studies from both online and offline markets.

## Value from aggregation

The bundling and tying of different features and services by a platform can boost the efficiency of a market by reducing transaction costs, increasing choice for consumers, and helping businesses achieve scale economies while avoiding duplication costs. This can be observed both offline (for example, in the range of services offered by supermarkets) and online (such as with social media platforms or app stores).

Like offline businesses, online platforms can use self-preferencing to promote quality and trust. Furthermore, self-preferencing by dual-mode operators (i.e. platforms that offer their own products or services alongside those of third parties) can lead to greater user discovery and choice.

Helping consumers find the content and products that are most relevant to them is a fundamental way in which platforms add value as aggregators. To match users to the most relevant options and provide convenience through personalisation, platforms can leverage data. However, these practices are not new, with marketeers, credit reference agencies and private-label retailers all using data to help reach customers.

The study brings this form of value creation to life with a detailed case study involving Google Maps, which illustrates how the combination of these different practices can create aggregation value for consumers and business users alike.

## Value from innovation and dynamic competition

Tying and bundling of additional features, services, or tools can incentivise innovation *by* platforms, as well as enabling third parties to innovate *on* platforms. Users benefit from these behaviours that, directly or indirectly, increase the features and functionalities available. For instance, the bundling and tying of additional features and services by Facebook is a good example of continual innovation *by* the platform, redefining the scope of a social media service. On the other hand, Google's bundling of developer tools and marketing services with the Play Store for use by third-party Android developers promotes innovation *on* the platform.

Self-preferencing can also play a positive role in fostering dynamic competition by enabling platforms to offer consumers a choice between business models, such as the more 'closed' ecosystem of Apple iOS competing with the more 'open' ecosystem of Google's Android.

Similarly, both online and offline businesses can leverage their data and know-how to create new innovations that spur dynamic competition in the market and offer alternatives to the status quo. For example, detailed data allows cloud kitchens to better meet underserved demand, while AWS leverages Amazon institutional know-how to provide flexible cloud computing services to third-party businesses.

Apple's decision to self-supply processors for its desktop and laptop computers has also led to a closer integration of hardware and software, and illustrates how a platform can generate additional value for consumers and businesses by facilitating dynamic competition in its roles as an innovator, and as an enabler of innovation.

## Implications for the DMA

The European Commission proposals for the Digital Markets Act (DMA) will impose a series of 18 obligations and prohibitions on any firm identified as a 'gatekeeper'. These will cover a range of practices that are common among both offline and online businesses, which, as this study has shown, can create significant value for consumers and business users.

A key concern we have identified is that the DMA's excessive focus on short-run efficiency (favouring the protection of contestability and fairness) may come at the expense of value creation for consumers in the long term through innovation and dynamic competition, both on and between platforms. As a result, the DMA creates a risk of over-enforcement by restricting a series of common business practices, found offline as well as online, that can have net positive effects for society. In particular, the DMA's 'catch-all' and 'per se' approach to prohibiting a range of value creating behaviours risks stifling the growth of Europe's digital economy.

At the heart of the DMA's shortcomings is the departure from the legal principles and economic analysis required under competition law. This is manifested in a proposed regulatory framework that neither includes a requirement to undertake a formal analysis of dominance or market power, nor an effects-based assessment of the conduct and remedies to be imposed. Nor does it provide a route to an appeal on the merits of any aspect of the process.

We therefore recommend that the EU develops a more flexible and tailored framework, seeking alignment and consistency with the principles of competition law. It could draw inspiration from the European telecoms regulatory framework (in particular, the 'checks and balances' that come from the three-criteria test to identify markets susceptible to ex ante regulation, as well as the opportunity to appeal decisions to specialist courts 'on the merits'), as well as the Digital Markets Taskforce's proposals in the UK, which require a holistic assessment of market features such as quality, innovation, and other non-price indicators before tailored remedies can be imposed.

## Executive summary

In December 2020, the European Commission ('the Commission') tabled proposals for the Digital Markets Act (DMA), which will impose ex ante economic regulation on a number of 'core platform services' for the first time. In particular, the DMA includes a series of obligations and prohibitions for 'gatekeeper' platforms in light of concerns raised by recent antitrust scrutiny in Europe. There are a large number of obligations—18 in total—with several imposing restrictions on a range of practices that are common among both offline and online businesses. Namely, these are: (i) bundling and tying; (ii) self-preferencing; and (iii) leveraging.

In this context, the Computer and Communications Industry Association ('CCIA') asked Oxera to consider the extent to which such practices can create value for platform users and deliver benefits to consumers and society more broadly. The aim of this study is to inform the debate around whether the obligations set out in the proposed DMA are likely to be a proportionate and effective remedy to the concerns being raised.

We set out the different roles that platforms play and the benefits that they offer users, as highlighted by the substantial body of academic literature on platform markets and platform management (including from economics, management science, and information technology). In particular, we shed light on how practices involving bundling and tying, self-preferencing, and leveraging can help platforms to deliver these benefits, illustrating these points with examples and case studies from both offline and online markets.

### How platforms create value

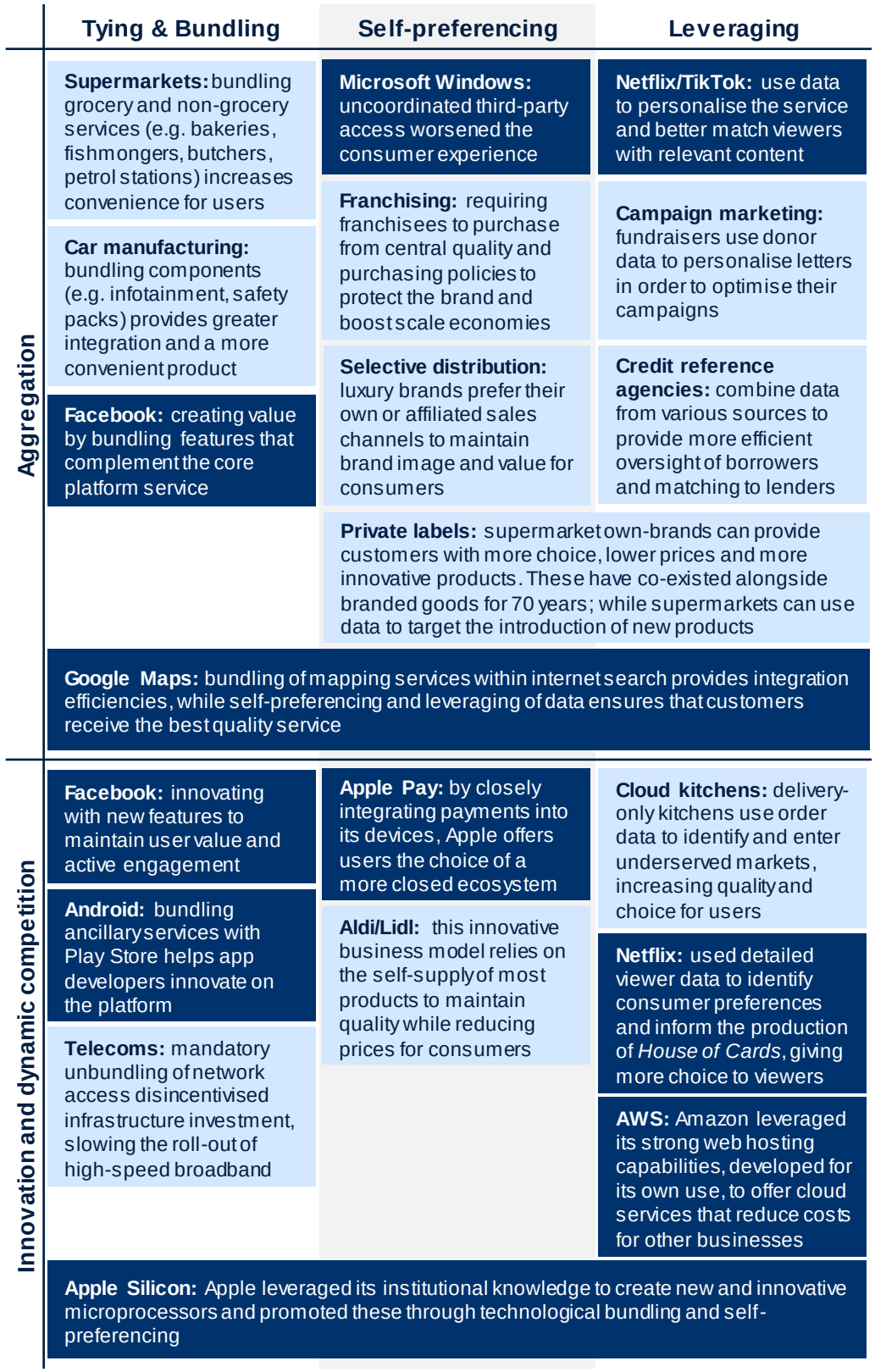
At their most basic level, platforms act as *intermediaries* connecting one or more types of users to facilitate an interaction. In this regard, platforms are often characterised by positive direct and/or indirect network effects, whereby the value of the platform to a single user increases with the total number of users on one or more sides of the platform.

In addition to this, most modern-day platforms generate significant value over and above that offered by intermediation alone, with active roles as:

- *aggregators:* helping to unlock scale economies for businesses while reducing transaction costs and increasing quality and trust for consumers (we refer to this as '**value from aggregation'**);
- *innovators*: realising economies of scope as they extend their user offering by adding new features and services, thereby fostering innovation and dynamic competition both on the platform and between platform ecosystems (we refer to this as '**value from innovation and dynamic competition**').

The literature on platforms and case studies from a range of different markets show how practices involving bundling and tying, self-preferencing, and leveraging can be instrumental in creating this value for platform users. We illustrate this using examples and case studies from both online and offline markets. While we have used these examples to illustrate specific points (see below for an overview), in many cases the same examples could equally be applied to other areas of the report—emphasising the fluid nature of value creation by platform businesses.

**Examples of value platform value creation**




Note: Light blue reflects (predominantly) offline businesses; dark blue reflects online businesses.

Source: Oxera.

For the purposes of this study, we take 'bundling and tying' to mean the supply of various products, services, and features either in 'pure' bundles (such as iOS with Apple mobile devices), 'mixed' bundles (such as software packages

that are available separately or as part of a suite), or as 'tied' products (such as exclusive video games tied to a particular console).

In contrast, self-preferencing is less clearly defined in both law and economics. In this study, we use the term broadly to mean practices where a firm favours its own or affiliated products and services over those of third-party competitors—for example, a search engine preferring to use its own mapping service as an input in its general search results, or an app store provider giving greater prominence to its own apps.

As for leveraging, this can take many different forms—including bundling and tying practices and self-preferencing—but at its core refers to a firm using an advantage it has in one area to promote its interests in another. In this report, we focus on two particular forms of leveraging: (i) leverage of data; and (ii) leverage of know-how.

**Value from aggregation**

In section 3, we show how platforms can use the above practices to help create value in their roles as aggregators.

The bundling and tying of different features and services by a platform can boost the efficiency of a market by reducing transaction costs, increasing choice for consumers, and helping businesses to achieve scale economies. For example, mobile device makers will typically bundle a selection of apps along with an operating system—such as a calculator, a web browser, and a camera app—in order to offer the user a better 'out-of-the-box' experience. This is similar to bundling practices by supermarkets, which often offer a variety of grocery and non-grocery services under one roof. Not only is this more convenient for customers, but the supermarkets also benefit from synergies in supply, which could be passed on to consumers.

Like offline businesses, platforms can also use self-preferencing practices to create value and promote quality and trust. Similar practices have long been used in the offline world; for example, franchisors typically require that franchisees adhere to centralised purchasing policies in order to ensure the consistency of their product. Meanwhile, many luxury brands have traditionally chosen to use selected distribution channels to maintain their image and avoid a dilution of quality (due to counterfeits, for example).

A lack of focus on platform quality can worsen consumer outcomes. For example, the ability of PC manufacturers to pre-install third-party software alongside Windows may have led to worse experiences for consumers, putting the reputation of the Windows ecosystem at risk. A similar dynamic plagued the early video games industry, with the prevalence of low-quality games eroding trust among consumers. Nintendo resolved this by managing developer access to its videogame platform and requiring that games be verified and approved before being released.

Helping consumers to find the content and products that are most relevant to them is a fundamental way in which platforms add value as aggregators. In some cases, this can mean promoting a product or service developed by the platform operator itself. This kind of self-preferencing by dual-mode operators (i.e. platforms that offer their own products or services alongside those of third parties) can lead to greater user discovery and choice. As the economics and management literature highlights, both dual-mode and other platforms have a strong incentive to promote the highest-quality options to consumers in order to maintain and enhance their reputation among users. In this respect, the

incentives faced by dual-mode operators are similar to those of supermarkets, where private labels and branded goods have coexisted for decades—increasing choice for consumers.

Finally, platforms can leverage the data they have at their disposal to increase efficiency and benefit users. As digital services aggregate an increasing array of products and services, using data to match users to the most relevant options plays an increasingly important role in delivering benefits to them.

For example, content platforms such as Netflix and TikTok use machine learning to personalise their services, helping viewers find the most relevant content from within the large catalogues they have available. Similar examples of data-led benefits in online markets are highlighted throughout the literature, such as recommendations by marketplaces, the matching of users by dating platforms, and the personalisation of online advertising.

However, using data to personalise offers and better match businesses with consumers is not new. There are many examples of offline firms leveraging data in this way, such as charities that use information about donors to optimise their funding campaigns, or credit reference agencies that aggregate data from a variety of sources to better assess risk and mitigate fraud.

There are also examples where each of these practices—bundling and tying, self-preferencing, and leveraging—have been used in combination to create aggregation value for users. A notable case study is Google Maps, which bundles valuable search and user review features within its core mapping service; is used as an input by Google to provide an improved general search interface; and leverages user data from across the Google ecosystem to provide a more personalised experience for users.

**Value from innovation and dynamic competition**

Platforms also create value for consumers and business users through their roles as innovators and enablers of innovation. The literature explains that platforms have a continued incentive to evolve their services in order to maintain the engagement of their users. Two ways that platforms achieve this are by adding new services and features themselves (innovation *by* the platform) and by providing opportunities for third parties to do so (innovation *on* the platform). As with aggregation value, practices involving bundling and tying, self-preferencing, and leveraging can help to create value by promoting this dynamic innovation-based competition *by* and *on* the platform.

There are numerous case studies of such behaviours by platforms that show increases in innovation, as we discuss in section 4. For instance, the bundling and tying of additional features and services by Facebook is a good example of continual innovation *by* the platform, redefining the scope of a social media service. On the other hand, Google's bundling of developer tools and marketing services with the Play Store for use by third-party Android developers promotes innovation *on* the platform. Users benefit from these behaviours that, directly or indirectly, increase the features and functionalities available on the platform.

Preferencing practices can also have an impact on innovation and dynamic competition. For example, discount supermarkets (such as Aldi and Lidl) give preference to their own brands in-store, allowing them to place substantial orders with suppliers and design packaging and supply chains to optimise their store layout and minimise labour costs. While this means reduced choice for shoppers in-store, this preferencing practice presents consumers with a choice

of different retailer business models, with the discounter model offering lower costs while maintaining quality. The benefits to consumers of this innovative retail business model are underscored by the literature, which explains that a degree of product imitation (such as private-label retailing) can be welfare-enhancing as long as it does not disincentivise further innovation.

Similarly, in the online context, self-preferencing can help foster dynamic competition and increased choice for consumers by enabling different business models—such as the competition between the more 'closed' and proprietary Apple iOS ecosystem and the more 'open' Google Android ecosystem. This competition *between* ecosystems can create additional value for users.

Furthermore, businesses can leverage their data and know-how to foster new innovations that boost dynamic competition in the market. For example, the introduction of delivery-only kitchens to extend a delivery service's footprint into underserved areas marks an innovation in the food-delivery market based on customer data analysis. Meanwhile, Netflix has used detailed data on viewer preferences to inform the production of its hit series *House of Cards*. Likewise, the know-how that Amazon gained from providing its own online services enabled it to start offering cloud computing with Amazon Web Services (AWS), which has since enabled online businesses to open and scale in a cost-effective way.

As with aggregation value, in many cases platforms combine more than one of these practices to unlock the value of innovation and dynamic competition. One example is Apple's decision to self-supply processors for its desktop and laptop computers instead of continuing to use Intel chips. By tying its chipsets and computers, Apple is able to deepen the integration within the overall Apple ecosystem, allowing developers to build universal apps that run more efficiently on all devices. The self-supply of chipsets may also grant Apple more flexibility and scope to compete with the Windows PC ecosystem in the long run. Meanwhile, leveraging the know-how gained from producing mobile chipsets has been instrumental in the new chipset design—leading to improved thermal efficiency, battery life, and performance.

**Remarks on the implications for the proposed DMA**

In light of this assessment of how bundling and tying, self-preferencing, and leveraging practices can all play a role in driving the value platforms create for their users, we consider that there are three main implications for the DMA proposals.

- First, the proposed 'catch-all' scope of the regime, applying all 18 obligations to *any* firm identified as a 'gatekeeper', is inconsistent with the fact that there will be a wide range of platform businesses and market conditions, each with different sources of value creation and potential theories of harm. For example, provisions intended to prevent app stores from preferencing their own in-app payment services could have significant unintended consequences for a commission-based intermediation platform (such as an online travel agency).

- Second, the fact that some of these obligations represent 'per se' prohibitions of conduct that, as this study shows, can create significant value for consumers and business users, risks a large number of type-1 errors (i.e. there is a risk of over-enforcement by restricting conduct that can be net positive for society). In particular, several of the provisions would inhibit the

ability of platforms to generate value from bundling and tying, self-preferencing, and leveraging practices that benefit users.

- Third, the DMA's focus on contestability and fairness appears to favour the protection of competitors in the short term at the expense of dynamic competition and innovation in the long term—at the very least, it is unclear how these longer-term sources of value will form part of an assessment of the appropriate regulatory response to the conduct of 'gatekeepers' (or indeed how it will weigh on the question of whether regulation is needed at all).

