Online market failures and harms

An economic perspective on the challenges and opportunities in regulating online services

[Online market failures and harms – Welsh overview available]
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1. Overview

This paper examines how harms that arise online could relate to each other, by exploring common industry characteristics and market failures at their source.

Online services have revolutionised people’s personal and working lives, generating significant benefits. But some of their features have the potential to cause harms to individuals and society. These can include exposure to harmful content or conduct, loss of privacy, data or security breaches, lack of competition, unfair business practices or harm to wellbeing. Ofcom’s Online Nation report sets out the benefits to consumers of being online and their concerns about potential online harm.

This paper aims to contribute to the discussion on how to address these harms effectively, drawing on our experience as the UK communications regulator. It looks at the sources of online harms from an economic perspective, which can inform the broader policy assessment that policymakers and regulators may use to evidence and address these harms. It identifies challenges that need careful consideration when intervening online, recognising where these may require a different approach.

We are already considering some of these challenges in the context of our current work, as online services play an increasing role in how consumers communicate with others. We hope these observations are also relevant as policymakers and fellow regulators seek to tackle the challenges posed by online regulation. However, we do not hold a view on how future regulation should be structured or assigned, which are matters for Government and Parliament.

What we have found – in brief

The characteristics of some online services can generate market failures which harm consumers and society in several ways. This paper looks at how these harms can be linked. For instance, online services can be concentrated with a few big players, which may limit competition and the role it can play in delivering good outcomes for consumers. Some online services are incentivised to maximise the data and attention they capture from consumers, which may lead services to promote addictive behaviour or the spread of certain harmful content. If this data is used to influence consumer decision making through targeted and personalised services, this may limit users’ exposure to a variety of views and weaken competition from potential entrants.

Online services pose particular challenges for regulators. This is because of their global nature, the fast pace of change, the complexity of online business models, the scale of online content and the variety of services available online. The links that may exist between different harms can create
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Interventions to address harms should be carefully designed to overcome these challenges and avoid undesirable unintended consequences. Interventions will need to be flexible to deal with fast-evolving services and markets, and regulators can use new techniques to understand the complexity of online business models and consumers’ decisions. The scale and variety of online services mean they overlap with the remits of existing regulators. Regulators need to recognise the potential links between online harms as they design their rules, and work closely alongside each other.

The context for this paper

1.1 Online services have revolutionised people’s personal and working lives, generating significant benefits to society and the economy. But features of some online services may cause or exacerbate a range of harms to individuals and society, captured in part by the following UK policy reviews:

- the Furman panel, a group of experts appointed by HM Treasury and led by the economist Jason Furman, explained how consumers may be harmed in online markets where competition is limited;¹
- the Cairncross review, in which the then Prime Minister asked Dame Frances Cairncross to examine the sustainability of high-quality journalism as consumers increasingly access media online;² and
- the Department for Digital, Culture, Media and Sport and the Home Office proposed in a white paper to further regulate technology companies, with a view to protecting people from harmful content and conduct online.³

1.2 There have also been similar reviews in other countries, reflecting common challenges internationally. For example, the Stigler Center based at the University of Chicago formed a Committee which assessed the impact of digital platforms on: the economy, privacy and data protection, news media and the functioning of democracy.⁴ The Australian Competition & Consumer Commission published a report on its inquiry into digital platforms, which looked at the effect of search engines, social media and other digital content aggregation platforms on competition in the media and advertising markets.⁵ The European Commission commissioned a report which explores how competition policy should evolve to promote innovation to the benefit of consumers in the digital age.⁶

1.3 As the UK communications regulator, Ofcom has powers and duties relevant to some online services. We regulate the infrastructure over which online services are delivered.

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¹ The Furman Report, *Unlocking digital competition*, March 2019
⁴ The Stigler Center, *Stigler Committee on Digital Platforms Final Report*, May 2019
⁵ Australian Competition & Consumer Commission, *Digital platforms inquiry*, July 2019
⁶ Cremer J., de Montjoye Y., Schweitzer H., European Commission, *Competition policy for the digital era*, 2019
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and we set the standards for some categories of online content. For example, we ensure that streaming services such as BBC iPlayer and Amazon Prime Video meet certain content standards. Our powers to enforce competition law and conduct market studies include some services delivered online. We also have duties to promote awareness and understanding of all types of electronic communications media. We are doing this through our Making Sense of Media Programme, working with fellow regulators, Government, industry, the third sector and academics.

1.4 As consumers continue to shift more daily activities online, they benefit from new and innovative forms of communication. Online services therefore will become increasingly relevant when we intervene to promote competition in communications markets. We need to consider how these online services interact with, and possibly even reshape, existing communications markets. We will also have to address challenges posed by some online communications services themselves. For example, if the new European Electronic Communications Code is transposed, we will need to consider consumers’ experience of internet-based communications services such as WhatsApp. We are also considering how online services and capabilities can benefit consumers. For example, following the Government’s smart data consultation, we are considering how consumers may benefit from sharing data on how they use communications services with third parties such as price comparison websites.

1.5 This paper provides a broad overview of online policy issues to inform this work. It explains from an economic perspective how market failures in online services may cause a wide range of harms to individuals and society. It also looks to contribute to the wider debate by highlighting the complexity of this area and the potential for unintended consequences if regulation fails to take a holistic perspective.

1.6 We also draw on our experience as a regulator to describe the challenges we should navigate when we consider online services under our existing powers. Some of these challenges are similar to those we face in regulating traditional services, but we recognise that in some circumstances online services will require us to adapt our approach.

1.7 While this paper provides a conceptual approach that we can use to analyse online harms which fall under our remit, it will be part of a broader policy assessment as we look to evidence and address harms where they arise. For example, an analysis of market failures can complement the framework of rights and responsibilities that has underpinned standards regulation in traditional media.

1.8 We hope this paper can also assist policymakers and fellow regulators as they consider the unique challenges associated with developing effective regulation in this area. As its focus is to provide a conceptual overview of harms and their potential sources, this paper does not seek to provide new evidence that such harms arise online. Nor do we hold a view on how future regulation of online services should be structured or assigned, which are matters for Government and Parliament.
Characteristics of online services

1.9 A range of UK policy reviews and other reports identify the following characteristics of online services:

- **Concentrated markets.** Online services can tip in favour of one or a few providers (‘winner takes all’ or ‘winner takes most’). This can happen if certain companies benefit from cost savings due to their size (‘economies of scale’) or their presence across a range of services (‘economies of scope’). In the case of online platforms particularly, this concentration can occur if a platform service becomes more valuable to individual users as more users are active on it (‘network effects’). For example, social networks such as Twitter can be more valuable to individual users the greater the number of other users who are also active on the platform.

- **Use of data and algorithms.** Online services are exceptionally well placed to collect data about users’ behaviours and characteristics. This data can be used to derive insights on consumer preferences, which in turn inform algorithms that personalise and target services in novel ways. This can benefit users if these services better suit their needs. Many providers therefore have an incentive to collect data, particularly where they can use this to attract consumer attention and target advertising.

- **Dynamic and innovative nature.** New ways of delivering traditional services and products are constantly emerging online. Disruptive new services can displace existing alternatives or create new markets. This generates substantial benefits for consumers, as they get access to a range of new or better services. For example, WhatsApp allows people to communicate globally without having to pay a fee, while Amazon allows consumers to easily compare alternative products when making purchase decisions.

- **The scope of online players.** Many providers have expanded into offering a wide range of services for businesses and consumers. This generates complex business models often referred to as ecosystems. For example, Amazon’s, Facebook’s and Google’s online properties cover different combinations of social media, search, retail, entertainment and technology.

1.10 Because of these characteristics, consumers benefit substantially from access to efficient, personalised, innovative and integrated services. However, some of these characteristics also have the potential to contribute to market failures or challenge the design of interventions that can address harms effectively.

How market failures can arise online

1.11 In some circumstances, the characteristics described above could lead to market failures, which are reasons why unregulated markets may not deliver the greatest benefit to society overall. These potential market failures are not unique to online services, but their effects may be heightened due to the unique role that data and algorithms can fulfil online.

1.12 There are a range of possible market failures that could be relevant, including:
• **Market power.** Where a service is concentrated with one or a few providers, they may have market power. That may be because the threat that an entrant will displace the incumbent is weak. For instance, the UK’s Competition and Markets Authority (CMA) is investigating whether certain online platforms enjoy market power in consumer-facing markets and digital advertising, in part because of the entry barriers that may arise from the need to access data on a large number of users to improve service quality.\(^7\)

• **Barriers to switching.** Some factors can increase the cost to users of switching between online providers. This may degrade the user experience and make it less likely that they will consider switching to an alternative service. For example, changing social media account might mean users lose contacts or personal media in the process.

• **Information asymmetry.** Consumers might not choose the best course of action if they do not have all the relevant information or technical knowledge they need when choosing products. For instance, consumers often accept terms and conditions without reading them, and therefore are often unaware of how much data they are sharing as they access services online. The impact of this is particularly relevant online, where connected devices combined with data analytics allow providers to observe and infer more about consumers than what is typically feasible offline.

• **Behavioural biases.** There are several well-documented behavioural biases which mean that consumers do not always choose the best course of action. For example, people may find it difficult to trade off the immediate benefits of accessing a ‘free’ service (such as social media) with the potential longer-term costs of sharing their data (such as the risks of fraud following a data breach). Access to data and data analytics allow online providers to understand consumer biases in more immediate and intricate ways. The potential to test the impact of changes to services at lower cost, sometimes in a personalised way, means that there is more scope for online providers to leverage these biases to influence consumers’ choices in novel ways.

• **Externalities.** Online consumers and providers may not always consider the impact of their actions on wider society. This may be the case if content-curation algorithms which seek to maximise consumer attention do not account for potential harm to individual users’ wellbeing, for example, where consumers’ attention may be captured most strongly by harmful content. These algorithms may also fail to acknowledge the potential for wider societal impacts arising, for example, from disinformation.

### How market failures combine to create online harms

1.13 In cases where an online service is characterised by the presence of one or several market failures, there may be harm to consumers or society. The definition of online harm in this paper is wide, and it includes a broader set of harms than the content and conduct harms discussed in the Online Harms White Paper.\(^8\)

1.14 The rows in Figure 1 list a range of consumer and societal harms that could arise online. These are harms identified by UK policy reviews, alongside related issues raised as part of

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\(^7\) Competition and Markets Authority, *Online platforms and digital advertising market study*, July 2019

\(^8\) UK Government, *The Online Harms White Paper*, April 2019
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the wider public debate. The columns of the figure indicate the market failures that could be a source of, or an exacerbating factor for, each harm.