At the heart of the above shortcomings is the fact that the DMA appears to depart from the legal principles and economic analysis that are required under competition law. In this regard, we note that the success and longevity of the ex ante significant market power (SMP) regime in the telecoms sector owes a great deal to its close alignment with these principles. These principles are manifested in the three-criteria test, which must be met before an electronic communications market can be deemed susceptible to ex ante regulation. That test requires:

1. the presence of barriers to entry;
2. the need for such barriers to be enduring;
3. a demonstration that competition law would not be enough to remedy any identified concerns.

Despite the differences between the economics of the telecoms sector and that of digital services, the DMA could benefit from incorporating similar tests that reflect long-standing best-practice regulatory principles. This is particularly important as many of the obligations contained in the DMA could materially alter competitive dynamics in the digital economy.

In this regard, we also contrast the DMA's approach with the proposals made by the Digital Markets Taskforce (DMT) in the UK. Recognising the transformational nature of some of these remedies, the DMT recommends that 'pro-competitive interventions' of this nature should only be imposed in order to rectify an 'adverse effect on competition or consumers (AECC)'—a legal test similar to the 'adverse effect on competition (AEC)' in the UK markets investigation regime, which allows for a holistic assessment of market features such as quality, innovation, and other non-price indicators.

**Conclusions**

In this report, we highlight the different ways in which digital platforms and their ecosystems can create value for users through bundling and tying, self-preferencing, and leveraging. While some of these practices may pose risks to competition in certain circumstances, our report has shown how they can also deliver substantial benefits to consumers and businesses.

The DMA therefore creates a risk of over-enforcement by restricting a series of common business practices, found offline as well as online, that can have net positive effects for society. In particular, the DMA's 'catch-all' and 'per se' approach to prohibiting a range of value creating behaviours risks stifling the growth of Europe's digital economy.

We therefore recommend that policy makers reconsider the proposed approach and instead develop a more flexible and tailored framework, seeking alignment and consistency with the principles of competition law. In doing so, it

could draw inspiration from the European telecoms regulatory framework, as well as the UK market investigations regime and the DMT's proposals.

While attempting to regulate such a fast-moving sector will continue to present challenges, we consider that adopting our recommendations would assist the Commission in striking a more appropriate balance between contestability, fairness and the value-creation of the practices examined in this report.

# 1 Introduction

Over the last two decades, digital services in general—and online platforms in particular—have grown to play an increasingly important role in all aspects of day-to-day life. Specifically, online platforms are involved in connecting users, making them important enablers of trade and offering a host of benefits to both consumers and businesses.[1] At the same time, the prominent role that these businesses play has attracted the attention of antitrust enforcers and policymakers around the world. In particular, in December 2020 the European Commission tabled proposals for a Digital Markets Act ('DMA'), which will impose ex ante regulation on platforms operating in Europe.[2]

Influenced by the concerns raised in a series of recent studies and antitrust investigations, the DMA proposals impose a number of obligations and prohibitions on 'gatekeeper' platforms. While there are a large number of proposed obligations—18 in total—several of these relate to restrictions targeting practices that are common among both offline and online businesses, namely: bundling and tying, self-preferencing, and leveraging.

In this context, the Computer and Communications Industry Association ('CCIA') asked Oxera to consider the extent to which these practices can create value for platform users and deliver benefits to consumers and society—ultimately asking whether the obligations set out in the proposed DMA are likely to be a proportionate and effective remedy to the concerns being raised in the digital economy.

In this report, we examine the underlying economic principles of these practices and discuss their pro-competitive rationale in the context of how platforms create value for their users. Many of these practices are neither new nor unique to the digital economy, having been observed across many 'traditional' industries in the past. As such, we draw on examples from the offline world to inform our discussion of the benefits these strategies can offer.

## 1.1 The objective of this report

There are now a substantial number of studies and investigations that highlight a wide range of potential harms that may arise in the digital economy. Principal among these are the EU's Special Advisers Report,[3] the UK's Furman Review,[4] and the Chicago Booth Stigler Center Report,[5] as well as investigations and cases carried out by the Australian Competition and Consumer Commission,[6] the UK Competition and Markets Authority,[7] the US Department of Justice,[8] and the US Federal Trade Commission.[9]

However, significantly less attention has been given to the theories of benefit and value creation relating to online platforms. Having an in-depth understanding of how platforms create value for their users and wider society is critical as policymakers seek to design regulatory interventions in these markets. This study aims to help provide this understanding by focusing on

[1] For examples, see Brynjolfsson, Collis and Eggers (2019); Van Alstyne and Parker (2017).
[2] European Commission (2020), '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.
[3] European Commission (2019), 'Competition policy for the digital era: Final report'.
[4] HM Treasury (2019), 'Unlocking digital competition: Report of the Digital Competition Expert Panel', March.
[5] Stigler Center (2019), 'Stigler Committee on Digital Platforms: Final Report', September.
[6] Australian Competition and Consumer Commission (2019), 'Digital platforms Inquiry – final report', July.
[7] Competition and Markets Authority (2020), 'Online Advertising and Digital Markets Study', July.
[8] US District Court for the District of Columbia, Case 1:20-cv-03010, *US et. al.* v. *Google*, 20 October 2020.
[9] US District Court for the District of Columbia, Case 1:20-cv-03590-JEB, *FTC* v. *Facebook*, 13 January 2021.

how some of the practices that may be restricted by the DMA can enable platforms to create value. That is not to say that these practices cannot lead to harm—indeed, the same economic characteristics that allow platforms to unlock value from scale, scope, and network effects may result in issues around tipping, market power, or user lock-in. However, these practices are not inherently harmful, and this study highlights that care is needed when designing interventions to prevent unintended consequences that do harm consumers, business users, or the wider economy.

Ultimately, we ask whether the DMA's 'catch-all' scope and 'per se' application of gatekeeper obligations is likely to be proportionate and effective, or whether a more tailored, platform-specific approach is needed. Such an approach could account for the specific business model and market context in which a practice is being employed.

## 1.2 Defining the practices in question

Throughout this report, we consider how the practices highlighted above can have a *positive* impact for consumers and businesses—in particular, when used by platforms to drive and enhance their value-creation process. For this reason, it is important to have a clear understanding of what is meant by bundling and tying, self-preferencing, and leveraging, both for online and offline businesses. We present an economic interpretation of each of these practices—along with practical examples of their usage—in the subsections below.

### 1.2.1 Bundling and tying

In economics, the terms 'bundling' and 'tying' refer to several related practices, all of which are concerned with the joint supply of different products or services.[10] Under *pure bundling*, two or more goods are sold *only* as a bundle and are not available for individual purchase. For example, in private hospitals, surgery services are bundled with x-rays, anaesthesia, etc.; in consumer electronics, Apple's hardware devices are bundled with Apple's own operating system.

In contrast, *mixed bundling* refers to the case in which two or more goods may be purchased *either* in a bundle (often for a discount) *or* as stand-alone offers. For example, broadband, phone, and TV services are frequently offered in mixed bundles, while many software applications (such as those in Microsoft Office) can be purchased as a suite or as individual packages.

*Tying* refers to a case where one product (the tying product) can only be used if the customer also buys the second product (the tied product), although the tied product can be used *without* the tying product. For example, a gamer wishing to play the latest game in the *Halo* series must also purchase an Xbox, but having an Xbox does not require the purchase of the *Halo* game. Similarly, using Nespresso coffee capsules requires a Nespresso coffee machine, but machine owners can purchase third-party capsules if they prefer to.

Bundling and tying practices may be *contractual* or *technical*, with different implications for consumers. Under contractual bundling or tying, a consumer may be obliged and/or incentivised to purchase an unwanted good, but does not have to use it. However, with technical bundling or tying, it may be impossible to replace the unwanted element with an alternative.

[10] See Nalebuff (2003) for a comprehensive treatment of these various practices.

### 1.2.2 Self-preferencing

Self-preferencing is not well-defined—either in law or economics—but is commonly used to refer to a firm promoting or favouring its own (or affiliated) products and services over those of competitors.[11] This can mean favouring the self-supply of certain inputs to an end-user offering (such as Google incorporating its own maps into general search), or promoting its own or affiliate goods and services to consumers (such as an app store provider giving prominence to its own apps).

In this regard, it has strong parallels to the well-understood concept of vertical integration, which is seen as non-problematic in many cases.[12] Colomo (2020) describes self-preferencing as *'*an expected—if not inevitable—consequence of the integration of different activities*'*, before explaining that these types of behaviours can be necessary to realise the pro-competitive gains of integration.[13] In this report, we explore the beneficial effects of two forms of self-preferencing behaviour observed among vertically integrated firms (including brick-and-mortar or 'offline' businesses) and 'dual-mode' platform operators (see Box 2.1 for an explanation of dual-mode platforms).

- The first is **preferential access**, whereby a firm sets rules of access to its services or infrastructure that favour itself or its affiliates. For example, franchisors may require franchisees to purchase from in-house suppliers, or device manufacturers may restrict the software that can run on their hardware to that from affiliated developers only.
- The second is **ranking and prominence**, in which a vertically integrated firm (or dual-mode platform) provides users with 'information' (such as recommendations, search results, and rankings) that gives prominence to its own or affiliated businesses.[14] For example, retailers may run in-store promotions that give prominence to their own private-label products, while mapping providers may use their own ratings and reviews services alongside place listings.

### 1.2.3 Leveraging

Leveraging can take many different forms—including self-preferencing, or bundling and tying—but at its core it refers to a firm using an advantages it has in one area to promote (or defend) its interests in another.

One such advantage that a firm may seek to leverage is that of market power. It is widely held that a firm leveraging market power from one market to another may result in anticompetitive harm.[15] However, there are other advantages besides market power that may give a firm a pro-competitive edge in an adjacent market. In this report, we focus on two specific leveraging practices that have the potential to benefit consumers.

[11] See Colomo, P. (2020) for further discussion of self-preferencing as a concept in law and economics.
[12] For example, paragraphs 11 and 12 of the European Commission's Non-Horizontal Merger Guidelines explain that vertical mergers are less likely to create problems than horizontal mergers as they do not entail a loss of direct competition. Furthermore, paragraphs 13 and 14 explain that vertical mergers present substantial scope for efficiencies through the internalisation of externalities in the supply of complementary goods, reduced transaction costs, increased coordination, and convenience for consumers. See Official Journal of the European Union (2008), C 265/07.
[13] Colomo (2020), section 2.4.
[14] Note: the economics literature often refers to this type of narrow self-preferencing as informational steering. See for example, Hagiu, Teh and Wright (2020), p. 5.
[15] Notwithstanding the 'Chicago School critique', which broadly finds that a monopolist cannot increase its profit by leveraging its market power, recent research has highlighted cases in which firms may be able to leverage power in two-sided market. For example, see Choi and Jeon (2021) and Cornière and Taylor (2021).

- The first is **leverage of data**, in which a firm uses the data it has at its disposal from operating in one market to inform its decisions to enter and optimise operations in another. For example, content producers may use detailed audience data to better predict successful new productions, while food-service businesses may use customer location data to determine whether to enter into new geographical markets.

- The second is **leverage of know-how**, where, similarly, a firm uses the skills and know-how developed in one market to better serve customers in an adjacent market. For example, banks may use detailed information about business customers to offer better advice on investment and securities products, while platform operators may offer public cloud computing products to third parties based on know-how developed while solving their own internal operations issues.

### 1.3 Outline of this report

In the rest of this report, we unpack how these practices can be used by platforms to create value.

In section 2, we begin by exploring the different types of platform business models highlighted in the platforms literature (section 2.1), before categorising different 'layers' of value creation by platforms: intermediation (section 2.2); aggregation (section 2.3); and innovation and dynamic competition (section 2.4). We end by presenting a summary of the examples that we will draw on throughout the rest of the report (section 2.5).

In section 3, we delve deeper into how such practices can be used to create value by platforms in their role as *aggregators*. Drawing on the platforms literature, we consider the benefits of bundling and tying (section 3.1); self-preferencing (section 3.2); and leveraging (section 3.3). We end with a case study explaining how each of these practices have contributed to the value created by Google Maps (section 3.4).

In section 4, we conduct a similar deep-dive into how platforms can use these practices in their role as *innovators*. We consider the bundling and tying of features and services (section 4.1); how self-preferencing can bolster competition and innovation (section 4.2); and how leveraging data and know-how can contribute to dynamic competition (section 4.3). We end with a case study of how these practices can be observed in the case of Apple Silicon (section 4.4).

In section 4.4, we take a closer look at the Commission's DMA proposals, reflecting on the impact that they could have on the types of platform value creation examined in this report. We discuss the issues around the 'catch-all' scope of the proposals (section 5.1); the risks of applying 'per se' obligations (section 5.1); the likely impact on dynamic competition (section 5.2); and potential revisions to increase alignment with competition law principles (section 5.3).

Section 6 concludes with our key messages.

# 2 How platforms create value

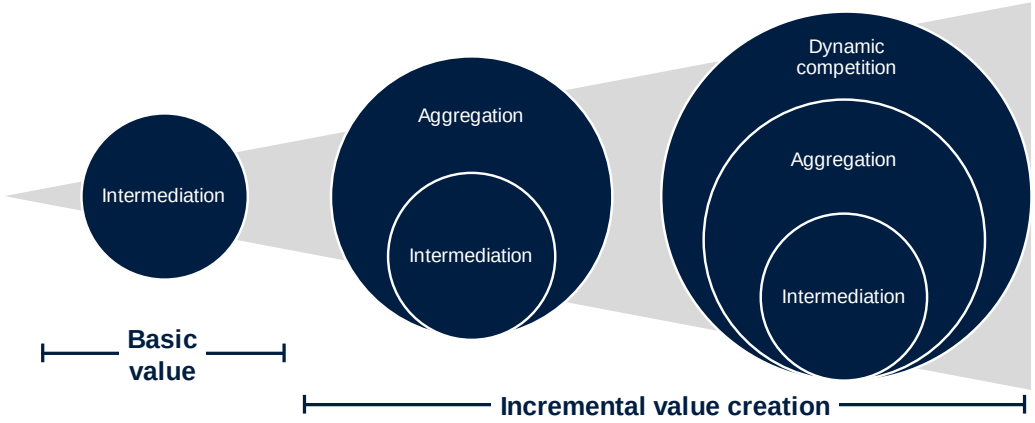
Platforms create value in a range of ways, from better matching between businesses (e.g. online retailers) and consumers to helping to overcome information asymmetries (e.g. customer review sites); providing the core infrastructure needed by developers (e.g. iOS and Android); and integrating complementary features and services (such as smart-home ecosystems). These forms of value creation are not unique to digital services—similar examples can be found in a range of 'offline' business, although the scale of the benefits may be amplified in many online environments.

In this section, we review the breadth of the academic literature on platform markets and platform management—including economics, management science, and information technology (IT)—to shed further light on how these business models can improve user outcomes across a range of different markets. We first highlight the key characteristics of platform business models (section 2.1), before discussing three ways in which platforms can create value for users and society (see Figure 2.1):

1. **intermediation** (section 2.2), such as a platform transmitting a message between users, connecting content creators with audiences, and facilitating purchases between buyers and sellers;
2. **aggregation** (section 2.3), such as an online marketplace or app store giving businesses access to a wide market, while providing users with a wide range of options in a secure and trusted environment;
3. **innovation and dynamic competition** (section 2.4), such as a platform incorporating additional features or services for its users, or an ecosystem integrating a range of complementary first- and third-party products and services.

We find that intermediation and network effects are an essential component of any platform (see Figure 2.1). Finally, we provide an overview of how platform businesses employ the practices discussed in section 1.2 to unlock value through aggregation or innovation, introducing a series of examples that are developed further throughout the report (section 2.5).

**Figure 2.1 Platform value creation**




Source: Oxera.

## 2.1 An overview of platform business models

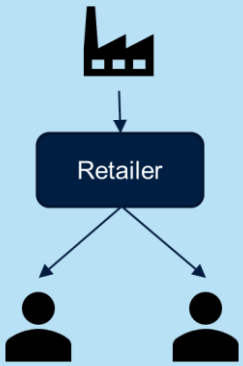
While the term 'platform' is often used to refer to certain digital businesses, it is a broad concept that can also apply in offline contexts like video game consoles and technology standards. In the DMA context, digital service providers that operate multi-sided businesses models are commonly referred to as 'platforms'. In reality, however, there is no such thing as a single platform business model. Rather, there is a broad spectrum of different platforms offering diverse services in varied market environments, and following a range of different business strategies (Evans and Gawer, 2016). This includes new, market-redefining products and services such as online search and social media, but also disruptive digital services such as ride-hailing or music-sharing services that have transformed competition in traditional industries.

Indeed, platform ecosystems are based on complex and fluid horizontal and vertical relationships, creating a high degree of interdependence as they connect and coordinate between different types of users and contributors.[16] Box 2.1 introduces some of the key concepts that we will encounter through this report.

### Box 2.1 From linear markets to platforms and ecosystems

**Linear Markets**

Most 'traditional' markets are characterised by a linear supply chain, with producers selling to retailers (referred to as 'wholesale'), which then sell to consumers ('retail'). The retailer sets the price for consumers and will often apply a mark-up over their wholesale cost.

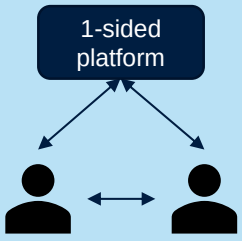



Many brick-and-mortar retailers adopt this business model, such as bookstores and supermarkets, as do many online businesses that sell direct to customers (such as HelloFresh).

In contrast, platforms do not generally play a role in the supply chain. Instead, their focus is on connecting different users to facilitate an exchange. There are various different platform business models, with some of the more complex ones—such as dual-mode operators or fully-fledged ecosystems—incorporating aspects of a linear market. We outline a number of different types of platform business models below.

**One-sided platforms**

These platform business models—the most basic—enable connections between a single type of user. Each user derives value from connecting with another user on the same 'side' of the market.




For example, WhatsApp operates as a one-sided platform where it connects consumers together, enabling them to send messages or photos to each other. Each consumer gains more value as more potential connections (e.g. friends and family) join the network and become available for communication. Economists refer to this as a 'direct network effect'.

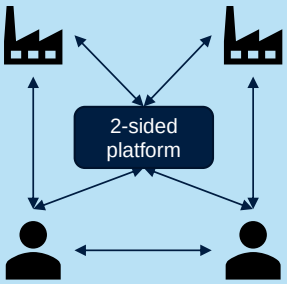
**Multi-sided platforms**

In contrast, multi-sided platforms connect two or more *distinct* types of users from different 'sides' of the platform. We describe both two- and three-sided platforms below. Crucially, for at least one set of users, the value of such a platform depends on the number of users on the other 'side' of the platform. Economists refer to these as 'indirect network effects'. For example, the value of a marketplace goes up for businesses when there are more customers using the platform, and vice versa. This need not be symmetric. For example, in the case of social media, the value to consumers typically goes up as more of their friends join the *same*

[16] By 'contributors', we mean third parties that provide content or products to a platform (e.g. app developers on a mobile OS, or sellers in a marketplace).

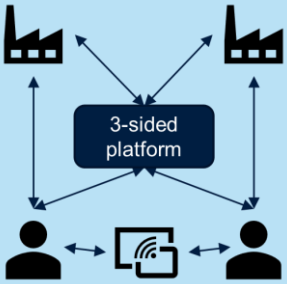
*side* of the platform, while for advertisers the value goes up as more consumers join on the *other side* of the platform.

**Two-sided platforms**




This type of platform is typical of marketplaces that connect buyers with sellers, such as eBay. Unlike a linear market retailer, the platform acts as an intermediary introducing buyers and sellers. The seller decides what price to charge the buyer and on what terms, and the buyer purchases directly from the seller, with no third party acting as a 'middle man'. In these types of markets, the platform will typically charge the seller a fee to complete the exchange, which could take the form of a membership fee, listing fee, referral fee, and/or transaction fee.

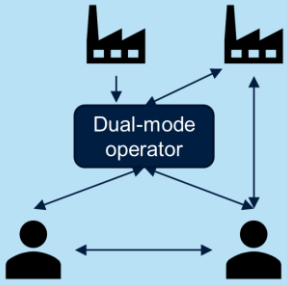
**Three-sided platforms**




These are more complex business models with no standard form. They are frequently used by platforms that monetise via advertising. Video-sharing platforms such as YouTube are a good example of this. On the first 'side' of the platform are viewers seeking interesting content to watch. On the second 'side' are creators seeking an audience (as well as remuneration) for their work. The third 'side' comprises advertisers, who are seeking a route to potential consumers. YouTube serves to match consumers with content and advertisers with consumers, while remunerating content creators with a share of the advertising value. For all users, the value of the platform is enhanced as the number of users on a different 'side' increases—viewers value more content, content creators value more viewers, and advertisers value more viewers.

Advertising funding is not the only application of three-sided platform models. For example, the Android mobile operating system can also be described as a three-sided platform, serving to connect handset manufacturers, app developers, and consumers.

**Dual-mode operators**




Going beyond being just a 'pure' platform that plays no part in the supply chain, dual-mode operators act both as retailers and platforms. This means that they sell their own stock (or, in the case of a vertically integrated dual-mode operator, their own products) at the same time as allowing other businesses to use their infrastructure as a platform to sell their products direct to customers.

Amazon is an example of a dual-mode operator, acting both as a retailer and platform for third parties. Other examples are the Google Play Store and Apple App Store, which allow users to download both the platforms' own apps and third-party apps and content.

**Ecosystems**


At the extreme end of the spectrum are fully-fledged ecosystems that allow networks of different products and services to interact. The term 'ecosystem' can be used to mean both *multi-actor* ecosystems (incorporating products and services from a range of third-party contributors) and *multi-product* ecosystems (referring to a range of interrelated products and services provided by a single firm).

However, both types of ecosystems often incorporate a platform aspect, with multiple providers coalescing around a core technology or standard. An example of this is standard essential patents (SEP) such as 4G or 5G, which bring together chipset providers, hardware manufacturers, cloud providers, infrastructure vendors, and mobile carriers. By choosing to interact with these 'open' ecosystems, different parties benefit from the scale, scope, and network effects that the technology platform offers.

Sources: Ecosystems: OECD (2020), 'Digital competition policy: are ecosystems different?', 3 December; Network effects: Katz and Shapiro (1985).

Note that any business—online or offline—that intermediates between affiliated users can be considered as a platform. Multi-sided business models feature a powerful combination of economic characteristics and commercial incentives that drive efficiencies and benefits for both consumers and businesses.

Furthermore, there are a range of ways in which businesses can create value from digital ecosystems, from expanding their core business to creating new products and services, or building an end-to-end solution for a new segment (Dietz, Khan, and Rab 2020).

The following sections examine the three ways in which platforms create value, through: intermediation, aggregation, and dynamic competition.

### 2.2 Intermediation

At their most basic level, platforms create value by intermediating between users. This could mean delivering a message from a sender to a recipient, connecting a content creator with an audience, or facilitating a purchase between a buyer and a seller. While these types of activities have become commonplace among internet-enabled businesses, the role of intermediators is not new. As Belleflamme and Peitz (2016) put it:

> […] intermediaries are not a phenomenon of the internet, but have been around since ancient times.

Intermediation services typically benefit from network effects—either direct network effects, indirect network effects, or both (Katz and Shapiro, 1985). Network effects are an increasingly well-understood mechanism of value creation in multi-sided markets. In general, network effects can be positive or negative.

Positive direct network effects generally refer to when the value of a platform for a user increases as more users join the same side of the platform. As intermediaries, platforms help to create value from positive direct network effects by facilitating large-scale information sharing between users.

Positive indirect network effects generally refer to when the value to a user on one side of a multi-sided platform increases as more users join on another side. In this sense, platforms act as an important organisational structure, creating value by orchestrating many small interactions that have positive effects for a large number of people (Parker and Van Alstyne, 2018).

Network effects (direct or indirect) can also be *negative*, with increased adoption of a product or service by users leading to disbenefits for some or all users (Rochet and Tirole, 2004; Belleflamme and Peitz, 2016). For example, a platform experiencing rapid growth or a sudden influx of users may their find that their servers are overloaded or response speeds are comprised.[17]

As intermediaries, a particularly important role for platforms is the management (or 'internalisation', as in the economic literature) of these *network effects* (Belleflamme and Peitz, 2016). In particular, both Calliaud and Jullien (2003) and Roche and Tirole (2003) discuss how platforms can use cross-subsidisation and other pricing strategies to resolve the 'chicken and egg' problem of attracting users to both sides of the market, and how platform

[17]After Instagram experienced early rapid growth their servers crashed (see NPR (2016), 'The Night Instagram Launched, It Crashed, But Didn't Burn', interview transcript with Instagram's founders, 19 September. Similarly, Amazon's website crashed due to heavy online traffic on Prime Day 2018, a promotional shopping holiday (see Statt, N. (2018), 'Amazon's website crashed as soon as Prime Day began', The Verge, 16 July.

operators are incentivised to maximise the total system value, taking all sides into consideration.

However, few platforms act solely as intermediaries, with most providing at least some form of aggregation services, including matchmaking, screening, recommendations, and other services. We discuss how these platform activities contribute to an incremental creation of value in section 2.3.

### 2.3 Aggregation

As well as intermediating between users, many platforms act as important *aggregators*, unlocking several forms of efficiency for their users. These include:

- **allocative efficiency:** by aggregating a wide range of suppliers and breaking down informational asymmetries, platforms increase competition between businesses and help consumers to find the best products for them;
- **productive efficiencies:** by helping businesses to reach a wider market more cost effectively, platforms can enable increased economies of scale in the supply of goods and services, thereby reducing prices;
- **reducing transaction costs:** by better matching users from each side of the platform and promoting trust in the options available, platforms can help to reduce the costs and frictions of trade and expand output.

The central role of an aggregator is to collate a wide variety of options on one side of the market and present these in an organised manner to users on the other side (Schrepel, 2016). For example, a video-sharing site collates creative content to present to viewers, while a marketplace collates products or services to present to shoppers and users.

Importantly, an aggregator *increases* its value by being more inclusive on the supply side, i.e. having the widest possible range of options available. For businesses, this can lower costs, enabling new suppliers to more easily enter the market and existing suppliers to find new customers and expand their output. For consumers, it can mean a wider variety of products and more competition among suppliers on the platform (Brynjolfsson et al. 2003, 2019).

However, being presented with a wide range of options can be overwhelming for consumers and create inefficiencies due to choice overload (Chernev, Böckenholt and Goodman, 2015). As such, their success as aggregators accentuates the need for platforms to play an active role in sorting the information presented, and thereby helping users to identify the right options for them. Moore (1993) calls this ‘conscious direction’, while Teece (2007) calls it ‘orchestration in the business ecosystem’. To this end, platforms can increase their value as aggregators by using the data they generate to provide better personalisation and matching functions to their users. Citing Chernev, Böckenholt and Goodman (2015), Schrepel (2021) explains that, by doing so:

> […] the problems of ‘decision task difficulty’ (such as time constraints), ‘preference uncertainty’ (such as the lack of expertise) and ‘decision goal’ (the unwillingness to engage in cognitive efforts) are concomitantly reduced.

Platforms also have an important role to play in preventing adverse selection issues from undercutting the value that they create. For example, if consumers have imperfect information about the quality of sellers in a marketplace, low-quality providers are able to undercut their high-quality rivals, leaving consumers dissatisfied and undermining trade on the marketplace (Akerlof,

1970). This is particularly likely if there are many sellers, or if consumers only buy a particular product infrequently.

Kennes and Schiff (2007) show that while simple customer review systems can help, these are still subject to strategic manipulation by sellers (e.g. fake reviews). To combat this, some platform operators choose to play a more active role in promoting quality and trust in their ecosystem. For example, Apple requires that third-party apps go through an approvals process before being listed on the App Store, while Airbnb screens users and provides identity verification, dispute resolution, and insurance. Many similar decisions and actions observed among online platforms—such as governance rules, integrations, and third-party access provisions—are motivated by this strong incentive to protect the quality of the experience for users on all sides of the platform (Evans and Gawer, 2016).

Overall, a platform acting as an active aggregator can help to lower transaction costs and reduce frictions, leading to more connections and interactions on the platform—whether these are sales by traders, views for content creators, or social interactions between friends. For example, an online marketplace or app store gives users access to a wide range of different options in a secure and trusted environment. This can lead to expanded output as consumers discover new, complementary products and services that are relevant to them.

### 2.4 Dynamic competition

A third way in which platforms can generate considerable value is as innovators, unlocking dynamic competition and 'economies of scope'.

Dynamic competition is often better known by the moniker 'creative destruction', attributed to Schumpeter (1942). The process of creative destruction refers to the continual evolution and replacement of incumbents in a market as a result of competitive improvements stemming from innovation. As such, economists refer to a market as being 'dynamically efficient' if it has characteristics that foster strong innovation over the long run.

Economies of scope are efficiencies that result from offering an increased number of products (i.e. a greater scope).[18] Teece (1980, 1982) explains that where:

> […] economies of scope are based upon the common and recurrent use of proprietary knowhow or […] a specialized and indivisible physical asset, then multiproduct enterprise (diversification) is an efficient way of organizing economic activity.

Platform businesses in general—and digital platforms in particular—are well suited to generate value as drivers of dynamic competition and economies of scope. Baldwin and Woodard (2009), Gawer (2009), and, later, Casilli and Posada (2019) explain that platforms comprise a set of 'core' components, complemented by a set of 'peripheral' components.

Gawer (2014) explains that the modular nature of platform ecosystems allows developers to manage complexity and specialise their skills, creating an environment that is conducive to innovation. The reuse of core components allows rapid and cost-effective development of new variants or add-ons (Baldwin and Woodard, 2009). Rather than 'reinventing the wheel', contributors can focus on developing their own, complementary functionality. For example, an operating system could allow developers to build on existing apps and core

[18] See Panzar and Willig (1981).

platform services using an application programming interface (API) to embed pre-built features—such as mapping functionality from Google or Apple Maps, or messaging services from Twilio—into their new app.

This reuse of common elements can create economies of scope in innovation (Gawer, 2014). Moreover, these economies of scope can be realised regardless of whether the peripheral components are provided internally or externally (i.e. regardless of the degree of openness of the platform) by enabling synergies between different types of products and services. This facilitates innovation both *on* the platform, by third-party contributors, and *by* the platform, as it continually evolves to better meet user needs.

Indeed, online platforms have strong incentives to ensure a high-quality user experience to ensure continued participation and engagement with their services. Zhou, Zhang and Van Alstyne (2020) find that investing in platform design offers more long-term value than simply acquiring more users through marketing campaigns. The role that innovation plays in driving the quality of a user experience is demonstrated by the ever-present threat of emerging platforms that are able to threaten the market share of more established platforms. For example, in recent years Zoom has disrupted Cisco's dominance in business video conferencing; Twitch has disrupted YouTube in gaming streams; and TikTok and Snapchat continue to threaten Facebook's position in social media, driving it to continually evolve its service.

### 2.5 Examples of value creation by platforms

In sections 3 and 4, we further explore how platforms can use bundling and tying, self-preferencing, and data and know-how leveraging to help create value as aggregators and innovators. We include a number of detailed case studies, as well as many examples from both online and offline market environments to illustrate how these benefits arise.

Table 2.1 maps these examples according to the practice that they relate to and the type of 'incremental' value creation that they give rise to. This provides a summary of how the examples have been used to inform our discussion around the benefits that each practice can offer. We note that in many cases, the same example could equally be used to illustrate another form of value creation—which we consider to be a further indication of how fluid and integrated these platform businesses can be.

**Table 2.1 Examples of value platform value creation**

| | Tying & Bundling | Self-preferencing | Leveraging |
|---|---|---|---|
| Aggregation | **Supermarkets:** bundling grocery and non-grocery services (e.g. bakeries, fishmongers, butchers, petrol stations) increases convenience for users | **Microsoft Windows:** uncoordinated third-party access worsened the consumer experience | **Netflix/TikTok:** use data to personalise the service and better match viewers with relevant content |
| | **Car manufacturing:** bundling components (e.g. infotainment, safety packs) provides greater integration and a more convenient product | **Franchising:** requiring franchisees to purchase from central quality and purchasing policies to protect the brand and boost scale economies | **Campaign marketing:** fundraisers use donor data to personalise letters in order to optimise their campaigns |
| | **Facebook:** creating value by bundling features that complement the core platform service | **Selective distribution:** luxury brands prefer their own or affiliated sales channels to maintain brand image and value for consumers | **Credit reference agencies:** combine data from various sources to provide more efficient oversight of borrowers and matching to lenders |
| | | **Private labels:** supermarket own-brands can provide customers with more choice, lower prices and more innovative products. These have co-existed alongside branded goods for 70 years; while supermarkets can use data to target the introduction of new products | |
| | **Google Maps:** bundling of mapping services within internet search provides integration efficiencies, while self-preferencing and leveraging of data ensures that customers receive the best quality service | | |
| Innovation and dynamic competition | **Facebook:** innovating with new features to maintain user value and active engagement | **Apple Pay:** by closely integrating payments into its devices, Apple offers users the choice of a more closed ecosystem | **Cloud kitchens:** delivery-only kitchens use order data to identify and enter underserved markets, increasing quality and choice for users |
| | **Android:** bundling ancillary services with Play Store helps app developers innovate on the platform | **Aldi/Lidl:** this innovative business model relies on the self-supply of most products to maintain quality while reducing prices for consumers | **Netflix:** used detailed viewer data to identify consumer preferences and inform the production of *House of Cards*, giving more choice to viewers |
| | **Telecoms:** mandatory unbundling of network access disincentivised infrastructure investment, slowing the roll-out of high-speed broadband | | **AWS:** Amazon leveraged its strong web hosting capabilities, developed for its own use, to offer cloud services that reduce costs for other businesses |
| | **Apple Silicon:** Apple leveraged its institutional knowledge to create new and innovative microprocessors and promoted these through technological bundling and self-preferencing | | |

Note: Light blue reflects (predominantly) offline businesses; dark blue reflects online businesses.

Source: Oxera.

# 3 Value from aggregation

In section 2.3, we explained how platforms create value in their role as aggregators, by helping to unlock scale and scope economies for businesses, while reducing transaction costs and increasing quality, trust, and choice for consumers. In this section, we explore:

- how the bundling and tying of additional features and services can boost efficiency on a platform by reducing costs for users;
- how self-preferencing can improve consumer outcomes, in particular by promoting quality and trust through preferential access, and increasing discovery and choice through ranking and prominence;
- how platforms can leverage the data they have at their disposal to provide users with the best matches.

## 3.1 Bundling and tying

The bundling and tying of additional features and services can boost efficiency by reducing costs for consumers and producers and increasing quality (Nalebuff 2003, Evans 2005). Platforms frequently create this type of value when they combine features to enhance and enrich their overall ecosystem and adapt to changing consumer tastes.

By integrating new features, a platform can take full advantage of its inherent network effects to serve the needs of a wide number of consumers better than if the features are provided separately. It also avoids the inefficiencies associated with third parties developing an entirely new product from scratch to deliver the same overall suite of features. On the contrary, it enables them to specialise their skills and build further innovations on top of pre-existing products (Gawer, 2014).[19] For example, take the integration of certain apps and services into operating systems and devices; this will improve the technical capability of the device or service and means that consumers have a better 'out-the-box' experience. Consumers would likely find it less convenient if they had to install basic apps (e.g. a camera app, calculator, calendar, and web browser) every time they purchased a new phone.

The literature on platform management highlights that through feature aggregation, platforms can take advantage of the complementarity between different features and create additional value for users (Baldwin and Woodward, 2009). Their products are continuously redesigned to serve users' needs.

Facebook provides a strong example of this: when the social media platform—originally branded thefacebook— launched in 2004, it was essentially just a directory of students at Harvard (see Figure 3.1). As the site has evolved, it has bundled an increasing array of features and services that add convenience for users and promote social interactions (see section 4.1). For example, messaging features can add more value to consumers as part of a bundled social media offering than they could as a standalone product, as they benefit from a pre-existing network of friends—solving the problem of how to reach someone if you don't have their contact details.[20] Similarly, the integration of photo sharing, News Feed, the 'like' button, Marketplace and video sharing into the same core service has further enriched the experience for users.