**Figure 1: Market failures that can contribute to consumer and societal harms online**

<table>
<thead>
<tr>
<th>Market failures</th>
<th>Market power</th>
<th>Barriers to switching</th>
<th>Info asymmetry</th>
<th>Behavioural biases</th>
<th>Externalities</th>
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</thead>
<tbody>
<tr>
<td>Competition harms</td>
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<tr>
<td>Fraudulent/unfair business practices</td>
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<td>Unfair price personalisation</td>
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<td>Harm to privacy</td>
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<td>Data breach</td>
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<td>Security and resilience issues</td>
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<td>Risks to media plurality and quality</td>
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<td>Content and conduct harms</td>
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<td>Harm to wellbeing</td>
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*Source: Ofcom.*

1.15 Figure 1 shows that an individual consumer or societal harm can result from (or be exacerbated by) a range of different market failures, either individually or in combination. The figure also illustrates that a given type of market failure can contribute to multiple harms across different policy areas.

1.16 This generates the potential for complex interactions between market failures and harms, which can create links between harms and their policy areas. There are three related factors that mean these links may be stronger in online services:

- **The tendency towards concentrated markets.** Where concentration results in market power, providers may be able to charge higher prices or offer poorer quality, choice and innovation – in some cases by distorting competition against rivals. In some circumstances, weak competition might reduce the incentive for firms to invest in dimensions of quality which some consumers may value. This may include underinvestment in protection from harmful content that consumers prefer not to see. Market power, if exploited, can also create harms through impacts on other firms. For instance, where it could undermine the sustainability of high-quality journalism.

- **The drive for data and attention.** If access to data gives incumbents a significant competitive advantage, this can make it harder for other companies to enter and
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compete. This could strengthen incumbents’ market power. But even where several firms compete effectively, harms can arise where consumers are unable to protect their privacy due to lack of information or behavioural biases. These market failures could also exacerbate other harms. For example, if many providers compete for consumer attention, they may have financial incentives to inadvertently promote types of disinformation or harmful content that attract attention. This may also harm people’s wellbeing if it promotes addictive behaviour.

• **Tailoring of services based on data analytics and algorithmic adjustments.** This is increasingly possible in targeted and personalised ways, and it may influence consumer decisions in a way that enhances market power. It can cause other harms – for example, if algorithms exacerbate echo chambers or embed biases leading to discrimination against protected characteristics. It can also exacerbate the impact of harmful content if it is promoted to consumers who are most susceptible to harm (for example, self-harm content).

**Online services generate a unique set of policy challenges**

1.17 The fact that market failures can potentially interact to generate online harms can have important consequences for regulation. It means that a remedy may not resolve a given online harm if it does not address all market failures that are at its source. To take one example: if consumers do not understand what data they share or how it is used, then privacy harms may not be resolved by enhancing competition. The opposite could also be true. In the absence of other market failures, even if consumers are aware of the data they share and how it is used, a lack of competition may reduce the incentives for an incumbent with market power to offer services which collect less consumer data.

1.18 In the worst case, failing to recognise the complex interactions between market failures and online harms may lead to unintended consequences that are harmful in themselves. For example, in some circumstances interventions which increase competition may even exacerbate privacy harms. This could be the case where consumers do not pay attention to the data they share when using a service, and competitive pressures lead providers to collect more data to improve their services and attract users. Similarly, a remedy that aims to increase competition may exacerbate the spread of disinformation. This may happen if providers compete for consumers’ attention to increase the revenue they generate from advertising, and certain types of disinformation attract attention.

1.19 This means that effective interventions in online services, both under existing remits and potential future powers, can benefit from reflecting the interactions between harms and the market failures that cause them:

• **Tackling several market failures at once.** There may be benefits from developing remedies that address all market failures which cause a harm. For example, addressing privacy concerns may involve multiple remedies. These could include requirements to allow interoperability between platforms to improve competition by promoting the emergence of new services; as well as measures that promote informed decisions about the data consumers share online when they come to choose between services.
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- **Tackling several harms at once.** Understanding the interactions between market failures and harms may allow regulators to capitalise on synergies that could exist from targeting a remedy at a market failure or industry feature which is at the basis of several harms. This could promote efficient remedy design, possibly reducing the number and cost of interventions. It could also reduce the burden of regulation. For example, limiting the ability to personalise the curation of certain content may improve people’s exposure to a variety of views, which can allow for more informed political views. This variety can also reduce the impact of disinformation, for example where it increases people’s ability to critically assess the content they are served online. In this example, any reduction to the quality of service experienced by users would also need to be considered.

- **Trading off harms.** Interventions are less likely to cause unintended consequences if regulators understand the links between harms. Where a remedy cannot be developed to limit these unintended effects, regulators may need to balance the need to address a given harm with competing policy aims. For example, the operational cost associated with content regulation may undermine the ability for smaller content providers to compete effectively, possibly entrenching market power of larger incumbents.

The characteristics of online services can themselves challenge effective regulation, requiring careful consideration before regulators intervene in online services which have provided significant consumer benefits. In some cases, providers also take voluntary action to tackle some online harms. Where regulators nonetheless decide intervention is needed, the risk of regulatory failure could be particularly high for several reasons:

- Complex business models can generate links between different services, which can make it harder to identify sources of harm and can **challenge traditional approaches to regulation.** This means that in most cases services should not be reviewed in isolation. Regulators could use new techniques to test theories of harm and potential remedies.

- There is a wide variety of online services, acknowledging the differences between them can be relevant in identifying harm and designing effective remedies. Regulators may have to **prioritise appropriately and take a proportionate approach** where the scale of an online service may make it more difficult to eradicate harms entirely. More generally, the internet’s global nature and the scale of major online players mean that some remedies can be more effective and efficient if coordinated internationally.

- In dynamic and fast-moving services **future outcomes can be hard to predict,** which may require regulators to take decisions under greater uncertainty. The role of dynamic competition can mean that it is particularly important for regulators to consider the effects of their remedies on entry or innovation. It also means that interventions need to be timely to address harms and may require updating as services develop.

- Bias in consumer decision making due to information asymmetry and behavioural biases can lead **consumers and producers to respond to remedies in unanticipated ways.** Regulators need to be conscious of these potential effects when intervening online. In some cases, field trials and data analytics may help identify the impact of consumer decision bias, which in turn can promote the design of effective remedies.
1.21 Government and Parliament are currently considering the need for additional regulation of online services. But the variety of online services mean they already overlap with the remit of existing regulators. There are likely to be benefits from these regulators working together to share knowledge and tackle issues which touch on several policy objectives. We are already working closely with the ICO and the CMA – sharing expertise on communications services, ex-ante competition regulation and data privacy. Regardless of any decisions Government and Parliament take on the future regulatory framework, online issues will continue to be relevant to existing regulators. So this type of collaboration will remain important.

1.22 We explore these observations further in the remainder of this paper:

- Section 2 identifies the main characteristics of online services that are relevant to policy interventions.
- Section 3 describes the market failures that can stem from these characteristics.
- Section 4 describes the consumer and societal harms that could arise online and explains how a common set of industry characteristics and market failures leads to links between these harms.
- Section 5 identifies the challenges to designing effective interventions online which limit negative unintended consequences.
2. Key characteristics of online services

2.1 This section sets out the characteristics of online services, to inform the subsequent discussion on market failures and challenges for regulation. It draws on the recent reviews by Furman,9 the Stigler Center10 and the European Commission expert panel on competition in digital markets.11 It highlights that:

- The internet allows for commercial and personal interactions on a scale greater than that typically seen offline.
- Unprecedented access to data allows providers to improve and personalise services to the benefit of consumers. Providers thus have an incentive to collect data, particularly where they can use this to attract attention and target advertising. However, data access can raise barriers to entry, and users often lack knowledge about the data they share.
- The combination of network effects and significant economies of scale and scope in online services can result in markets that ‘tip’ in favour of one or a few providers.
- Online services tend to be dynamic in nature and have been a significant source of ongoing innovation. Online providers may be well placed to develop the next disruptive innovation that will change how society operates.
- Online providers can have incentives to expand across the online value chain, creating ‘ecosystems’. This challenges traditional approaches to policy analysis, for example where this drives convergence between markets in ways that are not well understood.

2.2 Because of these characteristics, consumers benefit substantially from access to efficient, personalised, innovative and integrated services. However, some of these characteristics also have the potential to contribute to market failures or challenge the design of interventions that can address harms effectively.

2.3 In this paper, we refer to ‘platforms’ as online services that connect users. We use ‘provider’ to describe a firm providing online services, ‘consumers’ to describe individuals purchasing or using online services, and ‘users’ to describe all parties using online services, including consumers and businesses. For example, Uber is a provider of an online ride hailing service that connects consumers of ride services with drivers, so that the users of Uber’s platform include both the consumers and the drivers.

2.4 There is a wide variety of online services, platforms and business models. We use a broad definition of online services.12 In taking this broad perspective, this paper abstracts away from the richness of the online environment and the nuances that arise in different contexts. As a result, the extent to which our analysis and observations apply to individual

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10 The Stigler Center, *Market Structure and Antitrust Subcommittee*, May 2019
11 Cremer J., de Montjoye Y., Schweitzer H., European Commission, *Competition policy for the digital era*, 2019
cases will vary. This paper does not draw conclusions about individual services, and examples are used to illustrate points rather than suggest concerns.

The scale and variety of online services

2.5 The internet reduces obstacles to a wide range of interactions between its users. For example, it allows people to assess many products and services without the need for physical store visits. This has facilitated connections between businesses and consumers on a global scale and across a variety of commercial transactions, which is reflected by the fact that worldwide internet usage has increased from 16% to 48% from 2005 to 2017.13

2.6 The impact of digitisation is particularly noteworthy in the context of the creation and distribution of content. Technological progress has significantly facilitated the creation of content by individual consumers (for example, due to video editing on mobile handsets). Combined with the emergence of online content sharing platforms (such as YouTube), the internet has promoted the distribution of user-generated content at a lower cost, and therefore much greater scale, than previously experienced.

2.7 The emergence of audio-visual streaming and online news means that a significant proportion of consumers now access content online. To illustrate, Ofcom’s review of news consumption by UK adults found that the internet is the second most-used platform to access news (66%).14 Moreover, Ofcom found that 92% of UK internet users access YouTube every month, spending on average 27 minutes per day on the site.15

2.8 The extent of interactions that take place online, and its impact on our economy, is also apparent in the advertising sector. As illustrated in Figure 2, the digital advertising market now commands the largest share of advertising spend in the UK.