[19] See also section 4.1.2 for details on the effect of bundling on innovation by third parties.
[20] See Farber, D. (2008), 'Facebook Chat begins to roll out', CNET, 6 April.

**Figure 3.1 Facebook screenshot from 2005**


Source: Postfity (2020), 'Facebook is turning 16! How has FB changed over the years? See Facebook 2004, with screenshots', 2 January.

The practice of bundling and tying is also often found in the offline world, where service and product aggregation has benefited consumers through reduced transaction costs and increased convenience. For example, supermarkets often provide different services—such as fishmongers, bakers, butchers, lottery tickets, and tobacconists—under the same roof, as well as additional services such as petrol stations, newsagents, and cafés. This aggregation of frequently consumed goods gives rise to demand-side efficiencies (i.e. convenience), saving consumers time and travel costs. Moreover, the supermarket benefits from supply side scale efficiencies as it uses its space more efficiently, meeting more consumer needs.

A classic example of bundling from the economics literature is car production. Cars are typically sold as a bundle of different components and features, such as infotainment systems, navigation tools, reversing cameras, as well as comfort and safety features all included in the final product. While not all consumers will want or need all of these features, the overall impact of bundles benefits consumers because of the strong integration and convenience benefits. There is also a clear cost benefit to this bundling. Car manufacturers have the logistics capacity and economies of scale that enable them to procure separate parts from manufacturers more cheaply than if each consumer was required to buy individual parts and these cost efficiency benefits can be passed on to consumers through lower prices.

Overall, the efficiency benefits stemming from bundling and tying practices have been well-recognised in a range of contexts and markets, both online and offline. These have been formally studied in the economics literature (Nalebuff, 2003; Evans, 2005), applied in the context of mergers and other competition cases, and recognised by the European Commission in its guidelines on the assessment of non-horizontal mergers (2008).

## 3.2 Self-preferencing

A firm promoting or favouring its own (or affiliated) products and services over those of competitors can improve consumer outcomes by: (i) promoting greater quality and trust; and (ii) facilitating greater user discovery and improved choices through ranking and prominence, as further explained below.

### 3.2.1 Preferential access for quality and security

One way in which firms deliver efficiencies is through practices that preserve and improve quality and trust. In some cases, this may mean a platform restricting access in order to retain a degree of control over core activities, in order to promote positive interactions among users. Using the Strahilovetz (2006) framework for property rights, Evans (2011) calls this 'the bouncer's right' to admit or exclude selectively.

Preferential behaviour is observed in numerous offline environments, such as food franchising and the sale of luxury branded goods. For example, franchisors often impose provisions on franchisees in order to uphold the reputation and identity of the brand. Franchisees are typically required to commit to certain hygiene standards, buy ingredients only from the franchisor or approved suppliers, and decorate their restaurant according to the franchisor's instructions.[21] In the same way, suppliers of luxury goods often impose certain quality criteria on retailers in order for them to be authorised distributors, such as requiring them to be located in a high-end shopping area and specifying how and where the products are displayed. These requirements ensure that low-quality distributors do not damage the brand's 'luxury' image, which is an important part of the product experience for consumers.

Selective distribution networks can also contribute to consumer welfare by acting as a filter to help consumers distinguish between different quality levels among brands. In the *Pierre Fabre* case, the European Court of Justice (ECJ) confirmed that this behaviour is compatible with EU competition law so long as it is non-discriminatory and does not go beyond what is necessary to 'preserve its quality and ensure its proper use'.[22]

Similarly, in the online world, platforms create value by actively managing the access to their core infrastructure. This includes setting rules and standards or applying detection and penalties for undesired behaviour by the users of the platform. These ensure that defective products or undesired services are not available on their platform and that problematic suppliers are excluded. Platforms may also prevent services that would compromise user security, upholding the platform's reputation. This is particularly important when consumers are unable to distinguish between the quality of different products. Protecting the platform's quality and ensuring the creation of positive network effects in this way can also serve to foster competition *on* the platform, attracting additional suppliers that can be confident that their brands will not be harmed by association.

Boudreau and Hagiu (2008) show that platforms can be fraught with market failures if the platform itself does not intervene in some scenarios. While business users generally benefit from a platform having a reputation for quality (as this attracts more consumers), an individual business may have the unilateral incentive to offer cheaper, low-quality services in order to undercut their high-quality competitors—in other words, it may free-ride on the platform's reputation for quality without accounting for the negative externality it imposes on the platform ecosystem. In this context, platforms have an important governance role, in that they can aim to exclude low-quality business users (or other contributors) in order to uphold the reputation of their service, reduce

[21] See Van der Laan, K. (2020), 'Franchising in EU Competition Law', *Lexology*, 31 July.
[22] Judgment of the Court (Third Chamber) of 13 Octoberr 2011 (reference for a preliminary ruling under Article 234 EC from the cour d'appel de Paris –France–)—Pierre Fabre Dermo-Cosmétique SAS v Président de l'Autorité de la concurrence, Ministre de l'Économie, de l'Industrie et de l'Emploi, (Case C-439/09), accessed on 31 March 2021.

negative network effects, and increase the long-term benefits to both business users and consumers. Platforms can achieve this in a variety of ways.

- First, they can set ecosystem rules that govern what third parties can and cannot do. The platform may take an active role in moderation to remove products or content that violate these rules.
- Second, they can regulate the levels of access that third parties have to their platform. For example, an operating system may prevent third-party developers from directly accessing specific pieces of hardware (e.g. a fingerprint scanner).
- Third, they may choose to provide preferential treatment to their own services if these represent a more efficient way of meeting customer demand, or if they consider their competitors' services to be lower quality or less secure.

Platforms may also need to set the rules in their environment in order to protect users. For example, where the core platform service is an operating system, the privacy and security of end-users may be particularly important. Smartphones (and other smart devices) can be a source of personal data, including locations, biometrics, health, and purchase histories. There are many valuable uses for such data, such as to improve mapping services, provide identification, or facilitate payments.

Nevertheless, platform operators may need to take certain precautions to ensure that this data is processed and stored in an appropriate way. Providing too much access to developers may lead to data breaches, damaging the trust and security of the operating system, while too little access may prevent developers from creating new and innovative products. Platforms have a strong incentive to strike the correct balance in order to provide the most benefit to their users (Evans and Gawer, 2016).

Similarly, platform operators may wish to restrict the ability of third parties to introduce changes that reduce the overall quality of the platform or ecosystem. Recognising the importance of platform governance in preventing low-quality or harmful third-party services, Evans (2011) argues that:

> [governance systems] are clearly necessary for dealing with negative externalities, and can increase consumer welfare.

One example of how uncoordinated access led to a worse user experience was the sale of Windows computers with excessive 'clutter' from third-party software in the early 2000s. Microsoft licensed the Windows OS to original equipment manufacturers (OEMs—e.g. Dell, HP, and Sony) who were then able to modify the Windows interface by installing icons, menu entries, and shortcuts for non-Microsoft software. Since these were generating a new stream of income for OEMs, they were incentivised to add more software.[23] However, some users perceived this as excessive clutter, and the practice was linked to slower computer performance, likely worsening the user experience and potentially eroding the reputation of Microsoft's OS ecosystem.[24,]

[23] Both Sony and HP have publicly confirmed these kinds of financial arrangements with software providers. See: Kim Peterson (2006), 'Computer makers cut down on desktop clutter', Seattle Times, November 19; Mossberg, W.S. (2007), 'Using Even New PCs Is Ruined by a Tangle Of Trial Programs, Ads', *Wall Street Journal*, 15 April.
[24] See Mossberg, W.S. (2007), 'Using Even New PCs Is Ruined by a Tangle Of Trial Programs, Ads', *Wall Street Journal*, April 15.

In contrast, Apple's approach of maintaining end-to-end control over both the hardware and software supplied with their products allow them to ensure a high-quality 'out-of-the-box' experience for users. Furthermore, the quality-control processes governing both the Mac OS and iOS App Stores can help boost users' trust in any third-party apps that they choose to install, knowing that they have been reviewed to ensure they are reliable, perform as expected, respect user privacy, and are free of objectionable content (Claici et. al., p.67).

A similar dynamic plagued the early video games market, with the prevalence of low-quality games eroding consumer trust. After Atari popularised games consoles in the 1970s, it soon faced competition from many smaller console providers. The widespread availability of these consoles spurred on a large number of third-party game developers, who needed no authorisation from the console providers to bring games to market. This resulted in low-quality games becoming prevalent in the market (Boudreau and Hagiu, 2008). Since consumers could not distinguish between the quality of the games before purchasing them, this became a 'market for lemons', which led to decreased consumer confidence and rapid decline of the console market.[25] In response, when Nintendo launched its console in 1983 in Japan and 1985 in the USA, it imposed restrictions on game developers to produce no more than five games per year, requiring that they are verified and approved before release in order to keep quality high and boost consumer trust in its ecosystem.[26] These changes have been instrumental in the success of Nintendo and for renewed consumer confidence in the console market overall (Ernkvist, 2008).

### 3.2.2 Ranking and prominence

Each consumer has different preferences in terms of the products, services, and information that they want or need. In their role as intermediaries, platforms help with this by bringing together a range of potential providers for consumers to choose from; however, in their role as aggregators, they offer additional value by promoting the most relevant content for users through ranking and prominence, thereby generating high-quality matches.

Absent any guidance from platforms, consumers presented with an unordered list of all products available on a platform could suffer from information overload (Anderson and de Palma, 2009; Kennes and Schiff, 2007). To mitigate this, platforms typically include processes to reduce the number of options displayed to users, streamlining the experience of discovery and purchase. For example, Dinerstein et al. (2018) analysed a change in eBay's platform design that showed users fewer listings. The authors found that search frictions were reduced, consumers were better guided to the products that they desired most, and that sellers' incentives to lower prices were increased.

In general, platforms have a strong incentive to direct consumers towards the highest-quality or most relevant products or services, generating more matches between the different sides of the market (Boudreau and Hagiu, 2008). This is needed in order to uphold the platform's reputation and maximise the user base on all sides. Moreover, this is compatible with the platform's monetisation

[25] See discussions in Ernkvist, M. (2008), 'Down Many Times, But Still Playing the Game: Creative Destruction and Industry Crashes in the Early Video Game Industry 1971-1986', *History of Insolvency and Bankruptcy*, January; and Ward, C. (2019), 'Science Behind the Fiction: How Nintendo Saved and Redefined the Game Industry', *SyFyWire*, 5 June.
[26] Cennamo, C. and Santaló, J. (2015), 'How to Avoid Platform Traps', *MIT Sloan management Review*, **57**, pp. 12–15; McFerran, D. (2019), 'Talking Point: What Does The Nintendo Seal Of Quality Mean In 2019?', Nintendolife, 6 February.

incentives, given that its revenues depend largely on the benefits derived by facilitating user interactions (Rochet and Tirole, 2006; Armstrong, 2006).

Often it is not sufficient to simply rank products according to popularity or star rating; platforms may want to promote products that consumers are largely unaware of, which will encourage adoption of new and innovative products. For example, it may be efficient for a platform to recommend a less well-known or new variety of a product with superior characteristics when people might not be aware of it yet. Furthermore, Hagiu and Wright (2020) show that this can be beneficial for consumer welfare in the long run, as exploration helps to fine-tune algorithmic recommendations.

In cases where the aggregator platform is a dual-mode operator, the incentives to generate quality matches for consumers remain strong. Like many of the fundamental characteristics of digital platforms, dual-mode structures are neither new nor specific to the online work. Indeed, while concerns have been raised about potential anti-competitive self-preferencing by dual-mode digital platforms, their incentives remain fundamentally similar to those of vertically integrated dual-mode firms in the offline world.

In this context, the prevalence of private-label products in supermarkets, which have co-existed with branded products for more than 70 years, is a notable example of self-preferencing (see Box 3.1). Much like platforms, supermarkets have an incentive to ensure that consumers use them repeatedly, which in turn means that they have an incentive to pursue self-preferencing of their own brands insofar as it aligns with consumer preferences.

### Box 3.1 Case study: private labels

A private-label (or 'own-brand') product is one that is developed, branded, and marketed either with the name of a retailer or a separate name controlled by the retailer. In the 'offline' world, many supermarkets (as well as other retailers, such as DIY centres, clothing retailers, and perfume retailers) offer private-label versions of popular products.

According to the 2020 Private Label Yearbook, private-label products represent a significant share of the total volumes sold by supermarkets, varying between 22% and 50% across a selection of European countries (see Figure 3.2).[1] This share has been increasing in most European countries. This shows how private labels can successfully coexist alongside branded products, sometimes offering a better match to consumers' preferences on quality and price; meanwhile, retailers can contribute to increased innovation by offering new products in 'white spaces' to address unmet demand.

Private-label products can be beneficial to consumers through three effects:

- lower prices;
- increased variety;
- more innovation.

Historically, the affordability of private-label products has been one of the main reasons that consumers opt for this option. Empirical research found that private-label prices differ between countries and can be up to 40% cheaper than the equivalent national brand.[2]

Consumers can also benefit from lower prices without reducing quality when the retailer passes on the efficiencies achieved through vertical integration.[3] In particular, a supermarket that introduces own-brand products avoids the problem of having two different firms in the supply chain adding a mark-up to the product (in economics, this is known as the 'double marginalisation problem'). In addition, the supermarket can also achieve cost savings due to being in a stronger bargaining position when negotiating for large quantities of a product with manufacturers. A supermarket may also be able invest less in the promotion of the products because consumers extend their trust and perception of the supermarket towards their branded products.[4]

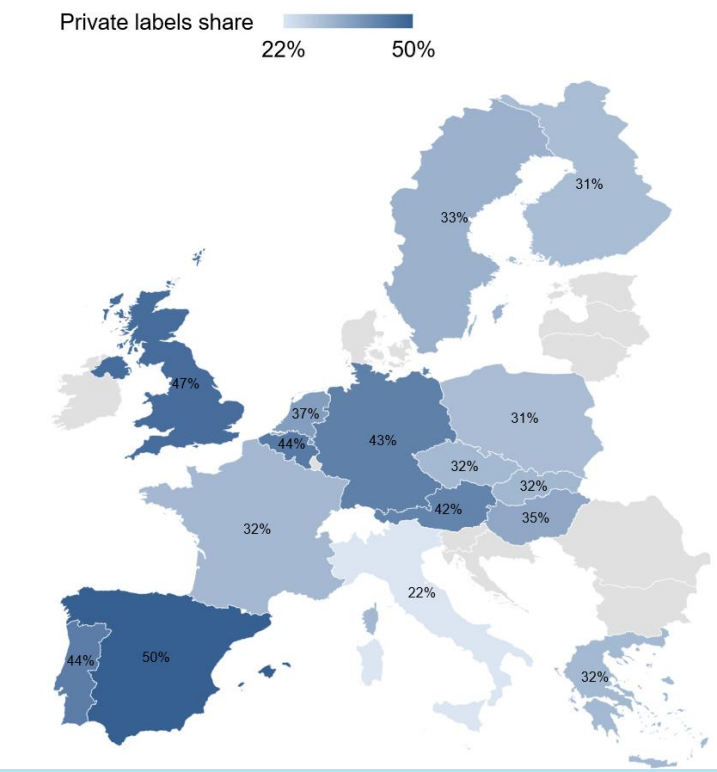
These efficiencies can result in a win-win for the consumers and the supermarkets. Tibboldo et al. (2021) conducted an empirical study of the yoghurt market in Italy, finding that private-label products were:

> …social-welfare enhancing, playing a procompetitive role that benefits consumers.

A similar result was found by Cohen and Cotterill (2011) in the Boston milk market. Moreover, the Tibboldo et al. (2021) study also indicated that lower prices have also been found to expand a product's market because they attract consumers that would otherwise not have made a purchase.

Since the introduction of private-label products at the start of the twentieth century, they have contributed to increased variety by rivalling national brands and also by evolving from representing the cheap, budget option to a more complex range of products at different price points, addressing evolving consumer demands and expectations.[5, 6] Consumers can benefit from increased variety of products both in-store and between stores, as private-label products offer supermarkets another dimension for differentiation when competing for the same consumers.[7] While there is the risk that private-label products can crowd out other products, a large proportion of customers do prefer having access to (some) branded products, making it unlikely that supermarkets would cease offering other brands as well. This has been a constraint for even the largest discounters that trade mainly private-label products, such as Lidl or Aldi (see section 4.2 for a more detailed discussion of their business model).

**Figure 3.2 Private label share in supermarkets in 2020 (%)**




Source: PLMA 2020 International Yearbook based on Nielsen data.

Supermarkets have access to a wide range of transaction data about customer purchases. This aggregate information can be used to identify unaddressed demand or gaps in the market (also called 'white space'). Through private labels, retailers have contributed to innovation through the introduction of organic foods or allergy-free products.[8] In a 2016 DG COMP analysis of retail across a number of EU member states, it was found that around 20–35% of retail innovation was launched by private labels, and that these were more often new products as opposed to range expansions, new packaging, new formulations, or relaunches by brands. After accounting for the shelf space, private labels appeared to be equally or more innovative than other brands.[9]

Notes: [1] Private Label Manufacturers Association, available at: https://www.plmainternational.com/yearbook, accessed on 31 March 2021.
[2] IRI statistics (2018), 'Private label price level in Europe 2018, by country', available through Statista at: https://www.statista.com/statistics/383455/private-label-price-level-by-european-countries/, accessed on 31 March 2021.

[3] Nielson (2018), 'The Rise and Rise again of Private Label'.
[4] Oxera (2010), 'The economic benefits of retailer own-brands', prepared for the European Retail Round Table, September.
[5] Paine, L. (2010), 'The evolution of private labels at retail', Retail Customer Experience, 2 March.
[6] Symphony IRI Group (2011), 'Retail Private Label Brands in Europe: Current and Emerging Trends', December.
[7] European Commission (2014), 'The economic impact of modern retail on choice and innovation in the EU food sector', November.
[8] See Symphony IRI Group (2011), Nielson (2018) (referenced above), and Nunes, K. (2014), 'Organic, natural gaining ground in private label', Food Business News, 20 October.
[9] European Commission (2016), 'Retail study follow up presentation', accessed 12 April 2021.

Source: Oxera.

### 3.3 Leverage

Data provides firms in general—and platforms in particular—with substantial opportunities to create value. In particular, aggregators leverage the data at their disposal to improve their decision-making processes, to deliver efficient matching to users, and create other efficiencies.

The literature documents the value created by better matching through data-based personalisation. Constantiou and Kallinikos (2015) make the general point that data gathered from consumers' actual choices can be used to improve customer segmentation. This is used to recommend goods and services, or even other people (in the case of dating apps such as Tinder), based on the information that a company has and the insights that it can derive from that information. Chen, Chiang and Storey (2012, p. 1,167) make a similar observation about the way that data can be collected from users' clickstreams, leading to improvements in product recommendations, while Schreieck, Wiesche and Kremar (2016) highlight that the more data a firm has, the more targeted its advertising services can be. This creates value for advertisers (who can reach the most relevant consumers in a cost-effective manner) and users (who see the most relevant ads for them).

This personalisation is more efficient when data from multiple sources is combined to create a more robust description of user preferences. Hagiu and Wright (2020) define this as 'within-user learning' because data about a consumer is used to create value for them. For example, Netflix leverages its data to improve the quality and efficiency of its matches. Its content library can include more than 6,000 titles of movies and TV shows—which presents viewers with the difficult task of choosing what to watch next.[27] *Wired* has reported that a person sees around 40 or 50 titles before deciding on one to watch.[28]

To solve this issue, Netflix uses information about its users' preferences, their viewing habits, and how they interact with the content (such as when they pause, how long it takes to finish a season of a show, or what they watch next) to feed its analytics software and recommendations engine. This can be used to generate millions of different versions of the Netflix front page, according to what is predicted to be a good match for the specific user.[29] Consumers value this personalisation service, with 75% of users selecting content based on the recommendations that they received.[30] Many other online content services

[27] Moody, R. (2021), 'Which countries pay the most and least for Netflix?', Comparitech, 5 March.
[28] Burgess, M. (2018) 'This is how Netflix's secret recommendation system works', *Wired*, 18 August.
[29] Carr, D. (2013), 'Giving Viewers What They Want', *New York Times*, 24 February.
[30] This statistic is based on information from 2012 as we could not identify more up-to-date analysis. See Harris, D. (2012) 'Netflix analyzes a lot of data about your viewing habits', *GigaOM*, available at https://gigaom.com/2012/06/14/netflix-analyzes-a-lot-of-data-about-your-viewing-habits/, 14 June.

(e.g. Spotify, TikTok) use machine learning in a similar way, helping users to find the most relevant content among the wide range of options available.

Data can also be used by aggregators to improve efficiency in supply. For example, marketplace platforms can use aggregated data to help sellers better forecast demand for the products or services being exchanged on the platform. This can help sellers to avoid stock shortages, but also benefits consumers by ensuring that their demands are met.

In a recent paper, Bajari et. al. (2019), found that availability of longer historical data improved forecasting of demand. For example, Amazon's logistics capabilities may depend on analysing data from across third-party businesses in order to predict demand and ensure that items remain in stock. Restricting access to this data could have a negative effect on Amazon's ability to run efficient logistics operations, which in turn could affect suppliers and ultimately customers (Erevelles et al., 2016, and Ritson, 2014).

The use of data to personalise offers and improve the matching of businesses with consumers is not a new phenomenon—nor is it unique to online services. Below, we discuss charities using data about donors to optimise their funding campaigns, and credit reference agencies aggregating data from a variety of sources to better reduce asymmetries of information when assessing risk and mitigating fraud.

Fundraising campaigns are an important part of the activities undertaken by charity organisations. To improve their efficiency, these organisations often leverage their data to personalise their communications. This is especially important when targeting donations from prior donors, as research has revealed that past donation behaviour is an important indicator of future behaviour.[31] Moreover, data can also be used to inform potential donors about the social norms in their area. Previous analysis of fundraising campaigns revealed that the behaviour of prospective donors can be positively influenced by aggregate information about the contributions of other people in their neighbourhood or region (Agerström et. al., 2016).

Credit reference agencies (CRA) are another example of firms using and aggregating data from a range of different sources to generate value.[32] CRAs use data drawn from various contributors (e.g. lenders, telecom firms, and utility firms) and public records (e.g. electoral registries, court judgements, debt relief orders and bankruptcies). They then match data across all these different datasets to build a financial profile of a consumer, which is known as a 'credit report' or 'credit file'. This matching process can be difficult, as consumers can use different names and addresses over time.

Using this aggregated data, CRAs can provide credit information (e.g. credit scores and income/identity verification) to firms and consumers. Other firms, such as lenders, can use this credit information to verify the identity of new customers and to assess their creditworthiness, reducing the informational asymmetries that can prevent them from offering services to certain groups of consumers.[33] Consumers can also view their credit scores and check their eligibility for financial products, understand why they may have been refused

[31] See Stein, C. (2016), '5 Steps to Target Donors for Year-End Fundraising Success', *Nonprofit Hub*, 17 August.
[32] See Financial Conduct Authority (2019), 'Credit Information Market Study: Terms of Reference', Section 3, accessed on 31 March 2021.
[33] See Financial Conduct Authority (2019), 'Credit Information Market Study: Terms of Reference', paragraph 3.9.

credit previously, and understand how they can improve their credit score in the future.[34]

Providing this credit information can generate value for firms and consumers by improving the ability of lenders to verify the identities of potential customers and mitigate against fraud. It can also inform assessments of credit risk and affordability, which can help lenders to better assess the risk of default and determine the total amount of credit offered, as well as helping customers to access credit and avoid over-indebtedness (see, for example, Bennardo et al., 2015).

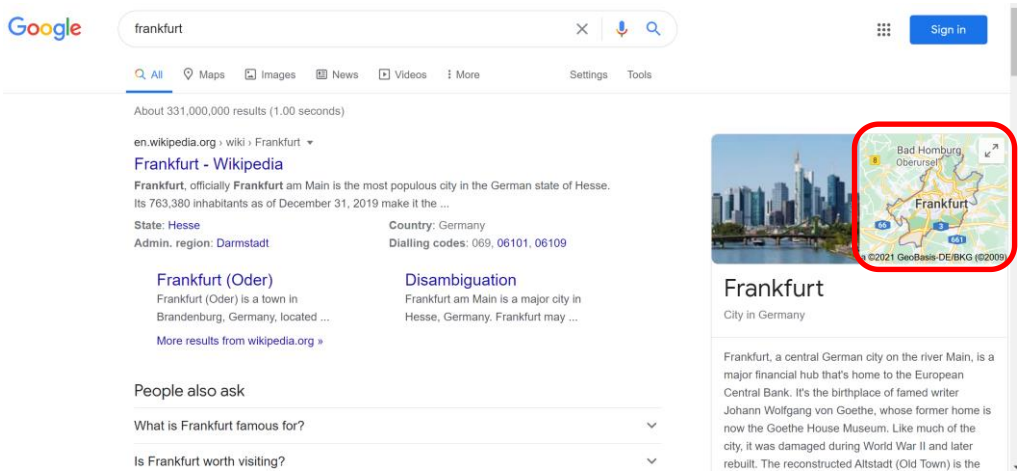
## 3.4 Case study: Google Maps

This section examines how bundling and tying, self-preferencing, and data-leveraging practices each contributed to the launch and development of Google Maps, resulting in considerable aggregation benefits to consumers.

### 3.4.1 Benefits from bundling and tying

When Google Maps was integrated into the general Google Search results page, it led to a richer user experience by providing interactive maps and related information in an improved interface for queries where a graphical map result would be relevant (see Figure 3.3). For example, when searching for a 'bike repair shop', users can instantly visualise which of the relevant businesses in the area are open at a convenient time, and can easily compare different shops.

**Figure 3.3 The prominent position of Google Maps in search results**




Note: This screenshot is from 2021. The position of the map thumbnail has changed over time.

Similarly, the integration of review and comments into Google Maps was another bundling practice that generated considerable value as it made information more accessible to users. When the description of a certain location is complemented by personal experiences from previous users, information asymmetries between businesses and potential customers are reduced and better matches can emerge. In addition to providing additional information to users, the review and comments functionality can also contribute to a safer online environment, as scams and fake businesses are flagged to future users who intend to visit a certain location. More transparency can also

[34] See, for instance, Experian's website, https://www.experian.co.uk/consumer/guides.html, accessed 25 March 2021.

induce pro-competitive effects as businesses compete to attract more informed consumers.

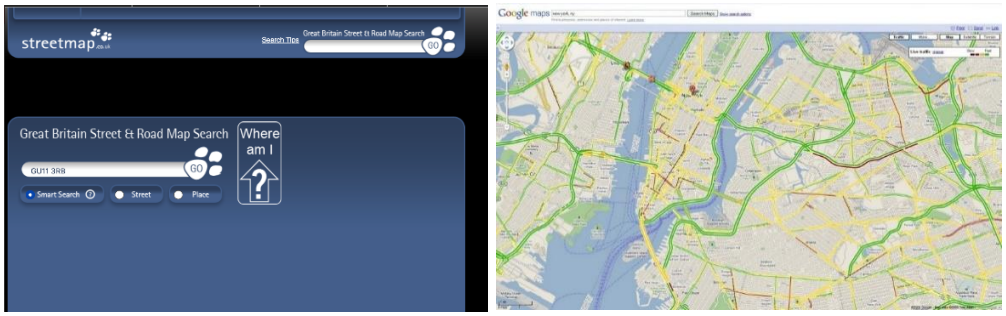
Google Maps also provides app developers the tools to bundle mapping services in their apps and websites through an application programming interface (API). This enables relatively quick and cheap development for a range of online services, which helps third parties to generate value for users (see also section 4.1.2). For example, estate agents, ride-hailing apps and food-delivery services have all used the Google Maps API.

### 3.4.2 Benefits from self-preferencing

When Google Maps was introduced in 2004, it represented a step change in the quality of digital maps. It provided users with an improved experience that displayed an actual map on the homepage, instead of the 'blue links' that were common among competitors at the time. Google was also the first to introduce interactive maps or natural language searching, illustrated by screenshots of Google Maps and Streetmap from the relevant period as shown in Figure 3.4.

In the context of the 2016 *Streetmap.eu Ltd vs Google Inc. & Ors* case, the UK High Court found that Google used its own maps because other mapping providers were significantly lagging behind in terms of quality. The High Court also found there to be benefits and efficiencies from deeper cross-product integration that explained why Google may prefer to use its own mapping in search results. Google would have also faced significant practical barriers to displaying third-party maps due to latency and differing interpretations of search terms.[35]

**Figure 3.4 The prominent position of Google Maps in search results**




Source: Github and the Car Connection.

Google further explained that since both Google Search and Google Maps' business listings are informed by web crawling, displaying them together generates productive efficiencies and ensures consistency while delivering a higher quality outcome for users.[36] This enhances the visibility of local business and helps users to find what they are interested in more quickly.

### 3.4.3 Benefits from leveraging

Additional value is also created for users in Google's ecosystem when data from across multiple services is leveraged to personalise and optimise these services. In this regard, Google Maps contributes to personalisation of suggestions based on the combination of a user's location, location histories,

[35] Ibid., paras 163–176.
[36] Information from Google states that both search data and mapping data is informed by web crawling. For search, see: https://developers.google.com/search/docs/basics/how-search-works; for mapping, see: https://support.google.com/business/answer/2721884.

real-time traffic updates from Android users more widely, and a history of comments and reviews.

At the same time, the mapping services are optimised based on the analysis of other data sources, such as live information on arrival times and delays from public transport authorities or the frequency of search queries and reviews from shops, restaurants, and other locations.

# 4 Value from innovation and dynamic competition

In this section, we examine the role of platforms as innovators, asking how the same practices discussed in section 3 (bundling and tying, self-preferencing and leveraging) can help platforms to create value for their users through innovation and promotion of dynamic competition more broadly. Specifically, we explore:

- how bundling and tying products and services can incentivise innovation *by* platforms, as well as enabling third parties to innovate *on* platforms;
- how self-preferencing can enable innovative business models and incentivise investment;
- how platforms can leverage their data and know-how to build innovate products and spur dynamic competition.

We present a short case study on Apple Silicon, examining how each of these practices have helped Apple to re-enter the microprocessor market with an innovative design, and how this has delivered benefits to consumers.

In the wider context of the economics of innovation, the process of creating new and innovative products is typically associated with considerable risk, with history showing that many (or even most) innovation attempts are unsuccessful. For example, evidence shows that over 50% of new businesses in Europe fail within their first three years. This includes a number of initiatives by large technology companies.[37] At the same time, a handful of new products and firms can transform the market through disruptive innovation, successfully challenging the incumbents and moving the market to a new equilibrium. This disruptive innovation is often referred to as dynamic (or Schumpeterian) competition.

The economics literature on innovation also provides insight into the innovation incentives faced by different market players. Models of competition between incumbents and entrants tend to show that incumbents have strong incentives to pursue incremental innovations that build upon existing products or processes, allowing them to increase sales and profits over their existing volumes.[38] In contrast, potential entrants, lacking a large base of existing sales in the relevant market, have stronger incentives to pursue disruptive innovations that will make current products and production processes obsolete (Christensen, 2013; Acemoglu and Cao, 2015; Cabral, 2018). Similarly, large technology firms can compete by entering each other's core markets, leading to a process of dynamic competition. For example, LinkedIn began competing with Monster.com when it began to offer job advertisements and the related matching functionality on its platform.

## 4.1 Bundling and tying

Bundling and tying can improve consumer outcomes by helping platforms to introduce innovative new products. As noted by Baldwin and Woodward (2009), platforms often adapt to a changing world by introducing complementary additions to their core service (i.e. innovations *by* the platform). We discuss this in section 4.1.1. Platforms can also use bundling and tying to

[37] Business failure rates are based on Eurostat data of EU-28 countries compiled by Statista, available at: https://www.statista.com/statistics/1114070/eu-business-survival-rates-by-country-2017/. A number of initiatives by Google (such as Google Glass, Google+) have also failed as have initiatives by Amazon (e.g. Amazon Fire Phone). For a full list of Google initiatives that were unsuccessful see https://gcemetery.co/.
[38] See Oxera (2021) for a comprehensive discussion of these incentives.

enable and encourage third-party innovation (innovation *on* the platform). We discuss this in section 4.1.2. In section 4.1.3, we discuss how the mandated unbundling of telecommunication services in Europe may have slowed investment in the latest high-speed broadband technologies, compared to the case in Asia and the USA.

### 4.1.1 Bundling and tying for innovation by the platform

Bundling and tying practices can promote innovation by firms in both online and offline markets. The platform management literature describes the strong incentives that a platform typically has to continuously introduce new features in order to maintain user engagement with its ecosystem. Cennamo (2019) explains:

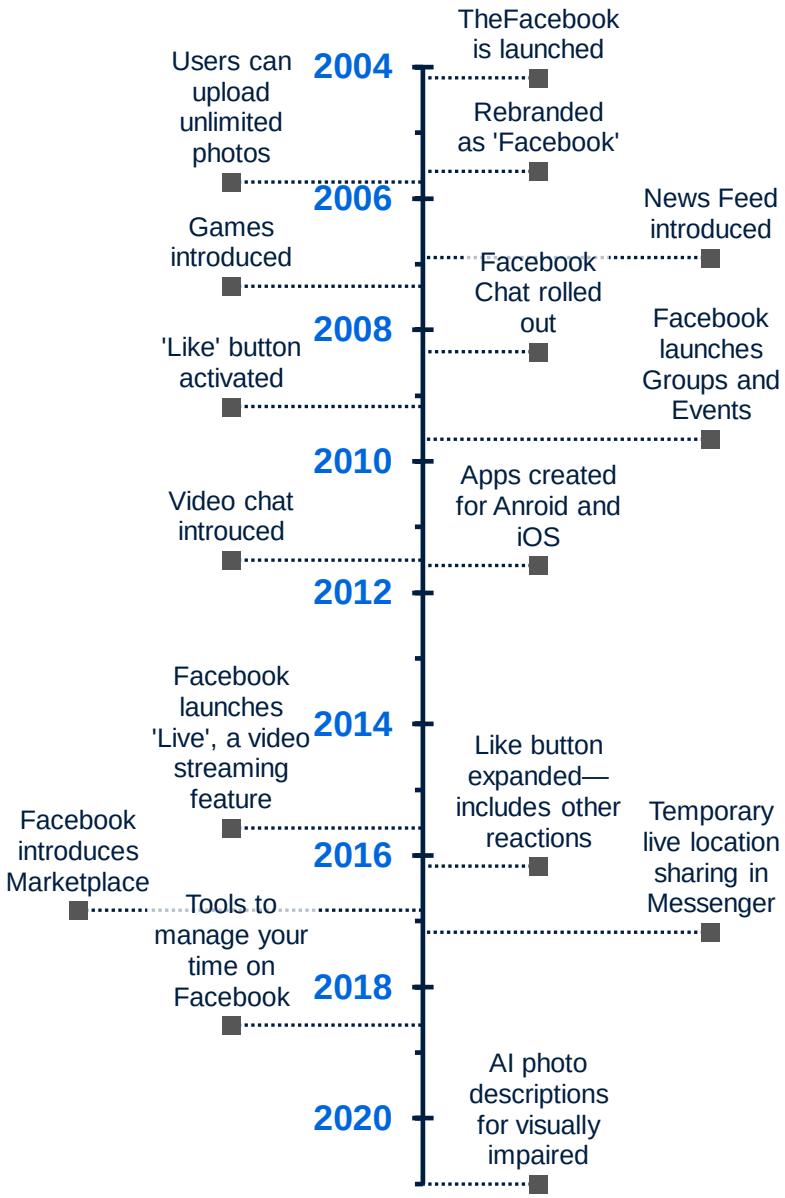
> Platforms evolve over time as a result of the actions they take to continuously create greater value for their users and to respond to platform competition.