13 International Telecommunications Union, *ICT Facts and Figures 2017*, 2017 [accessed 11/10/2019]. Percentages given are the proportion of the world population accessing the internet from any device via a fixed or mobile network in the past three months.
14 Ofcom, *News Consumption in the UK: 2019*, July 2019, p. 15
15 Ofcom, *Online Nation report*, May 2019, p. 10
In addition to advertising, online providers generate revenue using subscription business models (for example, Spotify Premium) and transactional business models (for example, Amazon and Uber).  

The role of data and algorithms

Access to large datasets and advanced data analytics (that is, artificial intelligence and machine learning) can be an important input in delivering online services. Data can be used to promote providers’ ability to generate revenue by improving services, enhancing targeting, or informing new product development.

This can be particularly relevant for providers which generate revenue through advertising. Data may allow these providers to improve their services and attract consumer attention; and it can allow them to target advertising more effectively at those consumers. We use a broad definition of ‘attention’ in this context, which covers all types of interaction with a service that could be monetised, by providing opportunities for advertising, sales or other ways of generating revenue. For example, time spent consuming content or instances of search queries.

While access to data and the use of data analytics is not unique to online services, the scale and more immediate nature of this access sets online services apart from most traditional services. Providers of online services can use this data to derive increasingly more sophisticated and accurate predictions of user preferences, which allows them to target their services at users who most value them.

Moreover, these observations on user preferences can inform product development. They can allow providers to adjust their services to promote user interaction, in some cases on

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Some business models generate revenue from multiple sources (for example, Amazon generates revenue from Prime subscriptions alongside transactional revenue). There are also other options for generating revenue which are not widely used currently but may have a more important role in the future, such as donations (for example, Wikipedia) or integrating cryptocurrency or tokens into protocols.
an increasingly personalised basis. The analysis of data and the associated updating of services, possibly in targeted and personalised ways, is increasingly reliant on the use of algorithms. They can facilitate the automation of service delivery and service adjustments.

2.14 Data can provide incumbents with a competitive advantage if it allows them to offer superior services that an entrant (lacking equivalent data) may be unable to match.\(^\text{17}\) That said, the extent to which data access can raise barriers to entry depends on several factors which do not necessarily apply to all online services.\(^\text{18}\) For instance, this may depend on whether data held by an incumbent (such as data on actual consumer behaviour) is more valuable than data that could be gathered by an entrant (such as through user surveys).

2.15 Ofcom research indicates that consumers generally lack awareness of the data that is being collected from them online. Only 5 in 10 adult internet users in the UK were aware that apps on smartphones collect data on users’ locations or on what products or services interest them.\(^\text{19}\) This lack of awareness can result in privacy issues if it leads consumers inadvertently to share too much information.

2.16 The General Data Protection Regulation (GDPR) was introduced to strengthen and harmonise regulation of the collection and use of personal data by businesses within the EU. It also gives citizens more control of their personal data. However, Ofcom research shows that 70% of internet users usually accept terms and conditions (where the company sets out how it uses personal data) without reading them.\(^\text{20}\)

2.17 Some research attributes this observation to the length and complexity of the terms and conditions, which implies that some consumers may find it difficult to engage effectively with the information. For instance, the ‘2011 Skills for Life Survey’ reports that terms of service and privacy policies can take 30 minutes or more to read and require a reading age in excess of UK average reading abilities.\(^\text{21}\)

Platforms and network effects

2.18 Platforms’ role in bringing together users implies that these services are characterised by network effects. These network effects are positive and ‘direct’ if the value of the service to users increases with the number of the same type of users active on the platform. Communications services often display these effects. For example, social networks such as

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\(^{17}\) See Analysys Mason, *The use of data by online services*, May 2019, p. 18; and, Benes R., *Why is third-party data still often wrong?*, January 2017 [accessed 24/07/2019]

\(^{18}\) Some have argued that data is unlikely to be a source of market power, as data are often not valuable and are ubiquitous. See Tucker C., *Digital Data, Platforms and the Usual (Antitrust) Suspects: Network Effects, Switching Costs, Essential Facility*, Review of Industrial Organization, June 2019

\(^{19}\) Ofcom, *Adults media use and attitudes report*, May 2019, p. 14. Internet users were prompted with the following four ways companies can collect information about people based on what they do online and asked which they were aware of: using cookies to collect information about the websites people visit or what products interest them; collecting information from social media accounts about users’ interests, ‘likes’, location, preferences; asking customers to register with a website and opt in/out to receiving further information from them or their partners and; using apps on smartphones to collect data on users’ locations and on what products and services interest them.

\(^{20}\) Ofcom, *Adults media use and attitudes report*, May 2019, p. 15

\(^{21}\) See Behavioural Insights Team, *The behavioural science of online harm and manipulation, and what to do about it*, April 2019, p. 16
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Twitter are considered more valuable to individual users the greater the number of other known users also active on the platform.

2.19 But they can also be ‘indirect’, where the value for users on one side of the platform increases with the number of users on the other side of the platform. For example, an online marketplace will be more attractive to business users the greater the number and uniqueness of potential customers that access that platform.

2.20 Another example is YouTube, where the value of the platform for viewers increases with the amount of content they can access, as long as they can navigate the content. The greater the audience the platform can provide access to, the more attractive it is to content providers and advertisers.

2.21 The presence of network effects implies that, all else equal, larger platforms offer users a better product. As a result, markets can be concentrated if they ‘tip’ in favour of one or a few platforms (‘winner takes all’ or ‘winner takes most’). This is more likely where users are active on only one platform (‘single-homing’). Consumers might have preferences for single-homing due to several factors, such as cases where engaging with multiple services is perceived as more complicated or time consuming, or if status quo bias makes consumers less likely to try new alternatives.22

2.22 In markets susceptible to tipping, competition is often ‘for the market’. In such cases, competitive constraints on incumbents come from the threat of being displaced by a rival or an entrant. For example, when a significant fraction of consumers switched from social networking site Myspace, to an innovative and disruptive entrant Facebook.23

Economies of scale and scope

2.23 Online services can be subject to significant economies of scale where providers incur a high up-front cost of creating a service, coupled with low or near-zero marginal costs of serving additional users.24 In these cases, providers benefit from lower average costs as their user base grows, which can contribute to market concentration.

2.24 Separately, some online services can benefit from economies of scope, where a provider can reduce costs or enhance service quality by expanding its presence across a range of related services. This can be achieved by using existing customer and supplier relationships, sharing of technical expertise, and the sharing and merging of data.25

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22 Online services can sometimes reduce the impact of these factors and, in principle, facilitate multi-homing. For example, the ability to download multiple apps on a mobile phone can allow consumers to engage more easily with a range of communications services, compared with fixed telephony.

23 The Furman Report, Unlocking digital competition, March 2019, paragraph 1.98

24 The Furman Report, Unlocking digital competition, March 2019, paragraph 1.68

25 The Furman Report, Unlocking digital competition, March 2019, paragraphs 1.68-1.70
The dynamic nature of the industry

2.25 The digitisation of our economy has created new products and services, as well as novel ways to distribute existing services. This has revolutionised a wide range of consumers’ daily activities, ranging from online dating to app-based ride hailing.

2.26 As existing services increasingly move online and new services emerge, these innovations continue to deliver substantial benefits to consumers. They can also be a source of competitive constraint on incumbents, if entrants can launch products that are disruptive to the offerings of existing providers.

2.27 Providers of online services have been a source of ongoing innovation, and some feature amongst those companies with the highest levels of R&D expenditure globally. Research from PwC indicates that Amazon, Google, Microsoft, Apple and Facebook are amongst the largest global spenders on R&D. Their investment in projects such as self-driving cars suggests that these companies have the potential to develop the next disruptive innovation that could alter how our society functions.

2.28 Furthermore, major online providers regularly acquire other players. The Furman review reports that the five largest online providers have made over 400 acquisitions globally in the last 10 years. These acquisitions may allow them to expand the services they offer and improve their existing products. They have also raised competition concerns in cases where incumbents bought businesses which might have become credible competitors, thus eliminating potential competitive threats (some refer to these as ‘killer acquisitions’).

The role of ecosystems

2.29 Some platforms have expanded the range of services offered to users and developed into increasingly complex ecosystems. Based on Ofcom desk research, the figure below shows a stylised and partial illustration of Google’s ecosystem as an example. It illustrates how Google offers consumers a wide range of services (for example, maps, search, email, mobile OS, YouTube, etc.), which consumers can access in several ways, through a combination of Google and rivals’ devices and operating systems. These services allow it to capture consumer attention and collect data that can be used to improve its range of services or generate revenue through targeted advertising. The type of data collected can vary according to the relevant services used, such as information on a consumer’s: demographic details, location, search query (which could indicate a purchase intention) or content viewing (which could reveal an individual’s preferences).

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26 PwC, The 2018 Global Innovation 1000 study, October 2018
28 For example, Cunningham C., Ederer F., Ma S., Killer acquisitions, 2018. This is an empirical study in pharmaceuticals.
29 We define ecosystem as a set of services offered by a single company or corporate group, with links across these services on the supply and / or demand side.
Figure 3: Stylised and partial illustration of the Google ecosystem

Note: The blue box highlights services within the Google ecosystem. For simplicity, we have not shown every possible link into, or within, the ecosystem.

Source: Ofcom stylised interpretation of Google’s services based on desk research.³⁰

2.30 The incentives for platforms to develop into ecosystems may be driven by:

- The economies of scope that can arise when offering online services. For instance, if algorithms used in one service can facilitate the delivery of another service.
- The drive to collect a wide range of data about an individual consumer across several services, or to attract more attention from consumers overall. This incentive may be stronger if a provider generates revenue from its services through advertising. Greater consumer attention increases the size of the potential audience for that advertising, while access to a wide range of consumer data may enable more precise targeting.
- The efficiencies that may arise from creating interoperability between the services at different levels of the supply chain. For example, providers may be able to enhance

³⁰ For other stylised conceptualisations of aspects of ecosystems in online services, see for example Australian Competition & Consumer Commission, Digital platforms inquiry, July 2019, section 2.2, focusing on the relationships between digital platforms, consumers, businesses and media content creators; and the OECD, Bringing Competition Policy to the Digital Era: Background note by the Secretariat, 29–30 November 2016, section 2.4, focusing on ‘big data’.
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services (for example, a shopping service) by integrating them with products that interface with consumers directly (for example, voice operated assistants).

2.31 The development of platforms into ecosystems is relevant for policy analysis where it:

- Promotes the convergence between services. For example, a person’s feed on Facebook can include messages from friends, as well as links to online content and advertising. That said, providers can differentiate their offering by aggregating services in different ways. This can complicate the delineation of relevant ‘markets’ for the purpose of a competition assessment.

- Generates complex supply-side links between services across the online value chain. For example, several services may be offered to consumers for free as providers can generate revenue from advertising. Likewise, data collected from one service can enhance the performance of another service. For instance, YouTube recommendations are influenced by a person’s activity on YouTube, Google and Chrome.31 As a result, the analysis of a given online service may require an understanding of other services that are inherently linked to it through a provider’s ecosystem.

- Creates a dynamic environment where platforms that hold a leading position in one service expand to offer services in which another platform holds a leading position. Figure 4 illustrates how ecosystems of major online providers can overlap in several services. This may suggest that, at least in part, competition also occurs amongst ecosystems. Even where providers do not offer the same range of services as part of their ecosystem, they may still compete to attract and retain consumer attention.

31 YouTube Help, Manage your recommendations and search results - Computer - YouTube Help [accessed 8/10/2019]
Online market failures and harms

Figure 4: Presence of major online platforms across software and hardware products

<table>
<thead>
<tr>
<th>Service Type</th>
<th>Amazon</th>
<th>Apple</th>
<th>Google</th>
<th>Facebook</th>
<th>Microsoft</th>
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<tbody>
<tr>
<td>Advertising platforms</td>
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<tr>
<td>Browsers</td>
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<tr>
<td>Cloud services</td>
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<tr>
<td>Digital assistants</td>
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<tr>
<td>Email and messaging</td>
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<tr>
<td>General Search</td>
<td></td>
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<tr>
<td>Maps</td>
<td></td>
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<td></td>
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<tr>
<td>Operating systems</td>
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<tr>
<td>Smartphones/tablets</td>
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<td></td>
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<tr>
<td>Social networks</td>
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<tr>
<td>Streaming video</td>
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</table>

3. Market failures that can arise online

3.1 Market failures are reasons why unregulated markets may not deliver the greatest benefit to society overall. This section uses a broad definition of market failures, also including market imperfections, to explain how online services may cause harms to individuals and society.

3.2 It describes how the features identified above can be at the source of a wide range of market failures in relation to some online services, including: market power, barriers to switching, information asymmetries, behavioural biases and externalities.

3.3 These market failures are not unique to online services, but their effects may be heightened due to the unique role that data and algorithms can fulfil online. The range of potential market failures at play also implies that policies targeted at a single market failure, such as addressing market power through competition policy, may not resolve all issues online.

**Market power**

3.4 Economies of scale and scope can provide incumbents with a competitive advantage, which can be difficult for potential entrants to overcome. In particular, lack of data can hinder the ability for potential entrants to compete with incumbents in terms of service quality.

3.5 When there are network effects in platform services, they can further exacerbate barriers to entry and expansion as large platforms are more valuable from the perspective of their users. This can make it difficult for entrants to attract users, even if they offer a superior service, as users may not gain the same benefits from accessing a smaller network.

3.6 Overall, the competitive advantage that large players can gain from the combination of economies of scale, scope and network effects can lead markets to ‘tip’ in favour of only one (or at most a few) incumbent(s). In this case, competitive constraints would mostly come from entrants who may displace incumbents by launching new or improved services. If such entry is feasible, network effects could work against the incumbent, if the value of using the incumbent’s platform falls as users switch to the entrant platform.

3.7 However, where barriers to entry are too high, incumbents can gain and exploit market power in a way which cannot be eroded, at least not sufficiently promptly, by potential entrants. This is particularly the case where consumers prefer single-homing, as an entrant will have to convince multiple users to switch at once to gain scale and compete effectively with incumbents. Incumbent platforms may in theory have incentives to encourage single-homing to entrench market power. For example, they may discourage consumers from switching by limiting interoperability with competing services.
Barriers to switching

3.8 Costs that users face to switch between services can create barriers to switching, which can contribute to reduced competitive pressures and thus promote market power. They can also directly reduce the benefits users obtain from using a service.

3.9 There are several features that could reduce barriers to switching for users of online services, such as free services with no contractual ties and no need to buy equipment to use the new service.32

3.10 That said, there are a range of factors that can raise barriers to users switching between some online services. These factors can also degrade the user experience. For example:33

- **Loss of personal data**: where consumers or businesses moving to a new platform are unable to take their data with them. For instance, consumers may lose their conversation history when switching between communication services.

- **Learning costs**: where long-term users of a service are put off switching to a rival service because they incur learning costs. For example, Android users may be unwilling to switch to Apple if they are unfamiliar with Apple’s user interface.

- **Technical barriers and tying**: where services are not interoperable, switching to another service may require the use of different systems and consumers may miss out on a richer set of (more) integrated services. Similarly, where providers require users to purchase services together with hardware, this can create further barriers to switching.

3.11 Regulatory initiatives have sought to address some of these issues. GDPR gives users the right to move the data they have provided to one data controller, to another data controller, in a machine-readable format. Some providers are taking steps in this area. For example, in July 2018, Apple, Facebook, Google, Microsoft and Twitter launched the Data Transfer Project, an open source, service-to-service data mobility platform.34

Imperfect information and information asymmetries

3.12 Information is critical to consumer decision making. Consumers may not choose the best course of action if they do not have all the relevant information or technical knowledge they need when choosing products. This could arise because consumers make decisions based on imperfect information, or if there are asymmetries between the information available to consumers and online service providers.

3.13 Consumers may have imperfect information where it is too costly or difficult for them to engage with all information that is relevant to their decisions. This may be an issue where

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32 Also see Tucker C., *Digital Data, Platforms and the Usual [Antitrust] Suspects: Network Effects, Switching Costs, Essential Facility*, Review of Industrial Organization, June 2019. The paper finds that digitization weakens switching costs “because it frees a user from a particular hardware system”. For example, the ability to store data in the cloud makes porting data to different devices easy.

33 The Furman Report, *Unlocking digital competition*, March 2019, paragraph 1.87

34 The Data Transfer Project, *Data Transfer Project*, 2019 [accessed 11/10/2019]
consumers do not have the knowledge required to understand how their data may be used if they access an online service. Lengthy terms and conditions which attempt to explain this to consumers may in turn lead to information overload, where consumers have too much information to make effective decisions.35

3.14 More generally, the large amount of information which is available online can make it difficult for consumers to identify information that is most relevant to them. Some online services can help to overcome any related issues, by providing a means for consumers to navigate information. However, information asymmetry may exist between online services and consumers. In particular, the way in which online services curate information may not be fully transparent. In these cases, consumers may not always choose the best course of action for them. For example, if services such as digital comparison tools are not clear about how they rank results, then consumers will not be able to make an informed choice between the different options available to them.36

3.15 Similar issues may arise where businesses lack visibility on the terms of trade they agree to when they use online services, or if the quality or effectiveness of the services provided is not always transparent. This lack of transparency may lead to inefficient allocation of resources for businesses who sign-up to the online service. For example, advertisers may not be able to assess the effectiveness of their campaigns if they do not have access to data on consumer responses to their ads.37 This may limit their ability to allocate advertising budgets in the most efficient way.

3.16 The EU platform-to-business regulation38 may reduce some of these information asymmetries by imposing transparency obligations for online platforms. Nonetheless, online services may have reasonable incentives to limit information disclosure. For example, it is possible that a provider’s business model relies on its unique approach to algorithmic design and associated ranking of search results.

Behavioural biases

3.17 When consumers make decisions, they can be affected by a range of behavioural features, which for simplicity in this paper we refer to as ‘biases’.39 As a result, consumers may not always choose the best course of action for them.

3.18 This is particularly relevant online, as algorithms are used to track and assess user behaviour and target services to maintain consumer attention. This could in turn facilitate

35 See Wik Consult, Personal Data and Privacy, May 2015, p. 4, for a discussion on the ‘transparency paradox’.
36 CMA, Digital comparison tools market study: Final report, September 2017, paragraph 4.118
37 The Stigler Center, Market Structure and Antitrust Subcommittee, May 2019, p. 38
39 These behavioural features can include systematic biases, incorrect beliefs or preferences that depart from ‘classical’ economic assumptions. Our reference to a choice which is the best course of action is also a simplification, as the notion of a ‘best course of action’ may not always be clear-cut.
the ability to exploit behavioural biases in novel ways, possibly unintentionally, to direct consumers’ decisions in a way which benefits online providers’ interests.\(^{40}\)

3.19 This practice may be particularly relevant for online providers who look to generate revenue through advertising, as they seek to maximise the amount of attention captured from consumers.\(^{41}\)

### Examples of behavioural biases

**Salience / limited attention:** In making decisions, consumers may only focus on attributes of the service that are most prominent (or salient) to them. For example, consumers may reflect less on the privacy implications of using a service, and instead focus on the zero upfront cost. This could limit providers’ incentives to compete on factors that are less salient for consumer decision making.

**Default bias / inertia:** Consumers tend to accept default options even when presented with more favourable alternatives. This could lead consumers to single-home even where the costs of multi-homing or switching are low. It could also incentivise providers to set weak privacy settings as a default, despite consumers tending to want stronger privacy protection.

**Confirmation bias:** Consumers may focus on evidence that confirms existing beliefs and ignore contradictory evidence. Confirmation bias may make consumers more susceptible to online echo chambers.

**Prominence / framing:** How alternatives are presented can affect consumer decision making. Providers can frame choices to seek to influence consumer decision making to their advantage by, for example, positioning search results to present their own related services more prominently than competitors’ alternatives.

**Myopia:** Consumer preferences can be biased towards the present at the expense of future implications of their choices. Providers could exploit this if benefits accrue to consumers immediately, but the costs accrue over a longer time frame. For instance, consumers may not consider the long-term privacy implications of providing personal information to providers. This could lead to consumers sharing more data than they otherwise would.

### Externalities

3.20 Users and providers of online services may not always consider the impact of their actions on the wider society.

3.21 This can generate positive externalities where private actions generate a benefit to others, but where this benefit does not feature in the decision-making process of the actor. As a result, positive externalities can lead to the under-provision of services relative to the level which would reflect their value to society. For example, platforms may not fully account for the benefits to their users from making services interoperable with third party services.