An illustration of this is the ever-expanding set of complementary features that Facebook bundles into a single, core platform to support social interaction (as discussed in section 3.1).[39] Figure 4.1 sets out a timeline of these innovations on the Facebook platform, including the introduction of now familiar features such as Photos, the News Feed, Chat (now Messenger), Events, Groups, Marketplace, Gaming, and Live.

Facebook has also made many smaller, incremental innovations around these new services, such as 'read' receipts and video-calling functionalities for Facebook Chat (now Messenger),[40] as well as the introduction of the 'like' button as a simple way for users to let friends know that they enjoyed a photo or post. The like button later evolved to allow users to easily express a range of other emotions (such as love, happiness, anger, and sadness).[41]

[39] Here we refer to the features available on facebook.com (i.e. the social networking site), as opposed to the variety of products and services available via Facebook, Inc. (which also owns Instagram, WhatsApp, Portal, Oculus, and several other media and technology brands).
[40] See Kopytoff, V.G. (2011), 'Facebook Offers Video Chat in Arrangement With Skype', *New York Times*, 6 July.
[41] See Kincaid, J. (2009), 'Facebook Activates "Like" Button; FriendFeed Tires Of Sincere Flattery', *TechCrunch*, 10 February..

**Figure 4.1 Timeline of selected Facebook design features**




Source: Oxera.

### 4.1.2 Bundling and tying to facilitate third-party innovation

Platforms operators may also design their core services in such a way as to allow third-party developers to interoperate with the platform ecosystem—for example, by building apps. Parker, Van Alstyne and Jiang (2016) describe such a platform as an ‘inverted firm’, characterised by a large and active external developer community (see Box 4.1). These platforms may find it advantageous to tie a number of developer tools into their ecosystem in order to encourage and facilitate innovation by third parties. Parker et al. (2016) describe this approach as ‘platform evangelism’, encouraging external developers to operate on their platform and providing tools and guidance to those who do.

The advantage of this approach is that a multitude of third-party developers in competition with each other are more able to adapt to user preferences and create innovate apps. A higher number of developers gives platforms greater chances of success, in particular for high-risk or niche products. Through this business model innovation, platforms are not limited by the processes of hiring, training, project selection, or coordination. Bill Joy, founder of Sun Microsystems, explained this concept in simple terms when he said: 'Not all smart people work for you' (cited in Baldwin and Woodard, 2009).

**Box 4.1 Platforms as inverted firms**

Parker, Van Alstyne and Jiang (2016) explain how platforms can be considered to be orchestrators of a micro-economy comprising users, business partners, external developers, and internal contributors. The platform chooses an optimal level of openness to maximise growth, depending on factors such as the number of external developers, their value-add, the presence and strength of network effects, and the level of risk involved with granting third-party access.

Allowing third parties to develop new functionality in this way can lead to an 'inverted' firm, with the nexus of innovation and value creation shifting from inside the firm to outside. Allowing users and developers greater freedom to adapt the way that they use a service relieves the platform of the full burden of developing new innovations in-house, as is the case for a vertically integrated model.

Source: Oxera.

This kind of 'platform evangelism' is evident in Google's strategy of tying developer tools into its Android ecosystem and providing technological support for a wide community of developers. Google makes a range of tools available, including: learning materials through the Play Academy to help developers get an app off the ground; marketing tools (such as A/B testing); and access to relevant performance and benchmarking metrics.[42] These tools are particularly useful to smaller app developers that lack the internal resources to support their scaling-up efforts.

Moreover, Google provides and maintains a level of standardisation and security within the Android ecosystem that frees developers from having to reinvent the wheel for every application (Oxera, 2018). For example, Android's in-built fingerprint authentication allows app developers to provide secure apps without needing to develop custom security measures. Similarly, Google Pay makes it easy for any app developer to accept in-app payments using a system that users already know and trust. In this way, Google facilitates and fosters innovation by third-party users in the Android ecosystem.

### 4.1.3 A cautionary tale: mandated unbundling in telecoms

Companies tend to have stronger incentives to invest and innovate when their products are more closely integrated or bundled, as this makes them better able to share in the value of those innovations (Nalebuff, 2003).The inverse is also true, if, for example, regulation requires firms to *unbundle* certain products or services. This means that innovation and investment may suffer.

The past two decades of telecoms regulation in Europe illustrate this effect. In a 25-year retrospective analysis of the European telecoms regulatory framework, Cave, Genakos and Valletti (2019) noted that notwithstanding the fact that telecoms markets represent one of the success stories of EU policymaking, the European telecoms sector is not at the forefront of technology development, or of technology adoption: it lags behind the leading

[42] For more details on the support tools available to developers see: Samat, S. (2021), 'Boosting developer success on Google Play', Android Developers Blog, 16 March.

Asian countries and the USA when it comes to the latest and fastest Next Generation Access networks.

One of the main reasons cited by the authors for this lag was the focus on wholesale access remedies as the main policy tool to encourage competition in the sector. This remedy requires incumbent network providers to provide *unbundled* access to their infrastructure for downstream competitors.

This experience is relevant in the context of the DMA because the intention of the regulatory framework in telecoms was to facilitate the entry and growth of competitors that could climb the 'ladder of investment' and become fully fledged infrastructure-based operators. However, Cave, Genakos and Valletti note that while this regulatory approach maximised short-run *static* efficiencies (i.e. the value for consumers of the existing infrastructure), it failed to incentivise the kind of *dynamic* competition that leads to investments in the next generation of infrastructure and services. Similar conclusions were reached by Briglauer et. al. (2017), who examined the theoretical and empirical literature in more detail.

Cave, Genakos and Valletti (2019) also contrasted the regulatory approaches to fibre networks in Germany and the UK with those in France, Spain, and Portugal. Regulators in Germany and the UK mandated access to fibre at an 'active' layer, meaning that downstream competitors were granted access to the fibre cables, as well as certain managed services. In contrast, in France, Spain, and Portugal, the focus was on access at a 'passive' layer, meaning that downstream competitors had to invest in their own fibre and active electronic equipment. As a result, infrastructure competition and fibre penetration took off much more quickly in France, Spain and Portugal. Following concerns about the slow fibre network roll-out, the UK eventually adopted a similar approach.

Overall, the European telecoms regulatory experience illustrates that an excessive focus on mandated unbundling and static efficiencies can come at the expense of investment incentives and dynamic efficiencies. In sectors characterised by rapid technological innovation, this can result in consumers failing to benefit fully from the latest technologies.

### 4.2 Self-preferencing

Self-preferencing by online and offline companies often benefits consumers by promoting dynamic competition in the market. In section 4.2.1, we show how self-preferencing can lead to greater consumer choice *between* different types of ecosystems; in section 4.2.2, we consider how it can underpin disruptive business models.

#### 4.2.1 Self-preferencing in innovative products

A platform can play a role in boosting dynamic competition by giving itself preferential access to a core technology. It can do this by enabling *inter-ecosystem* choice and competition between (more) open and (more) closed ecosystems. Some consumers may prefer a more open ecosystem that offers a greater choice of service providers, while others may prefer a more closed or regulated ecosystem (i.e. one in which the platform grants itself or its affiliates preferential access to certain features). A consumer might prefer a closed ecosystem if it has certain characteristics that they value, such as greater integration, convenience, standardisation, or privacy.

For example, Apple Pay is the only tap-and-go digital wallet available on iPhones and other Apple devices. In contrast, Android devices are open to a range of digital wallet providers, with the most popular being Google Pay and Samsung Pay. While all these digital wallets use near-field communication (NFC) technology to interact with card readers, their other technological aspects differ. Apple uses a local Secure Element chip within its hardware to store a user's payment information and encrypt the information that is sent to card readers.[43] In contrast, Android adopts a cloud-based approach, using Host Card Emulation (HCE) technology to store payment details in a remote server rather than a dedicated chip.[44]

Apple's closed approach has raised concerns among regulators that this could deny consumers choice and limit competition.[45] However, Apple has explicitly stated that its reason for preventing third-party tap-and-go wallets is to ensure privacy and security for its users.[46]

This example demonstrates that different approaches offer advantages and disadvantages for consumers. Some will favour Apple's approach of keeping their payment information on their device, while others will prefer the greater choice of tap-and-go wallets in the Android ecosystem, enabled by storing data in the cloud. As such, where a platform (such as Apple, in this case) can engage in self-preferencing to further differentiate its product from competitors, consumers ultimately have a greater choice of ecosystems and more dynamic competition.

### 4.2.2 Self-preferencing for innovative business models

It is also useful to look at examples of offline businesses in the context of self-preferencing. For instance, the example of discounter supermarkets shows how an innovative business model based on the self-preferencing of own-brand products can deliver dynamic competition and disrupt activity in a sector.

Specifically, retailers such as Aldi and Lidl have disrupted the grocery market by offering customers better value for money, enabled by preferring own-brand products in their stores and introducing innovations along the supply chain. They focus on a smaller range of around 2,000 different products, which simplifies consumer choice in contrast to the average supermarket—which carries more than 10 times as many products.[47]

Aldi and Lidl closely control the quality of their products and are able to introduce innovations in how they are manufactured, packaged (such as placing multiple barcodes for easy scanning, or using ready-to-display cartons and crates), and transported in order to fit a specific store format that is designed for efficiency.[48] In this way, the products are ready to be displayed on

[43] See Apple (2021), 'Apple Pay security and privacy overview', accessed 31 March 2021.
[44] See Kazan, E. (2015), 'The Innovative Capabilities Of Digital Payment Platforms: A Comparative Study Of Apple Pay & Google Wallet', *Proceedings of the 14th International Conference on Mobile Business*, section 6.
[45] For example, the European Commission has opened an investigation into Apple Pay practices (see European Commission (2020), 'Antitrust: Commission opens investigation into Apple practices regarding Apple Pay', press release, 16 June) and German legislation requires Apple to provide access to third-party tap-and-go wallets (see Bird & Bird LLP (2020), 'New German legislation allows access to the iPhone's NFC antenna', February).
[46] Jennifer Bailey, head of Apple Pay, stated that third parties might use "*a technical architecture that's ultimately less private and less secure.*" See: https://www.ft.com/content/13da1d7e-d771-40b1-a597-e37ab7112d46.
[47] Rice, X. (2019), 'The Aldi effect: how one discount supermarket transformed the way Britain shops', *The Guardian*, 5 March .
[48] Jacobsen, R., Parker, G., Jensen, T., Magnus, J., Hepp, M. and Urda, B. (2017), 'How Discounters Are Remaking the Grocery Industry', BCG, 21 April.

the shop floor with minimal input from staff, minimising labour costs. They also benefit from economies of scale; these retailers have faster inventory turnaround, with substantial orders placed with suppliers resulting in lower costs per unit. This saving can then be passed on to consumers in the form of lower prices.[49]

This integrated ecosystem is designed to streamline operations all the way from suppliers' facilities to consumers leaving the store. This model would not be possible (or at least would be less likely) if Aldi and Lidl relied on multiple third parties to design and deliver products to fit their specific operations and store format.

Hagiu, Teh and Wright (2020) find that imitating products that are not particularly innovative in the first place (for example, a particular design of a chair or shoe that is popular with consumers) improves consumer surplus if the firm can use its cost advantage to sell at lower prices. However, to the extent that consumers value access to diverse and innovative products, it is in the interest of retailers to strike a balance between their private-label and branded offerings. Consistent with this, Aldi indicates that it carefully selects some of the best national brands to ensure that their customers are satisfied:[50]

> We made this decision [to stock selected national brands] in response to feedback from our customers, who have strong brand preferences, yet would like to complete more of their grocery shopping at ALDI. We also may carry a national brand if we are not able to procure an exclusive brand product that meets or exceeds the quality and taste of the national brand.

In this respect, Etro (2020) explains that retailers have strong incentives to avoid self-preferencing at the expense of their most innovative third parties, because in the long run third parties could stop introducing innovative products—which would lead to a loss of consumers for the retailer.

### 4.3 Leverage

Leveraging data and know-how can enable and encourage innovation by online platforms and their business users, as well by more traditional offline firms. Below, we discuss the benefits delivered by streaming services and online food-delivery platforms through leveraging data (section 4.3.1), and how Amazon leveraged its know-how to create Amazon Web Services (section 4.3.2).

#### 4.3.1 Leveraging data

Almost all companies, both online and offline, leverage data to some degree in order to inform business decisions—such as which product market to enter, where to place a new store, or how to best please their customers. A multi-billion dollar industry focuses on business research and advisory services, offering intelligence into almost every sector and geography.[51] This helps businesses to explore insights ranging from basic industry statistics (like market shares and average industry margins) to in-depth urban monitoring data collected by drones or real-time shipping-vessel tracking.[52] This kind of

[49] Bishop, B. (2017), 'Digging into why Aldi & Lidl are so successful and what this means for the future', 11 September, Brick meets click.
[50] Aldi (2021), 'About Aldi FAQs', accessed 9 April 2021.
[51] Gartner, just one such example of a research company, has a market cap of over $16bn as at 31 March 2021. See Yahoo! Finance (2021), 'Gartner, Inc.', accessed 31 March 2021.
[52] ARUP, an engineering consultancy, offers urban drone data, while Lloyd's List Intelligence offers shipping data. See ARUP (2015), 'Can drones transform surveying and modelling?'; Lloyd's List Intelligence (2021), 'Seasearcher', accessed 11 April 2021.

data can help businesses to enter markets where there is unmet demand and/or improve their logistics.

By their very nature, online platforms are often well-placed to collect data and use it to innovate. Data may be used to identify areas where customers are underserved by existing providers in terms of location or product offerings. By entering into competition with existing providers in this way, platforms can enhance overall consumer benefit. For example, Zhu and Liu (2018) find that Amazon's entry into a product sector can increase product demand and reduce shipping costs for consumers. Moreover, if a platform can identify 'white spaces' (i.e. areas of high consumer demand but limited suppliers), it can create innovative products or services to satisfy that demand.

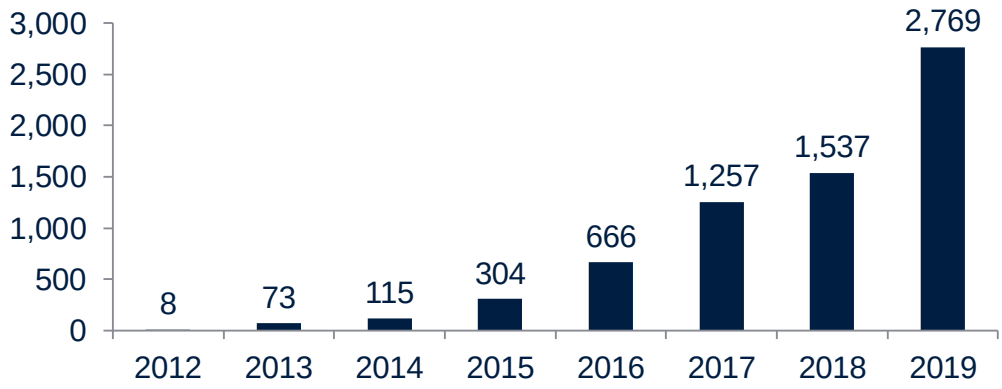
Online food delivery platforms are one example of an industry that has used innovations informed by data from its users. With year-on-year sales for some delivery platforms having more than doubled as a result of the COVID-19 pandemic, it is important for these platforms to identify underserved customers.[53] Deliveroo, a UK-based delivery platform, has opted to serve unmet demand by entering the downstream market and operating delivery-only restaurants itself.[54] The insight generated by data analysis allows Deliveroo to offer improved delivery times and better match consumers with the food that they are most likely to be interested in. It also enables a more efficient operation with less waste.

Similarly, Netflix has used data to develop new products, such as 'Netflix Original' content. This has increased the choice of films and TV series available on the streaming service. For example, in developing the hit series *House of Cards*, Netflix analysed the viewing habits of its global user base to uncover correlations in preferences, and used these insights to help to shape the series.[55] Not only did these insights lead to greater appeal for audiences around the world, but it also reduced the risk for Netflix, which was spending a reported $4.5m per episode on this new venture.[56]

Netflix can also make production decisions based on titles that users search for but are not part of its catalogue. This data-driven approach has been beneficial to both Netflix (which gains subscribers) and its users (who gain access to competitively priced, high-quality content). Netflix's shows have achieved critical and commercial success, with Netflix Originals receiving more Oscar nominations than any other film studio in 2020 and accounting for seven out of the 20 most-watched TV shows.[57] The original content available on Netflix has increased year-on-year, reaching close to 3,000 hours in 2019 (see Figure 4.2). This has exerted competitive pressure on traditional pay TV services, with Netflix being up to 64% cheaper than the average cost of pay TV in Europe.[58]

[53] See Bradshaw, T. (2021), 'Deliveroo orders more than double in latest lockdown', *Financial Times*, 15 April.
[54] See Garlick, H. (2017), 'Dark kitchens: is this the future of takeaway?', *Financial Times*, 8 June.
[55] Atchinson, S. and Burby, J. (2016), 'Big data and creativity: What we can learn from "House of Cards"', TNW, 20 March.
[56] Carr, D. (2013), 'Giving Viewers What They Want', *New York Times*, 24 February.
[57] TechCrunch reports Netflix Oscar nominations, while MentalFloss reports on the most-watched TV shows of 2020, including *Ozark*, *Schitt's Creek*, *The Crown*, *Tiger King*, *Umbrella Academy*, *Boss Baby*, and *You* being Netflix Original Series. See Ha, A. (2020), 'Netflix gets the most Oscar nods of any studio, with "Irishman" and "Marriage Story" nominated for best picture', TechCrunch, 13 January; Gutoskey, E. (2021), 'The 20 Most Streamed TV Shows of 2020', MentalFloss, 28 January.
[58] Netflix is 64% cheaper than pay TV in France; in Germany and Poland Netflix is 44% and 29% cheaper than pay TV respectively. See Digital TV Research (2016), 'Netflix's international pricing under the spotlight'.

**Figure 4.2 Original content hours on Netflix, worldwide, 2012–19**




Source: Statista (2020) based on data from IHS Markit; Quartz; Netflix and Omdia, 'Number of hours of first-run original content released by Netflix worldwide from 2012 to 2019', February.