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\(^{41}\) As explored in Behavioural Insights Team, *The behavioural science of online harm and manipulation, and what to do about it*, April 2019, p. 20
Alternatively, externalities can be negative where actions taken generate a harm to others, but where this harm is not accounted for by the actor. This can in turn lead to the overprovision of services. For instance, algorithms may be aimed at promoting consumer interactions to maximise private benefits to platforms through data collection and targeted advertising revenues. However, services that function in this way may give greater prominence to harmful content that attracts attention, which can have negative individual and social impacts.
4. Harms that arise online

4.1 Where an online service exhibits one or several market failures, regulators may have reason to investigate whether this leads to consumer or societal harms. This section discusses a broad range of consumer and societal harms that could arise in online services, and the market failures that could be at the source of these harms.

4.2 Figure 5 summarises these potential harms and the policy areas they fall into. It draws on harms identified by UK policy reviews, alongside related issues that are part of the wider public debate. The definition of online harm in this paper is therefore wider than the content and conduct harms discussed in the Online Harms White Paper.

4.3 The relationship between these harms and market failures can be complex. Several market failures, either individually or in combination, could contribute to a single harm. The opposite is also true, as a single type of market failure or industry feature can generate, or exacerbate, a range of harms.

4.4 These complex interactions can create links across harms and their policy areas. These links can in certain cases be stronger than those we observe in more traditional services, in part due to the role data and algorithms may play in causing or exacerbating a range of harms.

4.5 These interactions also can have consequences for interventions. They raise the risk of regulatory failure if policy objectives are addressed in isolation.
Online services could generate a range of harms

To structure the discussion on harms, we have categorised the range of consumer and societal harms that can be generated by online services into broad policy areas. Existing laws and regulations touch on many of these areas. The application of some existing regimes may need to adapt to reflect the specific features of online services, whereas others have been developed with the online environment in mind (such as GDPR). Separately, policymakers are also considering whether additional regulation is required to address the full range of these online harms.

Source: Ofcom, drawing on external policy reports. 

Online market failures and harms

Figure 5: Consumer and societal harms which can arise online

<table>
<thead>
<tr>
<th>Competition policy</th>
<th>Competition harms</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Excessive prices, limited range of services, lack of quality and lack of innovation, sometimes arising due to leveraging market power into other markets</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Consumer protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fraudulent/unfair business practices</td>
</tr>
<tr>
<td>Financial harm due to scams (e.g. pension fraud), distorted consumption decisions or harms to health and wellbeing</td>
</tr>
<tr>
<td>Unfair price Userisation</td>
</tr>
<tr>
<td>User data allowing targeted pricing - charging higher prices to vulnerable consumers, which may be considered unfair</td>
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</table>

<table>
<thead>
<tr>
<th>Data protection</th>
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</thead>
<tbody>
<tr>
<td>Harm to privacy</td>
</tr>
<tr>
<td>Nuisance from targeted services (e.g. advertising), distress (e.g. distaste of surveillance), under-use of otherwise beneficial services</td>
</tr>
<tr>
<td>Data breach</td>
</tr>
<tr>
<td>Identity theft (e.g. financial and time cost to address fraud), cybercrime, distress or costly actions to prevent harm following a data breach</td>
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<table>
<thead>
<tr>
<th>Cyber security</th>
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</thead>
<tbody>
<tr>
<td>Security and resilience issues</td>
</tr>
<tr>
<td>Surveillance issues, attacks on infrastructure to undermine business or society generally</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Media policy</th>
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</thead>
<tbody>
<tr>
<td>Risks to media plurality and quality</td>
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<tr>
<td>Too much influence over the political process by few entities, challenges to the sustainability of high quality journalism and risks of echo chambers</td>
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<table>
<thead>
<tr>
<th>Content policy</th>
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</thead>
<tbody>
<tr>
<td>Content harms</td>
</tr>
<tr>
<td>Illegal (e.g. child sexual abuse imagery, terrorist content) or non-illegal harmful content (e.g. age-inappropriate content, self-harm advocacy)</td>
</tr>
<tr>
<td>Conduct harms</td>
</tr>
<tr>
<td>Cyber-bullying, trolling, intimidation, sexting (by under 18s), harassment</td>
</tr>
<tr>
<td>Disinformation</td>
</tr>
<tr>
<td>Falsely manipulated content deliberately created/shared to deceive citizens, or cause harm, for political/User/financial gain</td>
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<table>
<thead>
<tr>
<th>Health policy</th>
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<tbody>
<tr>
<td>Health policy</td>
</tr>
<tr>
<td>Harm to wellbeing</td>
</tr>
<tr>
<td>Services which lead to addictive behaviour (e.g. gambling) and excessive use (e.g. screen time)</td>
</tr>
</tbody>
</table>

Online market failures and harms

**Competition harms**

4.7 Competition harms can arise where providers have market power, and they could include: excessive prices, reduced range, lower quality of service and less innovation.

4.8 In the UK, the CMA can intervene to prevent mergers that are deemed anticompetitive. Moreover, the CMA and sector regulators can address anticompetitive conduct by dominant companies ex-post. Ofcom can in some cases intervene ex-ante where a firm is found to have significant market power in a communications market. Types of conduct that have raised competition concerns include cases where a dominant firm:

- Exploits their market power – for example, by pricing excessively, or otherwise setting exploitative terms (such as excessive data collection\(^{43}\)). This might be a concern where a platform is a key route to market for businesses and their customers.
- Entrenches their market power by foreclosing rivals – for example, by imposing terms limiting multi-homing by its users, an incumbent may restrict the ability for rivals to attract users. This may in turn undermine these rivals’ ability to compete effectively.\(^{44}\)
- Expands (or ‘leverages’) their market power – for example, by platforms using ‘self-preferencing’, i.e. prioritising their own vertically integrated services and therefore foreclosing rivals.\(^{45}\)

4.9 Other market failures can also contribute to competition harms. Barriers to switching may limit consumer switching. This may be exacerbated where providers exploit behavioural biases (such as the effect of framing) or information asymmetry (such as unclear termination clauses) to further limit consumer switching. This may in turn promote providers’ ability to exploit, entrench or expand their market power in a way which creates or exacerbates these competition harms.

**Fraudulent or unfair business practices**

4.10 Like any business-to-consumer relationship, consumers could be exposed to fraudulent or unfair practices when looking to purchase a product or service online. Depending on the circumstances, this could include the use of different ‘nudges’ to direct consumers to make a choice that is not in their best interest. For instance, the CMA’s recent investigation into online hotel booking sites raised concerns around potentially unfair practices like pressure selling, misleading discount claims and hidden charges.\(^{46}\)

4.11 Unfair practices might also arise where online services can be highly personalised. Some online providers can implement increasingly sophisticated price personalisation strategies.

\(^{43}\) For example, in a decision in February 2019, the Germany’s Bundeskartellamt concluded that Facebook had abused a dominant position by imposing an exploitative business term on users. The regulator said this exploitation occurred as Facebook made the use of its service conditional on the collection and merging of users’ data from third party sites with data from Facebook user accounts. The decision has since been suspended by the Higher Regional court of Düsseldorf; we understand the Bundeskartellamt has expressed its intention to appeal that decision.

\(^{44}\) The Furman Report, *Unlocking digital competition*, March 2019, paragraph 1.87

\(^{45}\) See European Commission decision in case AT.39741 *Google Search (Shopping)*. The decision is currently under review by the CJEU (see Case T-612/17).

\(^{46}\) See CMA, *Online hotel booking*, Investigation launch, October 2017
This may in time allow them to charge different prices to different consumers based on their individual willingness to pay. Personalised pricing can benefit consumers by promoting competition and increasing access to the market for consumers who have a lower willingness to pay. However, personalised pricing could be harmful where it involves a net transfer of welfare from consumers to providers. It could also be considered as unfair where it results in the exploitation of vulnerable consumers.

4.12 Fraudulent business practices are different because they involve unlawful and dishonest conduct. Such practices can imply financial harms to consumers (for example, pension scams), distort their consumption decisions (for example, misrepresentation of product features) or lead to harms in health and wellbeing.

4.13 Whilst fraudulent and unfair business practices are different in nature, both types of harm may be caused or exacerbated by a range of market failures. Consumers may not be able to protect themselves where they lack information or technical knowledge when choosing between providers. These information asymmetries may include whether a provider has engaged in fraudulent or unfair practices in the past, or how a provider personalises its service based on the data it collects from its customers.

4.14 Providers may also be able to play on consumers’ behavioural biases to facilitate unfair and fraudulent practices. Lack of competition and barriers to switching could also facilitate this, if these market failures prevent consumers from disciplining providers’ actions through switching.

Harm to privacy

4.15 The collection and analysis of data can benefit users through better and more personalised services. However, the Ofcom-ICO Online Harms research found that 54% of all adult internet users do mind if organisations use information about them to decide the content they are shown, and that 55% do mind information being used to determine the adverts they are shown. Also, 39% of UK adult internet users reported having come across a potentially harmful experience online relating to data or privacy in the last year.

4.16 When we refer to harms to privacy, we broadly speak about loss of privacy and associated distress for people (for example, stress from others having access to their data, distaste for surveillance); nuisance from targeted services that rely on a person’s data; use of data to personalise and target harmful content; or a shift in the balance of economic power from consumers to providers. Privacy harms may also include under-utilisation of online services if people forego using (aspects of) services because of privacy concerns.

4.17 Industry has made several efforts to give people more control over their privacy settings, such as the privacy toggles on Facebook and Google. However, harms to privacy still may arise from one or several market failures. Lack of information, lengthy and complex

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47 Ofcom-ICO, *Internet users’ concerns about and experience of potential online harms*, May 2019, p. 72
48 Ofcom-ICO, *Internet users’ concerns about and experience of potential online harms*, May 2019, p. 34
contracts, and behavioural biases can mean that consumers unintentionally share more data than they would if they were making fully informed and unbiased decisions. Providers may also be able to exploit behavioural biases and imperfect information to influence agreements with consumers about data collection and use this to their benefit.

4.18 Importantly, if these market failures imply that data collection is not a prominent consideration for consumers when they choose a service, then providers face little incentive to compete on this aspect of quality. Market power or switching barriers can also lead to privacy harms, as the presence of these market failures may imply that even informed and unbiased consumers are unable to discipline providers’ data collection and use by switching to a rival.

4.19 As such, these market failures could be considered to create a ‘vicious cycle’, where market failures can compound to result in a loss of privacy. This contrasts with a ‘virtuous cycle’, where consumers actively make well-informed decisions to reflect their well-understood preferences on privacy, and providers have the incentive and ability to compete based on these preferences.

Data breach

4.20 The ability of online providers to collect and store user data increases the risks of, and harms from, personal data breaches. According to Ofcom research, the most common causes of concern among adults about the internet in general are in relation to security and data (alongside privacy).\(^50\) Moreover, 30% of UK adults reported having experienced potentially harmful online experiences relating to hacking or security in the last year.\(^51\)

4.21 Cybercrime is an important source of harms that can arise from data breaches. Harms that can result from cybercrime include financial crime, identity theft and blackmail. The fear of cybercrime can also lead to harm. If a data breach occurs, consumers may need to take costly measures (like cancelling bank cards) or they may suffer distress from the increased risk of crime.

4.22 Externalities can increase the potential for data breaches to occur. As the costs of breaches do not fall entirely on businesses, they may under-invest in guarding against these threats. This may particularly be the case where data security does not feature prominently in consumer decision making due to information asymmetry or behavioural bias, which may limit the incentive for providers to compete on this feature.

4.23 Even where data security is a prominent feature when consumers choose between providers, providers may under-invest in such security if they have market power. This may occur if an incumbent has little incentive to invest in security due to a weak threat that consumers could switch to alternative providers offering greater security.

\(^{50}\) Ofcom, \textit{Online Nation report}, May 2019, p. 36
\(^{51}\) Ofcom-ICO, \textit{Internet users’ concerns about and experience of potential online harms}, May 2019, p. 34. The category ‘Hacking / Security’ includes scams, fraud, viruses, trojans, worms and malicious software.
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Security and resilience issues

4.24 Digitisation of services particularly, and businesses more generally, has increased the reliance of our economy on access to the internet and other digital infrastructure. Consumer harm can arise if cybercrime, malpractice, or negligence causes a disruption to this access. For example, by temporarily disabling access to key services such as healthcare records.

4.25 Harms from security and resilience vulnerabilities may arise from externalities, if businesses or governments do not sufficiently internalise the general cost of a breach in cybersecurity to society. This would be particularly the case where consumer decision making is subject to behavioural bias or information asymmetries, which limits consumers’ ability to recognise, and penalise, such under-investment.

4.26 Market power or barriers to switching could also be at the source of this underinvestment, particularly where a lack of choice makes it impossible (or barriers make it costly) for consumers to switch away from businesses which offer poor security.

Risks to media plurality and news quality

4.27 Media plurality makes an important contribution to a well-functioning democratic society through:

• informed citizens who can access and consume a wide range of viewpoints across TV, radio, online and print media from a variety of media organisations; and

• preventing too much influence over the political process being exercised by any one media owner.52

4.28 News consumption has increasingly moved online, with two-thirds of adults now using the internet as a source of news.53 This has introduced a range of challenges to the context in which news providers operate, which may in turn raise challenges for plurality. This could cause harm if it led to a decline in the diversity of viewpoints that are available and consumed across and within media enterprises. Or if any one media owner, or voice, has too much influence over public opinion and the political agenda.

4.29 Print news providers have encountered a particular challenge to their business models. With the shift to online news consumption, the decline in print newspaper circulation has resulted in a significant decline in advertising revenues for newspaper providers. While digital advertising revenues for newspapers are increasing, this has not been sufficient to offset the loss of print advertising. At a national level, newspapers are competing with the likes of Google and Facebook for display advertising revenues. Their extensive reach, and the data they can collect on their users, mean that these platforms can offer advertisers a far more attractive proposition than newspaper providers. At a local level, the classified ads that previously accounted for the majority of newspaper revenues have been gradually

53 Ofcom, *News Consumption in the UK: 2019*, July 2019
lost, as consumers have moved to use online services such as eBay, Autotrader, Gumtree and Rightmove. These services are at least as effective as their predecessors at targeting consumers by locality and can also serve targeted advertising alongside their listings.

4.30 The shift to online delivery of news has also brought with it an increasing role for online intermediaries, including social media, search engines and news aggregators. Intermediaries have an increasing audience reach. In some cases, they can aim to keep audiences within their own space, rather than referring people on to visit a news provider’s website directly. Reducing traffic to news websites exacerbates the challenges to newspaper revenues set out above and limits the ability of the news provider to collect valuable data about its audience. Externalities may mean that intermediaries do not fully consider this impact on newspapers, and the societal benefits of plurality or sustainable high-quality journalism. Furthermore, if these intermediaries have market power, they may be able to set their own terms to advertisers and publishers in a way which further erodes news providers’ revenues.

4.31 These challenges have raised concerns for the longer-term sustainability of news providers, which may have implications for plurality in terms of the availability of news. We have seen traditional news providers engage in cost cutting measures including staff redundancies, the closing of print facilities and, in some cases, consolidation. The Cairncross review expressed particular concerns for the sustainability of high-quality journalism and local news and noted their role in informing citizens and in turn allowing them to hold government and business to account.

4.32 However, we have seen newspaper providers adapt to these challenges beyond cost-cutting, including diversifying their revenue streams and evolving their digital strategies. As newspapers have experimented with different strategies, there have been some successes. For example, the Financial Times now has over one million paying readers, and the Guardian’s donation strategy has seen it break even for the financial year 2018/19.

4.33 Moreover, there are low barriers to entry for new online news providers, which may allow new and different perspectives to find a platform and to access a wide range of audiences. In addition, our research shows that people use on average seven different sources of news, and people who use the internet for news use more sources on average than those who use other platforms. The shift to online news consumption, which has brought with it access to a wider range of news sources that are free at the point of use, may therefore also have some positive implications for plurality.

54 37% of consumers report using Facebook for news, with 23% selecting Google and 17% Twitter. Ofcom, *News Consumption in the UK: 2019*, July 2019
56 The Cairncross review, *A sustainable future for journalism*, February 2019
Separately, concerns have been raised on the potential emergence of echo chambers online, and the implications for peoples’ exposure to plurality in the consumption of news. Echo chambers might arise because behavioural biases mean consumers prefer having their existing views reinforced rather than challenged. Some also question whether algorithms risk aggravating echo chambers, by ‘filtering’ content so that consumers are only exposed to a sub-set of sources or viewpoints. This may arise where there are externalities. That is, if an algorithm looks to optimise attention by serving content a person agrees with, while not considering the benefits of (or negative consequences from a lack of) people’s exposure to plurality. This could be a concern where consumers rely on a limited number of online platforms for news consumption, or where consumers rely on a range of online platforms which all feature the same content tailored to individuals’ revealed preferences.

Certain news aggregators, specifically Apple and Google News, are acting to address such concerns. They report using comparatively little personalisation based on a user’s search history when selecting articles to feature. This may reflect incentives for news aggregators to avoid the perception of bias and echo chambers on their platforms. More generally, intermediaries may in fact promote exposure to a plurality of voices, by selecting news from a range of sources. Further evidence towards the role of algorithms specifically, and online services generally, on echo chambers may bring further clarity to this debate.

Content and conduct harms

Content and conduct online can harm consumers in a variety of ways. In the UK, proposed regulation of certain online content and conduct harms is contained in the Government’s Online Harms White Paper, which sets out examples of:

- conduct that can cause harm, including abuse, bullying, controlling or coercive behaviour or harassment;
- content that can cause harm, including illegal content (for example, child sexual abuse), material advocating self-harm, violence or extremist ideologies and under-age exposure to age-sensitive content; and
- disinformation, including falsely manipulated content deliberately created or shared to deceive citizens or cause harm.

Harms arising from online content, conduct or disinformation can damage individuals’ wellbeing or contribute to broader societal harms. These may also contribute to the under-
use of otherwise beneficial online services. While consumers may be able to take steps to protect themselves (and others) from these harms (for example, by accessing fact-checker websites or using parental controls), this could increase the cost of engaging with online services. Disinformation specifically can cause harm by distorting views, preferences and decision-making. It can affect nearly any topic, but notable examples include the political sphere, science and healthcare (for example, anti-vaccine groups).

4.38 Financial, ideological, political or other personal gains motivate the creation of disinformation, harmful content and harmful conduct. This activity could be characterised as having externalities. Where content creators consider only their private gains, they will not account for the fact that disinformation and harmful content or conduct also has a broader cost from society’s perspective (such as impacts on other individuals). In this case, it may be preferable if this content and conduct was not produced.

4.39 While these motivations and issues are not new, online services have created new opportunities for disinformation and harmful conduct or content to spread more cheaply, quickly and at greater scale than in the past. That is, online services allow individuals to make content available to a much wider population, with the possibility to do so with a degree of anonymity.

4.40 Platforms have an incentive to remove disinformation and harmful content or conduct where it reduces the use and uptake of their services. This might be the case where this content or conduct reduces the quality of users’ experience or there are reputational effects. In response to these effects and existing laws, some online platforms report to have taken a range of steps to address harmful content or conduct. For example, Facebook has advertising policies that prohibit certain content (for example, illegal products, discriminatory practices, tobacco products, and weapons), restrict certain content (for example, alcohol, dating, gambling) and restrict targeting practices (for example, discrimination against users, predatory advertising). Google Ads takes a similar approach.62

4.41 However, a range of factors may dilute the incentives for platforms to moderate content and conduct on their services.

- The scale of the content and conduct on online platforms may increase the difficulty of developing tools and processes to identify and reduce some harmful content and conduct.
- Externalities may arise if algorithms could (possibly inadvertently) propagate the spread of engaging content which is potentially harmful or disinformation.63
- In cases where a provider has market power due to weak competition, this could limit consumers’ ability to discipline the quality of the content and conduct on a platform.

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62 Plum consulting, *Online advertising in the UK*, Jan 2019, p. 16

63 Research from the Royal United Service Institute into extremism found that, of the social media platforms it studied, YouTube’s recommender system may recommend more extreme content to those that have previously engaged with such content. Royal United Service Institute, *Radical filter bubbles – Social media personalisation algorithms and extremist content*, July 2019, p. 14
• Some content and conduct is manifestly illegal, but there is much that is legal but could be harmful. In the latter case, platforms may err on retaining freedom of expression as opposed to limiting content and conduct harms.

4.42 Consumers’ behavioural biases and imperfect information may further exacerbate the potential for harmful content and disinformation to generate harm. Ofcom research shows that one in ten internet users do not think about the truthfulness of online content, which suggests some consumers do not critically evaluate information they receive online.  

Harm to wellbeing

4.43 Online services could harm wellbeing. While this harm could arise under some categories discussed above, there are other potential harms to wellbeing that can arise online.