### 4.3.2 Leveraging know-how

Many offline and online companies leverage their know-how in order to enter adjacent markets and provide new and innovative products. Often, the skills, machinery, and customer base that are developed for one market can make a company well-placed to enter an adjacent market. This form of expansion outside the core market has provided an enormous amount of value to consumers throughout the history of industrialised economies.

For example, while Toyota is now the world's largest automaker, it began life in 1890 as a manufacturer of steam-powered looms;[59] it only leveraged its institutional expertise in mechanical engineering to create the first Toyota automobile 45 years after the company was founded. Similarly, while the founders of Nike began by selling athletic shoes from the boot of their car, they built one of the world's most valuable sports brands by entering the market for a broader family of sportswear and equipment.[60]

A *Harvard Business Review* study tracking the performance of 1,850 companies found that a key driver of the most sustained growth was a company pushing the boundaries of its core business into an adjacent space (Zook and Allen, 2003). This applies equally to the online world. For example, when Amazon entered into cloud computing services with the launch of Amazon Web Services (AWS), it was able to leverage the know-how it had gained from running its Amazon.com retail website. This helped it to build and maintain high-quality public cloud-computing infrastructure.[61] One of AWS's major innovations was its development of elastic storage and computing, which hosts websites with a flexible amount of computing power that adjusts according to demand.[62] This enables online businesses to grow rapidly without experiencing technological barriers.[63]

[59] CNN reports that Toyota was the largest car manufacturer by revenues in 2020. See Toh, M. (2021), 'Toyota overtakes Volkswagen as world's biggest automaker', CNN Business, 28 January. Toyota's company history webpage reports that it was originally a loom manufacturer. See Toyota Industries Corporation (2021), 'History', accessed 11 April 2021.
[60] Zook and Allen (2003); Lara O'Reilly (2014),'11 things hardly anyone knows about Nike', *Business Insider*,4 November; Jack Meyer (2019), 'History of Nike: timeline and facts', *The Street*, 14 August.
[61] See Tricka, R. (2015), 'How Amazon Web Services Surged Out of Nowhere', HackerRank, 26 August.
[62] For further details on how elastic storage and computing works, see Amazon Web Services (2021), 'Amazon EC2: Secure and resizable compute capacity to support virtually any workload', accessed 11 April 2021.
[63] *The Economist* (2020), 'Can Amazon keep growing like a youthful startup?', 20 June.

AWS's virtual services allow businesses to circumvent the need to invest in expensive technological infrastructure and expertise. This supports businesses ranging from small start-ups to some of the largest tech companies in the world, such as Netflix and Zoom.[64] It can facilitate further innovation by its customers, as it reduces barriers to entry and provides scalability to businesses. It also allows developers to focus on improving their core services rather than building in-house technological infrastructure.

## 4.4 Case study: Apple Silicon

Since 2020, Apple has supplied many of its Mac computers with an Apple Silicon chipset, a new family of processors designed in-house by Apple. The company aims to transition all of its Macs from the current Intel chipset to Apple Silicon by 2022.[65] In doing so, it has exhibited many of the same practices and benefits that we have examined throughout section 4.

### 4.4.3 Benefits from bundling and tying

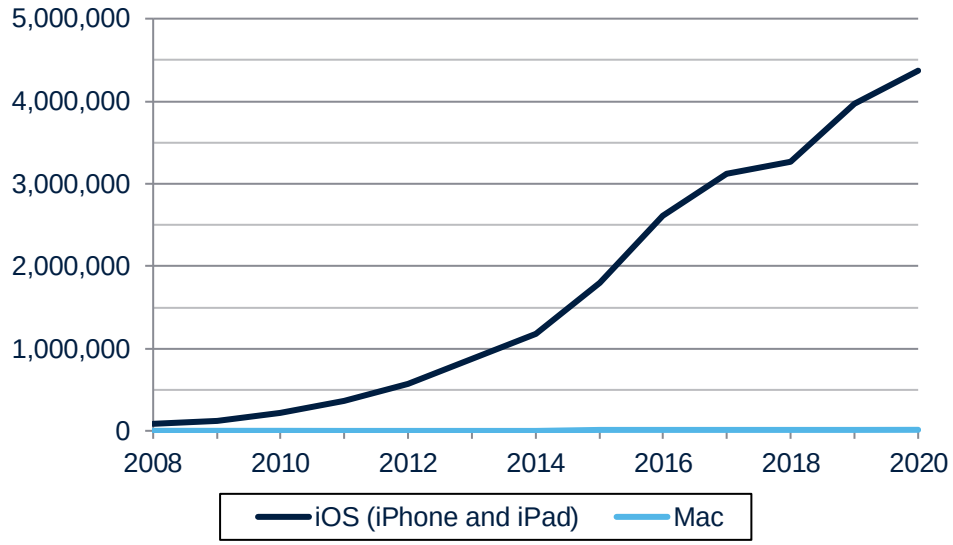
By bundling and tying Macs with its new chipsets, Apple will increase the degree of integration within the Apple ecosystem. For example, it will now be possible for developers to use the same code-base for an app across all Apple devices. Prior to Apple Silicon, if a developer wanted to make an app available on both the iOS App Store and the Mac App Store, they would have to build and maintain the app for two completely different technologies. In contrast, the M1 chip is built on a similar, ARM-based architecture to the chips used in iOS devices, meaning that unmodified iPhone and iPad apps can run natively on the new Macs.

Moreover, developers can create Mac-specific apps by applying relatively simple tweaks to their pre-existing iOS apps. Apple's hope is that the large and active iOS developer community—an indication of how Apple's close management of the iOS App Store, discussed in section 3.2.1, has been successful in stimulating this two-sided market—can quickly and easily build and maintain more apps for macOS, which has had a much smaller developer community until now (as illustrated in Figure 4.3 below). Mac users are expected to benefit from the increased number of apps that will be available and the improved interoperability of these apps with iOS devices.

The custom-designed chipset allows Apple to combine all the technologies that Macs require into a single System-on-a-Chip (SoC), rather than relying on different chips for the CPU, I/O, security, and so on.[66] This allows increased integration, performance, and power efficiency. For example, the M1 includes the Apple Neural Engine, designed to improve the performance of advanced machine-learning tasks on the Mac. Furthermore, the co-development of the M1 chip alongside the latest version of macOS (Big Sur) means the software and hardware are engineered to work together—offering performance, battery life and security improvements. For developers, this means having access to additional technologies on the M1 chip, such as Metal for graphics and Core ML for machine learning.

[64] Ibid.
[65] See Apple press release (2020), 'Apple announces Mac transition to Apple silicon', available at: https://www.apple.com/newsroom/2020/06/apple-announces-mac-transition-to-apple-silicon/, accessed on 31 March 2021.
[66] Apple (2020), 'Apple unleashes M1', November 10.

**Figure 4.3 Number of Apps available on iOS App Store and Mac App Store**




Source: For the number of apps available on the iOS App Store, see PocketGamer (2021), 'App Store Metrics', accessed 31 March 2021. For the number of apps available on the Mac App Sore (under 20,000), see AppShopper (2021), 'AppShopper', accessed 31 March 2021.

### 4.4.4 Benefits from self-preferencing

Apple has, in effect, self-preferenced its own chipset over third-party alternatives. While this might mean less flexibility for individual Mac users (e.g. by removing the option to run software written for Intel processors), the overall impact of the change will likely be to stimulate competition between the Windows PC and Apple Mac ecosystems.

It has been argued that one of Apple's key motivations for self-supplying its own chips over third-party alternatives was to give itself more flexibility and agility when it comes to future products.[67] This resolves the so-called 'hold-up' problem--whereby upstream suppliers underinvest in R&D or supply chains because of uncertainty over demand from their downstream partners—which is seen as a key disadvantage of relying on contracts with external parties to develop innovations (see Belleflamme and Pietz, 2016, Chapter 19.3). Indeed, media reports suggest that Apple had been frustrated with the pace and quality of Intel's technological development.[68] As such, dropping Intel as its primary supplier of laptop chips may allow Apple to have a more secure supply chain and focus on developing chips that are better-suited to support its strategic direction and product development plans.

In supplying its own chipsets, Apple is also able to avoid the margins charged by upstream semi-conductor suppliers. The avoidance of such 'double marginalisation' (i.e. the practice of firms passing on the mark-up of upstream suppliers) is another well understood benefit of vertical integration (for example, see Spengler 1950).

[67] See discussion in McGee, P. (2020), 'Apple announces transition away from Intel chips', *Financial Times*, 22 June.
[68] For example, see Horwitz, J. (2018), 'Apple reportedly redesigned basic MacBook after Intel chip issues', VentureBeat, 17 August; Hardwick, T. (2020), 'Former Intel Engineer Claims Buggy Skylake Chips Hastened Apple's Switch to Custom Silicon', MacRumors, 25 June.

### 4.4.5 Benefits from leveraging

In developing Apple Silicon, the firm has also leveraged its institutional expertise in designing chips for iPhones and other smart devices, as well as data gathered about usage patterns on Macs, in order to create a new type of computer processor with innovative features. For example, in designing the M1's Graphics Processing Unit (GPU), Apple benefited from years of analysis of Mac applications, from everyday consumers to professional users.[69]

Apple first began developing ARM-based processors in approximately 2009, when it designed the A4 chip to be used in the iPhone 4 and original iPad.[70] This chip was designed with a focus on power efficiency (to improve battery life) and thermal efficiency (to improve speed without requiring a fan).[71]

In the subsequent decade, Apple developed a number of custom chipsets, each with a specific purpose. This close integration of Apple's hardware and software has enabled numerous innovations and seamless functionality. For example, the chips used in the Apple Watch were designed to be compact, while the chips used in some AirPods were designed with low latency to be suitable for active noise cancelling.[72]

In 2018, Apple began using the A12X chip in the iPad Pro. This chip roughly matched the computing performance of the Intel Core i7 and the graphics performance of the Xbox One S.[73] Following the technological success of this iPad Pro, Apple announced that it would develop an ARM-based chipset for its computer line. The chip, known as the 'M1', leveraged the knowhow Apple had developed in its mobile devices, and it was praised for its improved battery life and performance.[74] The thermal efficiency of the chip also means that Apple's latest laptops don't require a fan, resulting in a quieter experience for the user.

Overall, the move to Apple Silicon allows Apple greater flexibility and agility when it comes to developing future devices. The architecture of this processor makes it easier for developers to write and optimise software for the entire Apple ecosystem, and it enables better integration between Macs and other Apple products to the benefit of users and developers.

[69] Apple (2020), 'Apple unleashes M1', November 10.
[70] See Clark, D. (2010), 'IPad Taps Familiar Apple Suppliers', *Wall Street Journal*, 5 April; GSM Arena, 'Apple iPhone 4', accessed on 31 March 2021.
[71] See Bonsack, N. (2010), 'Apple inside: the significance of the iPad's A4 chip', Macworld, 28 January.
[72] For discussion of the AirPods chip, see Welch, C. (2019), 'Apple AirPods Pro Review: Perfect Fit', The Verge, 1 November. For discussion of the Apple Watch chip, see Ho, J. and Chester, B. (2015), 'The Apple Watch Review', AnandTech, 20 July.
[73] The i7 was Intel's flagship chipset (primarily intended for laptops and desktops), while the Xbox One S was Microsoft's flagship gaming console. See Horwitz, J. (2020), 'Apple confirms Mac transition to ARM CPUs, Rosetta 2 Intel emulation', VentureBeat, 22 June.
[74] For example, see the positive review here: Gibbs, S. (2020), 'Apple MacBook Air (M1) review: gamechanging speed and battery life', *The Guardian*, 9 December.

# 5 Implications for the DMA

As shown in this report, platforms can create value for users in various ways, including through intermediation, aggregation, innovation and dynamic competition. Practices such as tying and bundling, self-preferencing, and leveraging are often instrumental in the creation of this value. As discussed, the benefits range from lower search costs and higher quality of service for consumers to lower costs and larger reach for businesses and the launch of innovative products and services, and a dynamic market in general. In light of these benefits, we consider below the implications for the obligations and prohibitions of certain practices under the proposed DMA.

1. The proposed 'catch-all' scope of the regime, applying all 18 obligations contained in Articles 5 and 6 of the DMA to *any* firm identified as a 'gatekeeper', is inconsistent with the fact that there will be a wide range of platform businesses and market conditions, each with different sources of value creation and potential theories of harm. For example, provisions intended to prevent app stores from preferencing their own in-app payment services could have significant unintended consequences for a commission-based intermediation platform (such as an online travel agency). We discuss this further in section 5.1.

2. The fact that some of these obligations represent 'per se' prohibitions of practices that can create significant value for consumers and business users (as this study has shown) risks a large number of type-1 errors (i.e. there is a risk of over-enforcement by restricting a practice that is net positive for society). In particular, we highlight a number of provisions set out in Articles 5 and 6 of the DMA that could inhibit the ability of platforms to generate value from bundling and tying, self-preferencing, and/or leveraging practices that benefit users. We discuss this further in section 5.2.

3. The DMA's focus on contestability and fairness appears to be at the expense of dynamic competition and innovation—at the very least, it is unclear how these longer-term sources of value will form part of an assessment of the appropriate regulatory response to the practices of 'gatekeepers' (or, indeed, how it will weigh on the question of whether regulation is needed at all). We discuss this further in section 5.3.

As a result, the DMA creates a risk of over-enforcement by restricting a series of common business practices, found offline as well as online, that can have net positive effects for society. In particular, the DMA's 'catch-all' and 'per se' and 'catch-all' approach to prohibiting a range of value creating behaviours risks stifling the growth of Europe's digital economy.

At the heart of the above shortcomings is the fact that the DMA appears to depart from the legal principles and economic analysis that are required under competition law. As discussed further in section 5.4.2, we contrast the DMA's approach in this regard with the proposals made by the Digital Markets Taskforce (DMT) in the UK, in which transformational remedies such as those proposed by the DMA would be subject to a legal test similar to the 'adverse effect on competition (AEC)' test in the UK markets investigation regime. Such a test would allow for a holistic assessment of market features, including factors such as quality, innovation, and other non-price indicators, before the imposition of any remedy.

### 5.1 The 'catch-all' scope is inconsistent with the wide variation in platform businesses and market conditions

The primary objective of the DMA is to promote effective competition in the digital single market by ensuring a 'contestable and fair online platform environment'.[75] To achieve this, the DMA proposes increased monitoring and enforcement powers for the Commission, together with a set of prescribed obligations and prohibitions for designated 'gatekeeper' firms.

However, the proposed 'catch-all' approach of applying all 18 obligations to any designated gatekeeper—with no specific effects-based analysis—is likely to be particularly problematic given the wide range of different platforms and markets that the rules could apply to. As highlighted in sections 3 and 4, the practices targeted by the DMA can lead to different types and levels of benefits, depending upon the context in which they occur. As such, indiscriminately applying the full suite of DMA obligations to all designated gatekeepers is likely to result in unintended consequences—particularly given that many of the obligations appear to be designed with a specific context and/or specific online platform service in mind.

A stark example in this regard is Article 5(c), which stipulates that business users must be able to promote offers to users acquired via the platform service and complete those transactions off-platform.[76] The impetus for this remedy appears to have come from large app developers, which would like to be able to sell directly to platform users using their own payment services. For example, in June 2020, the European Commission opened parallel antitrust investigations into Apple's App Store rules following complaints by the music streaming service Spotify, and an unnamed audiobook and e-book distributor.[77] The app providers claim that the mandatory use of Apple's In-App Purchase (IAP) services and restrictions on promoting alternative purchasing options distort competition. One counter-argument is that allowing this could enable app developers to free-ride on the platform's ecosystem investments, which would ultimately make that ecosystem less competitive.

Putting aside the trade-offs inherent in the particular app store context, applying this same provision to a range of other platforms could have materially negative, and potentially even more harmful, effects. Take a commission-based intermediary platform, such as an online travel agent (OTA). Assuming, for the purpose of illustration, it were to fall under the scope of the DMA, complying with Article 5(c) could jeopardise its business model to the point where it may be forced to change its monetisation strategy to an extent that it could become commercially unviable, ultimately decreasing choice for users.

OTA platforms typically allow both hotels and travellers to use their services for free, earning a revenue from commissions paid when a booking takes place. This model maximises network effects and scale economies by attracting users on both the demand and supply side of this two-sided market. Hotels can list

[75] European Commission (2020), '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, p.1.
[76] DMA Article 5(c) requires a gatekeeper to 'allow business users to promote offers to end users acquired via the core platform service, and to conclude contracts with these end users regardless of whether for that purpose they use the core platform services of the gatekeeper or not, and allow end users to access and use, through the core platform services of the gatekeeper, content, subscriptions, features or other items by using the software application of a business user, where these items have been acquired by the end users from the relevant business user without using the core platform services of the gatekeeper'.
[77] Case numbers AT.40437 (Apple – App Store Practices - music streaming) and AT.40652 (Apple – App Store Practices – e-books/audiobooks). See European Commission (2020), 'Antitrust: Commission opens investigation into Apple's App Store rules', press release, 16 June.

their availability and pay a fee only if they gain a booking, while travellers can more easily discover, compare, and book a wide range of hotels at no extra charge.

If hotels were able to circumvent the OTA at the time of booking (e.g. by offering travellers a discount to book directly with them) the OTA would miss out on the commissions needed to recoup their investment. In the long run, the OTA would be forced to change its business model in order to recover its costs.

An alternative model—such as charging a listing fee to hotels, or a membership fee to users—would likely be less effective and less valuable for consumers, as it would likely reduce the platform's ability to aggregate accommodation options effectively and/or reduce the number of travellers using the platform, thereby eroding the scope for value creation for all users.

### 5.2 'Per se' restrictions should not be applied to practices that have the potential to create value

Many of the obligations contained in the DMA impose clear-cut restrictions on the ability of gatekeeper platforms to engage in certain practices. The Commission refers to these as 'do's and don'ts' that gatekeepers must comply with in their daily operations.[78]

In competition law, these types of 'per se' restrictions are usually reserved for conduct that by its very nature (and/or based on past experience and a strong body of evidence) is highly likely to have detrimental effects in the market. This applies to practices such as price fixing, output restrictions, and market sharing between competitors—three classical examples of 'hardcore' restrictions of competition.