4.44 For instance, the incentive for online services to promote consumer interactions could encourage addictive behaviours (such as gambling) and may have financial implications. Some aspects of user interface design may also lead to compulsive over-use. For example, consumers using or checking social media very frequently, or consumers receiving tailored suggestions for content which lead them to spend long hours on content sharing platforms. This could cause a loss of time, impact mental health or affect other aspects of wellbeing. They may also drive those that fear these effects to reduce or end their use of otherwise beneficial services. We note that the Online Harms White Paper says that more research may be needed to understand the potential harm from excessive screen time.

4.45 Through designs which exploit biases or information asymmetries, online services may be particularly able to drive usage above levels that consumers would be comfortable with (either before or after the fact). Where competition is weak, users may have a limited ability to discipline providers that engage in these practices by switching to alternative providers.

Interactions between harms and their market failures create policy overlaps

4.46 Drawing on the description of the individual harms above, Figure 6 illustrates the relationships which may exist between the market failures and harms that could arise online. While not illustrated in the figure, in some cases market failures may contribute to harms either as a source of harm or an exacerbating factor.

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64 Ofcom, *Adults media use and attitudes report*, May 2019, p. 17-18
Figure 6: Market failures that can contribute to consumer and societal harms online

<table>
<thead>
<tr>
<th>Market failures</th>
<th>Market power</th>
<th>Barriers to switching</th>
<th>Info asymmetry</th>
<th>Behavioural biases</th>
<th>Externalities</th>
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<td>Red</td>
<td>Blue</td>
<td>Yellow</td>
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<td>Red</td>
<td>Blue</td>
<td>Yellow</td>
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<tr>
<td>Unfair price personalisation</td>
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<tr>
<td>Harm to privacy</td>
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<tr>
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<td>Security and resilience issues</td>
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<td>Risks to media plurality and quality</td>
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<td>Content and conduct harms</td>
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<td>Harm to wellbeing</td>
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**Source:** Ofcom.

**Complex interactions can exist between market failures and online harms**

4.47 Figure 6 illustrates that consumer or societal harms can result from (or be exacerbated by) several different market failures, either individually or in combination. It also illustrates that a given type of market failure can contribute to multiple harms across different policy areas.

4.48 This highlights the potential complex interactions between market failures and harms, which can create links between the different harms and their policy areas. There are three related factors that mean these links may be stronger in online services.

4.49 First, several harms may arise in relation to those online services which are concentrated with one or a few players, and a lack of competitive constraints from potential entry and expansion allows an incumbent to exploit market power. For example, this could result in:

- Competition harms, in some cases by distorting competition against rivals.
- Privacy harms, if a lack of competitive constraints means consumers must accept terms and conditions containing ‘excessive’ levels of data collection.
- Content and conduct harms, where market power may exacerbate exposure to disinformation and harmful content that consumers dislike, if a lack of competitive constraints limits providers’ incentives to remove this content.
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- Harms which arise through impacts on other firms. For example, where market power undermines the ability of publishers to generate revenue from quality journalism.

4.50 The emergence of ecosystems may strengthen the resulting links between policy areas, if these business models were to promote the ability to gain or entrench a dominant position in one or several online services. For example, entry in a single service may be more difficult if it is necessary to offer a full ecosystem to attract consumers.

4.51 Second, the incentive to drive consumer interactions to collect data and attention could contribute to a range of market failures and harms. Access to data or consumer attention could strengthen market power if this is a key barrier to entry and expansion. But even in services where several firms compete effectively, it may contribute to other harms:
  - Privacy harms can arise as firms collect as much data as possible to compete, and consumers are unable to protect their privacy due to lack of information or other behavioural biases.
  - Content harms can be exacerbated where algorithms promote the spread of harmful content and disinformation, if this content promotes consumer interaction with a service.
  - Exposure to a plurality of views could be reduced if algorithms serve content tailored to consumers’ existing views in an attempt to retain their attention.
  - Harms to wellbeing may exist if services promote addiction (for example, gambling) or other harms that could be linked to excessive screen time.

4.52 Third, the use of data analytics and algorithms can allow providers to better understand consumer preferences, and update services more readily in response to consumer interactions with their service. This can be done with an increasing degree of targeting and personalisation. Where this generates greater scope to influence consumer decisions, it may exacerbate the potential for information asymmetry and behavioural biases to result in harms:
  - It may enhance market power through practices that discourage switching or facilitate self-preferencing.
  - It could increase the risk of harms to consumers’ privacy, if providers can direct consumers to options that imply they share more data.
  - It can exacerbate the impact of harmful content if it is promoted to consumers who are most susceptible to harm (for example, self-harm content).
  - It may exacerbate the risks of societal harms through the promotion of disinformation, or the funnelling of people into echo chambers.
  - It could potentially reinforce problematic biases, for instance because of errors in design or biases in the underlying datasets.66 When these algorithms are used to support important decisions about people’s lives, they may cause harm.

66 The Centre for Data Ethics and Innovation, *Interim report: Review into bias in algorithmic decision-making*, July 2019
Complex interactions between market failures and harms present challenges to interventions

4.53 The complex interactions that could exist between market failures and online harms can have consequences for interventions. Where a market failure creates several harms, an intervention aimed at resolving one harm could have some positive impact on another harm. For instance, in the absence of other market failures, a remedy aimed at increasing competition may in turn improve the ability of consumers to discipline the quality of the content offered by switching between competing online services.

4.54 However, in some circumstances these complex interactions mean that a remedy may not resolve a given online harm if it does not address all market failures that are at its source. To take one example: a remedy that is focused only on increasing competition could fail to initiate the virtuous cycle to resolve privacy harms. If behavioural biases are not also addressed, then consumers may not take more active and better-informed decisions on what data they share online, and providers may not have strong incentives to compete based on consumers’ privacy preferences.

4.55 In the worst case, failing to recognise the complex interactions between market failures and online harms may lead to unintended consequences that are harmful in themselves. For example, in some circumstances interventions which increase competition may even exacerbate privacy harms. This could be the case where consumers do not pay attention to the data they share when using a service, and competitive pressures lead providers to collect more data to improve their services and attract users. Similarly, a remedy that aims to increase competition may exacerbate the spread of disinformation. This may happen if providers compete for consumers’ attention to increase the revenue they generate from advertising, and certain types of disinformation attract attention.

4.56 Overall, adopting a single ‘policy lens’ in isolation risks not addressing the problem effectively, and in some cases may even exacerbate problems in other areas. As we explain in the next section, these interactions suggest that more effective remedies could be designed with a comprehensive understanding of how market failures and harms may interact.
5. Challenges and opportunities for regulation of online services

5.1 As more and more services are delivered over the internet, regulators are increasingly looking at the potential harms from online services that fall within their existing remit. At Ofcom, these services are already relevant to our work, and increasingly so:

- **Online services may have an impact on established communications markets.** In imposing regulation to promote competition in communications markets, we take account of how online entrants are reshaping these markets. For instance, we consider whether and how online communications networks like WhatsApp, Facetime and iMessage compete with more traditional services such as voice telephony and instant messaging.

- **Online services may affect consumers’ commercial interactions with traditional service providers.** Some consumers use the internet to choose, sign up for, and switch between providers of traditional communications services such as broadband or mobile telephony. Price comparison websites play a role in enabling consumer empowerment in switching between different providers that deliver these traditional communications services.

- **Online communications services may pose new challenges.** Online communications services can present their own challenges which may call for intervention. The European Electronic Communications Code is intended to bring certain online messaging services within the scope of regulation. In certain circumstances an online messaging platform’s refusal to exchange messages with a rival platform may be unduly harmful to consumers by endangering end-to-end connectivity.

5.2 The Government is also considering whether additional powers and duties are required to address potential harms online. The Online Harms White Paper proposes to introduce a new regulatory framework aimed at tackling harmful content and conduct online. The Government is also reviewing the proposal by the Furman panel to introduce a new Digital Markets Unit tasked with proactively promoting competition, innovation and beneficial outcomes for consumers online. It will also respond to the recommendations made by the Cairncross review on the sustainability of high-quality journalism.

5.3 Regulators acting under current remits, and possible future powers as defined by policymakers, will have to carefully design interventions to ensure that they are effective in addressing online harms while limiting negative consequences. In some cases, this may require regulators to trade off between different policy objectives, or between the impact on different stakeholders that may be affected by their interventions.

5.4 In principle, the challenges involved are similar to those we navigate when we intervene in traditional communications services. But the unique characteristics of online services imply that some of these challenges can be greater, and may require us to tailor our approach:
• Interactions between different harms and their market failures can create tensions and complementarities in policy aims.
• Complex business models can generate links between different services, which can make it harder to identify sources of harm and can challenge traditional approaches to regulation.
• The variety of online services means regulation may have to be tailored to specific services. The scale of online services may necessitate careful consideration of the costs and benefits of interventions, prioritisation of issues and international coordination.
• Fast-moving sectors make outcomes harder to predict and increase the importance of dynamic competition. When taking decisions, regulators may face greater uncertainty and risks to innovation. There may be a need for more adaptable interventions.
• Consumer decision biases may make consumer and provider responses to remedies unpredictable. Regulators will need to be aware of these potential effects, complemented where relevant with testing of interventions before implementation.

5.5 In summary, interventions will need to be carefully designed to avoid undesirable outcomes, and opportunities exist for regulators to rely on new techniques to inform their decisions where appropriate. Where market failures cannot be addressed with a one-off remedy, ongoing regulation may be required. There are advantages to interventions that flexibly respond to a dynamic and fast-changing industry, while preserving and nurturing innovation to the benefit of consumers and society. The variety of online services mean they will inevitably overlap with the remits of existing regulators, and there are likely to be benefits from these regulators working together to share knowledge and tackle issues.

Links between policy objectives

5.6 As discussed above, there is a greater risk of regulatory failure if interactions between market failures and harms are not considered.

5.7 First, remedies are likely to be more effective if they address each of the different market failures which are at the source of a harm. In certain cases, this could be facilitated by cooperation amongst regulators where these market failures span across different policy areas. For example, addressing privacy concerns may involve multiple remedies and could cut-across the remits of multiple regulators. In such a case, remedies could include the requirement to allow interoperability between platforms to help improve competition by promoting the emergence of new services, complemented with measures that promote informed decisions about the data consumers share online when they choose between services.