According to the Commission, the list of obligations in the DMA proposal 'has been limited to those practices that are particularly unfair or harmful'[79] and 'where experience gained, for example in the enforcement of the EU competition rules, shows that they have a particularly negative direct impact on business users and end users'.[80] However, as we have discussed throughout this report, many of the practices covered by the DMA have proven to generate considerable value and efficiencies in a wide range of contexts. This is not to say that such practices, in certain circumstances, cannot also result in restrictions of competition. Nevertheless, balancing these effects requires analysis of precisely *how* a platform is using the practices in question, and the specific *context* in which they are being used.

Table 5.1, and the paragraphs that follow, outline some of the potential unintended consequences that could arise from imposing these 'per se' obligations in situations involving the practices that we have covered in this report (i.e. bundling and tying, self-preferencing, and leveraging). This further shows that there is no definitive economic basis for such practices to be presumed to be harmful and banned outright.

[78] See the European Commission's webpage announcing the DMA, 'The Digital Markets Act: ensuring fair and open digital markets' accessed 12 April 2021.
[79] Digital Markets Act, p. 5.
[80] Digital Markets Act, recital 33.

**Table 5.1 Examples of potential unintended consequences of 'per se' obligations set out in the DMA proposals**

| | Article | Potential unintended consequence |
|---|---|---|
| Bundling & tying | 5(f): refrain from requiring users to subscribe to or register with any other core platform services as a condition to access, sign up to, or register with any of their core platform services | The unbundling of complementary services could: (i) reduce the benefits of deeper integration; and (ii) may reduce investment in core platform services (as seen in telecoms). |
| Self-preferencing | 5(c): allow business users to promote offers to end users acquired via the core platform service, and to conclude contracts with these end-users regardless of whether they use the core platform services of the gatekeeper for that purpose or not | Can undermine certain types of business models (e.g. commission-based monetisation) by allowing third parties to free-ride on the core platform services. This can also lead to disincentives for investment. |
| | 6.1(c): allow the installation and effective use of third-party software applications or software application stores using, or interoperating with, operating systems of that gatekeeper and allow these software applications or software application stores to be accessed by means other than the core platform services of that gatekeeper | May prevent platforms from offering consumers the choice of (more) closed business models. |
| | 6.1(f): allow business users and providers of ancillary services access to and interoperability with the same operating system, hardware, or software features that are available or used in the provision by the gatekeeper of any ancillary services | Reduces incentives for innovation and potential for dynamic competition as it affects the appropriability of investments and reduces control over quality. |
| Leveraging | 6.1(a): refrain from using, in competition with business users, any data not publicly available which is provided by, or generated through, activities by those business users, including by the end-users of these business users, on its core platform services | May prevent platforms from developing innovative products and services that increase competitive pressure. |

Source: Oxera.

For example, platforms routinely leverage their data to create value by offering improved services to consumers. In section 3.3, we discussed this data-enabled competition and how it improves personalisation of services and better matches for consumers. In the case of a content platform, this could mean using detailed audience data to offer recommendations, creating value by helping viewers to find the content that is most relevant to them. Similarly, in section 4.3 we explained how firms can use data as they seek to introduce new innovations or offer improved services to the market. In this regard, section 4.3.1 described how Netflix used detailed viewing data to inform its investments in the hit series *House of Cards*.

It is unclear what Article 6.1(a) covers under the 'data that is not publicly available' as it rests on the answer to questions about who creates the data and who has ownership of it. For example, data generated from transactions taking place and recorded on a platform requires input from multiple parties that can claim ownership. As currently drafted, this 'per se' restriction could have the unintended consequence of preventing parties with a higher potential to innovate from accessing the data that they require to do so.

Using existing data in this way can help to overcome the so-called 'cold start' problem of entering a new market. This can be an important strategy to unlock dynamic competition between ecosystems, allowing firms to open 'new gates' for consumers and business users. For example, there is increasing competition in voice assistants between Amazon's Alexa, Apple's Siri, Google's Assistant, and Microsoft's Cortana, with each of these able to leverage knowhow and/or data from their parent-company ecosystems. However, these types of beneficial behaviours may be inhibited by certain provisions of the DMA, such as Article 6.1(a), which restricts the use of non-public business user data by platforms that are in competition with downstream rivals.

Similarly, in section 4.2.1 we described how self-preferencing by platforms can underpin *inter-ecosystem* competition, allowing consumers to choose between more open or more closed architectures depending upon the perceived benefits of each. This can serve to bolster dynamic competition between these different providers.

However, provisions such as the DMA's Article 6.1(f), which mandates third-party access to operating system and/or hardware features used by platforms, could prevent these types of closed business models. The effect may be to deprive users of certain features that they value, such as greater privacy or deeper integration. In other cases, an open-access model could risk undermining consumer trust in the ecosystem—as we discussed in section 3.2.1. Regulators considering open-access remedies also need to consider the potential for uncoordinated access that can lead to a worse customer experience. Evans (2011) warns that:

> […] antitrust decisions that prohibit firms from engaging in exclusion, when that exclusion is pro-consumer and/or pro-competitive, would impose significant costs on the platform at issue, because the platform will be forced to weaken its enforcement mechanisms.

In the extreme, the per se application of the DMA obligations could result in a reduction in the number of digital services that choose to operate as platforms in the first place. Consider the example of a large integrated retailer that, in the absence of regulation, might consider becoming a 'dual-mode' platform operator by opening itself up to third-party sellers. As explained in section 2.3, this could add considerable value by increasing choice, convenience, and competition for consumers, while unlocking economies of scale and scope for businesses. However, if the retailer anticipates that regulations could limit its ability to compete with downstream competitors in the future, it may be less likely to open itself up in the first place.

### 5.3 The DMA's focus on short-run efficiencies risks reducing dynamic competition and innovation

The DMA's stated aims are to improve the contestability and fairness of digital markets. However, as the DMA is currently drafted, there is a risk of focusing excessively on short-run static efficiency gains at the expense of long-run *dynamic competition* founded on strong incentives for continued innovation.

This risk manifests itself in a number of ways. First, as explained by Shapiro (2012), investment in innovation depends upon two competing factors: the *contestability* of markets (allowing new services to gain a foothold), and the *appropriability* of the value created (allowing the investor to recover their costs and earn an appropriate return). There is, therefore, an inherent trade-off to be made between contestability on the one hand and appropriability on the other.

By focusing on contestability and fairness, the DMA is changing this balance in favour of protecting competitors in the short term at the expense of dynamic competition in the long term. This is likely to have a distortive effect on the ability or incentives of platforms to invest in both incremental quality improvements and disruptive innovations for their users.

Second, a number of the DMA's obligations would appear to treat platforms as neutral intermediaries—for example, by requiring that they provide fair, reasonable, and non-discriminatory (FRAND) access to certain core platform services (Article 6.1(k)), that they hand over certain data free of charge (Article 6.1(i)), that they refrain from using data to compete with their business users (Article 6.1(a)), that they refrain from imposing constraints on the installation of software by third parties (Article 6.1(c)), or that they refrain from bundling or combining data and/or other features of their core platform (Articles 5.1(e) and 5.1(f)).

These obligations run the risk of oversimplifying the role that platforms play in driving innovation in the digital economy and creating value. For example, it is tempting to assume that regulating access to core aspects of large platforms will necessarily stimulate greater competition in a market. However, while it may facilitate competition *on* the platform, it can also serve to diminish competition *between* platforms, eroding the additional long-run value creation that stems from robust dynamic competition.

For example, Article 6.1(c) mandates access for third-party software developers (and app store providers) to operating system platforms, while 6.1(e) prevents technical restrictions from inhibiting the choice of software or service providers. As discussed in section 4.1.3, this type of mandated access can disincentivise innovative investment among both access seekers and access providers. As noted in their evaluation of the European framework for telecoms regulation, Cave, Genakos and Valletti (2019) explained that the policy of mandating access to the networks of incumbent operators came at the expense of dynamic competition from potential infrastructure investors:

> […] the regulatory approach […] **was more successful in squeezing (static) efficiencies from the existing system than in stimulating the (dynamic) transition** to the next generation of infrastructures and services, which require considerable investment in infrastructure [emphasis added]

While there may be certain cases in which access provisions such as these are warranted, the trade-off with deeper ecosystem-level investment and dynamic competition should be weighed and the risks mitigated to the extent possible.

In addition, the DMA's focus on fairness as policy objective also runs the risk of focusing excessively on a short-term redistribution of the value that has already been created, as opposed to setting the conditions for the creation of further innovation-driven value. This risk applies particularly when the complex dynamics within and between ecosystems are misunderstood (Jenny, 2021).

In any discussion of fairness, it is important to recognise that it is a relative concept with various different dimensions.[81] In particular, fairness might relate to the process or the outcome. If fairness focuses on the process—such as, for example, the Commission's Platform to Business (P2B) Regulation, which focuses on transparency and redress (instead of banning practices or limiting

[81] See Oxera (2019), '[Fairness and competition in online markets: friends or foes?]' *Agenda*.

commercial and contractual freedom)—there is less likely to be a tension between fairness and long-term dynamic competition objectives.

However, if the concept of fairness primarily focuses on the outcome, tensions can arise. This is because there are likely to be many instances where practices could be considered to be pro-competitive in generating long-run dynamic efficiencies, but could also be perceived as unfair to a group of consumers or business users in the short term. For example, price discrimination can be efficient (especially when it leads to a market expansion and the recovery of risky investment costs), but under the lens of 'fair outcomes' it might be seen as unfair to charge different prices to different consumers for the same good or service.

In this regard, many of the DMA's 'per se' obligations appear to be guided more by the desire to achieve a certain fairness in outcome. One concern with such an approach is that it runs a high risk of adopting a partial view of fairness, without taking into account the efficiencies and value created by various platforms' business models for both consumers and business users.

For example, a key concern of the Commission is that platform markets might 'tip' to one player.[82] However, being large and offering a diversity of services is often central to the ability of platforms to create value for their users. Tipping happens because consumers and/or businesses prefer to use platforms that other consumers or businesses are using, regardless of whether these are one-sided or multi-sided platforms. Indeed, such tipping, where it occurs, is often the result of positive network effects, which give rise to significant efficiencies and value for the users of the platform. The nature of these efficiencies among digital services—which are typically quality improvements, rather than cost reductions—mean that a share of the benefits will *automatically* be passed-on to users (Jenny, 2021).

Furthermore, platform markets prone to tipping are also arguably more likely to remain contestable relative to traditional natural monopolies. Indeed, such platforms still need to ensure that they remain attractive to their users at all times, since the presence of negative network effects means that networks can implode as rapidly as they can expand.

### 5.4 The DMA should remain closely aligned with the legal and economic principles of competition law

The DMA's approach to ex ante regulation of digital markets marks a notable departure from the legal principles and economic analysis that are typically required under competition law. While the DMA's quantitative, threshold-based approach targets interventions on certain 'core platform services', it stops short of requiring the identification of relevant economic markets. It does not include a requirement to undertake a formal analysis of dominance or market power, nor is there an explicit opportunity to appeal either a gatekeeper designation or the imposition of a regulatory obligation to a higher court (such as the European Court of Justice).

Such a misalignment with competition law is striking given that many of the obligations contained in the DMA are inspired by the remedies found in previous and ongoing competition investigations, and aims to address concerns raised during them.

[82] Digital Markets Act, recitals 25 and 26.

This also represents a notable departure from best-practice ex ante economic regulation. The following sections highlight three examples in this regard.

### 5.4.1 European telecoms regulation

First, while we have referred to the European telecoms framework in this report as a cautionary tale of what can happen if regulators focus excessively on short-run static efficiencies (see section 4.1.3), the framework does represent one of the success stories of EU policymaking (as acknowledged by Cave, Genakos and Valletti, 2019).

The success and longevity of the EU telecoms framework owes a great deal to its close alignment and complementarity with competition law, which has allowed it to evolve over time in tandem with the technological evolution of the telecoms sector itself. Indeed, the framework is often referred to as the significant market power (SMP) framework, owing to the fact that it requires finding that one or more firms possesses market power in a well-defined relevant economic market before regulatory remedies can be imposed.

While there are several features of the ex ante SMP regime that are closely aligned with ex post competition law, one of the most important relates to the 'three-criteria test' that must be met before any firm is deemed susceptible to ex ante regulation. Only markets that satisfy these criteria can have regulatory interventions imposed, while the key steps in the ex ante process are also closely aligned with competition law (see Box 5.1).

**Box 5.1 Lessons from telecoms: a three-step test for intervention**

The SMP framework for electronic communications requires regulators to demonstrate that any market deemed susceptible to ex ante regulation meets the following ***three-criteria test*** before a detailed examination can be undertaken and remedies imposed. Those three (cumulative) criteria are:

1. the presence of high and non-transitory barriers to entry;
2. that the market will not become effectively competitive in the next three to five years;
3. that competition law is not enough to address identified market failures.

Only then can a market analysis be conducted (and its findings are subject to review at least every five years). This market analysis itself must follow the three stages of a typical competition case, i.e.:

- defining the boundaries of the relevant market(s); and
- demonstrating the presence of SMP in those markets; before
- imposing targeted, ex ante remedies on firms with SMP to avoid foreseeable harm and/or to promote the emergence of competition.

Source: Oxera.

Furthermore, remedies imposed by national regulatory agencies under the telecoms framework are subject to appeal (usually on the merits) in specialist national courts. As such, this framework provides important 'checks and balances' to ensure that intervention is based on well-understood concepts (such as market power), as well as allowing for the consideration of evidence relating to the actual or likely effects on competition and consumers.

Despite important differences between the economics of telecoms and digital services, the DMA could benefit from incorporating similar 'checks and balances' that reflect best-practice regulatory principles.

### 5.4.2 The regulatory framework for digital markets in the UK

The second example relates to the parallel proposals made by the Digital Markets Taskforce (DMT) in the UK for a future regulatory framework for digital markets. While the DMT has some similarities with the DMA's approach at a high level (such as the need to identify firms with strategic market status (SMS) in certain core digital activities, which would trigger specific regulatory interventions), the DMT's proposals envisage a greater role for effects-based, analysis.[83]

As a result, the type of remedies that are envisaged for firms with SMS status would be considerably more bespoke and tailored to the specific circumstances of the firm in question, as well as focused on the digital activity that gave rise to the SMS designation. For example, the DMT proposes the elaboration of a bespoke code of conduct based on certain core principles (transparency, fairness, and choice). In addition, where justified, it proposes further pro-competitive interventions (PCIs) where the Code of Conduct is not sufficient to address a particular concern.

While some of these PCIs could be similar to some the provisions set out in articles 5 and 6 of the DMA, a fundamental difference is that they can only be imposed to rectify an 'adverse effect on competition or consumers (AECC)'. This AECC test is, in effect, an augmented version of the well-established 'adverse effect on competition' (AEC) test found in the UK markets investigation regime. This requires the regulator to undertake a holistic assessment of market features, including factors such as quality, innovation, and other non-price indicators. Furthermore, any proposed PCIs will carefully consider the costs, proportionality, and potential for unintended consequences. Importantly, SMS firms subject to remedies would also have the opportunity to appeal the decisions of the UK's digital regulator.[84]

### 5.4.3 The amendment to the German Competition Act

The third example relates to the Section 19a amendment to the German Competition Act (passed in January 2021). This regulation includes a two-step process, meaning that the Federal Cartel Office must find that a firm has 'paramount significance for competition across markets' before determining which restrictions will be applied.[85]

The Section 19a Amendment provides a non-exhaustive list of practices that may be found to be problematic (and, in this respect, may suffer from similar shortcomings to articles 5 and 6 of the DMA). However, unlike under the DMA, designated firms are able to provide an 'objective justification' for the practice in question (such as the efficiencies or value creation discussed in this report).[86]

[83] CMA (2020), 'A new pro-competition regime for digital markets', Advice of the Digital Markets Taskforce, December.
[84] Although the proposed standard of appeal is a judicial review as opposed to a full-merits appeal, we expect this aspect of the DMT's proposals will be heavily debated before the final legislation is passed.
[85] See Bundeskartellamt (2021), 'Amendment of the German Act against Restraints of Competition', press release, 19 January.
[86] However, the burden of proof falls on the firm.

# 6 Conclusions

In this report, we have highlighted the different ways in which digital platforms and their ecosystems can create value for users. At their most basic level, platforms act as intermediaries; however, platforms also play an active role in value creation through aggregation and innovation. As discussed in sections 3 and 4, bundling and tying, self-preferencing, and leveraging—all practices within the scope of the DMA—can create value for consumers at both the aggregation and the innovation layer. While some of these practices may pose risks to competition in certain circumstances, we have shown how they can also deliver substantial benefits to consumers and businesses.

A key concern we have identified is that the DMA's excessive focus on short-run static efficiency (favouring the protection of competitors in the short term) may come at the expense of value creation for consumers in the long term through innovation and dynamic competition. As a result, the DMA creates a risk of over-enforcement by restricting a series of common business practices, found offline as well as online, that can have net positive effects for society. In particular, the DMA's 'catch-all' and 'per se' and 'catch-all' approach to prohibiting a range of value creating behaviours risks stifling the growth of Europe's digital economy.

We consider that the heart of the DMA's shortcomings is its departure from established and long-standing principles of ex post competition law and best-practice ex ante economic regulation. This is manifested in a regulatory framework that does not include either a requirement to undertake any formal analysis of dominance or market power; or an effects-based assessment of the conduct and remedies to be imposed. Neither does it provide a route to an appeal on the merits of any aspect of the process.

We therefore recommend that the EU abandons its proposed 'catch-all' and 'per se' obligations approach and instead develops a more flexible and tailored framework, seeking alignment and consistency with the principles of competition law. In doing so, it could draw inspiration from the European telecoms regulatory framework, as well as the UK market investigations regime and the DMT's proposals.

While attempting to regulate such a fast-moving sector will continue to present challenges, we consider that adopting our recommendations would assist the Commission in striking a more appropriate balance between contestability, fairness and the value-creation of the practices examined in this report.

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