5.8 Second, negative unintended consequences are more easily avoided if regulators understand the interactions between market failures and harms. This approach may also allow regulators to capitalise on potential synergies that could exist from targeting a remedy at a market failure or industry feature which is at the basis of several harms. For instance, limiting the ability to personalise the delivery of certain content may improve consumers’ exposure to a variety of views which could lead to more informed political views. This variety may also reduce the impact of disinformation, if it increases consumers’
ability to critically assess the content they are served online. In considering remedies that could have these effects, this impact should be weighed against the loss of beneficial personalisation.

5.9 Third, where addressing one harm can impact negatively on another issue, it may be necessary to trade off differing impacts on objectives. For instance, there may be cases where merger activity could raise concerns regarding plurality by concentrating control of news sources in terms of content production and content curation. In these cases, decision makers may have to trade off any efficiency benefits of the merger with negative impacts on plurality. In media mergers there are existing mechanisms in place to consider this, and such decisions are taken by the secretary of state for Digital, Culture, Media and Sport.

5.10 Overall, this points to the benefit of regulators being aware of these interactions when looking to assess the extent and nature of a harm. This is also relevant for designing remedies which are effective and limit unintended consequences. Interactions between harms also mean that there are likely to be benefits from regulators working together to share knowledge and tackle issues which touch on several policy objectives.

5.11 In taking decisions on their areas of responsibility, regulators may wish to understand lessons learned in similar cases or consult other regulators with expertise in a related policy area. Instances of such cooperation can already take place today. For example, legislation provides that in certain circumstances ICO can ask Ofcom for technical advice on electronic communications matters.

The complexity of business models

5.12 Section 2 described how some online providers have developed complex business models. Where providers have expanded into complex ecosystems, this can lead to convergence across services through supply-side or demand-side linkages. Where relevant, analysis identifying harms and designing remedies will need to take these links into account to avoid regulatory failure.

5.13 Analysis which does not sufficiently acknowledge these links risks mis-specifying the potential sources of harm. In some cases, this can undermine the effectiveness of interventions if regulators fail to acknowledge potential sources of harm. For instance, a review of past UK mergers by Lear found that “the Authorities have not always consistently framed the competition issues they were looking at in a two-sided setting, focusing their attention on the users’ side of the market, somewhat overshadowing other sides of the market.”67 The report recommends that regulators should develop theories of harm by looking at the user side of platforms, but also with reference to the current business models and the ways in which the merging parties generate revenue.

5.14 In other cases, regulators may incorrectly conclude that harms exist if they do not sufficiently acknowledge these links. For example, providers’ incentives to expand their ecosystem could generate a competitive constraint on other online services which are

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67 Argentesi et al., *Ex-post Assessment of Merger Control Decisions in Digital Markets*, May 2019, p. xii
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concentrated with one or a few rival providers. In such cases, concentration is not necessarily a definitive indicator of market power. As an illustration, Netflix has consistently held the largest share of subscriptions for video streaming services globally. However, competition emerged from Amazon, who expanded its ecosystem to include its own streaming service Prime Video. Likewise, Apple may become a relevant competitor to Netflix, as it intends to expand its ecosystem by launching Apple TV+ later this year.

More fundamentally, competition may occur between ecosystems, alongside competition between individual services. For example, providers may compete to attract consumer attention to enhance advertising revenue and collect richer data; or providers’ ecosystems may allow for interoperability between their own services in a way which attracts users to all their services. If this is the case, an excessive focus on service level competition may fail to acknowledge an important competitive constraint on these online providers.

At times, these links may also require regulators to make trade-offs. For instance, providers may no longer be willing to offer a service for free where a remedy (for example, limiting self-preferencing) undermines their ability to generate sufficient referrals from this service to another area of the ecosystem which they can monetise (for example, through advertising). In some instances, self-preferencing by a large platform might enable it to enter in the provision of a new service in competition with a large incumbent platform. In such a scenario, a blanket ban of self-preferencing for large platforms might reduce rather than enhance competition.

For these reasons, interventions can benefit from an understanding and careful consideration of the links that ecosystems can generate between services. This means that regulators may have to take a different approach when applying existing regulatory tools. For example, it is particularly relevant to identify these links to ensure that traditional approaches to market definition do not lead to excessively narrow delineations of markets.

Regulators could use new techniques to test theories of harm and potential remedies. This could include the use of ‘sandboxes’ to determine the competitive advantage a provider may get from having access to cross-service data through its ecosystem. In some cases, cooperation between regulators may also benefit their understanding of the links across ecosystems, by sharing knowledge on ecosystems that span several sectors.

The variety and scale of online services

The variety of online services means they will inevitably raise issues that overlap with the remits of existing competition authorities and regulators, and UK policymakers are considering whether and how these should be expanded with new duties. In relation to regulating harmful content and conduct, the Government’s Online Harms White Paper has

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68 Parrot Analytics, Global SVOD market share trends based on audience demand for digital originals, May 2019 [accessed 15/10/2019], number of total subscribers for major US SVOD platforms
69 Apple press release, Apple TV+ launches November 1, featuring originals from the world’s greatest storytellers, July 2019 [accessed 15/10/2019]
identified that any new regime “will require cooperation with other regulators to ensure the new framework complements existing safeguards.”\textsuperscript{70}

5.20 Regulators will need to be aware of the differences between the online services that fall within their remit, as some business models or service types may have a greater risk of generating online harms than others. For instance, the spread of self-harm content can arise on platforms which allow users to share the content they generate, but this is less likely to occur on online marketplaces. Regulators may also design more effective interventions where they consider the characteristics of a given service or business model. This may be relevant to a data remedy aimed at promoting competition, as it may have to be tailored to reflect the types of data which generate barriers to entry in a given sector.

5.21 But regulators may also need to consider the risks around taking an excessively narrow approach to defining services when looking to identify online harms. Some online services may have interactions with offline markets. The constraints from offline services could mitigate the impact of online market failures to a greater or lesser extent, and these constraints could change over time. For example, the impact of echo chambers on online platforms could be more limited for those people who also consume news on broadcast media. Regulators should also be mindful of the potential for interventions in one service to result in the displacement of harms to other services. As an example, regulation of content and conduct on a given platform may shift the distribution of harmful content and conduct to another unregulated platform.

5.22 The scale of online services may also affect how regulators and businesses can address online harms effectively. The scale of online harmful content or conduct may make it more difficult for providers to eradicate these harms entirely, and for regulators to monitor compliance comprehensively. Instead, weighing up the cost and benefit of interventions may imply that regulators need to prioritise the issues they seek to address, and protections provided may not always be immediate or exhaustive. There may be benefits from regulation which focuses on outcomes (often referred to as ‘principles-based’ regulation), rather than detailed prescriptive regulation.

5.23 Finally, the international nature of harms may further raise challenges to effective intervention. Where regulation is based on a ‘country of origin’ principle, the member state which hosts a provider’s headquarters is responsible for regulating that provider. In this case, a harm arising in one member state may need to be addressed through regulatory mechanisms in another member state. Separately, if providers can influence the regulatory regime they are exposed to by choosing where they are located, there may be some scope to ‘shop around’ for the least onerous regulatory regime. This could provide policymakers with an incentive to develop lighter touch regulation to attract economic activity.

5.24 Where regulation is based on a ‘country of destination’ principle instead, services are regulated based on where they are consumed. This may raise challenges for effective

\textsuperscript{70} UK Government, \textit{The Online Harms White Paper}, April 2019, p. 57, paragraph 5.16
enforcement. The divergence that may arise between requirements across different jurisdictions may also raise practical challenges for providers.

5.25 Overall, this points to benefits from international cooperation amongst regulators and policymakers, either to align national interventions or to agree a common approach to regulation.

**The dynamic nature of the industry**

5.26 Ofcom often makes decisions where there is uncertainty about how the market will develop or how interventions may affect market outcomes. This is particularly the case where we consider the impact of our interventions on the ability and incentive for entry and innovation.

5.27 This uncertainty may present greater challenges in relation to online services, given the speed at which those services can develop. This will be particularly important given the significant consumer and societal benefits these services are creating through progress and innovation.

**Regulators should consider how best to preserve incentives for entry and innovation**

5.28 Regulators may need to take care to design remedies which mitigate unintended impacts on the incentives of providers to enter or innovate. For example, an intervention focussed on improving consumer visibility and understanding of data collection could increase costs for potential entrants. Where this entrenches an incumbent’s dominant position, it may be more important for regulators to facilitate access to data to reduce barriers to entry and promote competition.

5.29 However, regulators may be required to make trade-offs when deciding whether and how to intervene. Consumers can benefit from different types of innovation, realised by different types of competitors. The ideal would be for regulatory intervention to preserve incentives for all types of beneficial innovation. However, intervention aimed at promoting one type of innovation may have a detrimental effect on another. As such, regulators may have to trade off different types of innovation. This may occur where requiring an incumbent to give access to its data provides opportunities for innovation by smaller players and entrants, but weakens incentives for innovation by the incumbent.

5.30 Regulators may also face trade-offs where an intervention can address a current harm, but it has the potential to impact on incentives for future innovation. For instance, regulation aimed at increasing competitive constraints on a dominant provider in an existing market may increase its incentives to innovate its existing service. However, this may also limit the dominant provider’s ability to develop the next disruptive innovation. If the dominant player had been particularly well-placed to do so, regulation could delay innovation or weaken competition in emerging markets.
Online market failures and harms

Regulators should consider the challenges of futureproofing and rapidly changing circumstances

5.31 There may be specific circumstances where innovation leads the market to self-correct and thereby resolve a particular harm. In such cases, intervention may not be required, or it could focus on raising awareness amongst consumers to facilitate the spread of market-led solutions. Similarly, the potential for a new entrant or service to replace an incumbent in a ‘tipped’ market may give an incumbent the incentive to innovate. Where these innovation incentives remain, regulatory intervention may not always be necessary. Monitoring market outcomes may assist regulators in identifying whether such dynamic effects are preventing or reducing harm.

5.32 Where harms are persistent and require intervention, regulators may need to consider how to keep remedies relevant as services change. For example, this could be an important consideration for data mobility remedies, as the types of data which are necessary to compete effectively may change over time. In some circumstances, regulators may be able to mitigate this challenge by:

- Using outcome-focused or principle-based remedies, which are sufficiently flexible to remain relevant as new services emerge or established players move into new markets.
- Monitoring a remedy’s effectiveness, which could help establish whether and how remedies should be adjusted to ensure they remain proportionate. This would include removing remedies which become redundant if the harms they target disappear or are significantly reduced.

5.33 More fundamentally, while the innovations realised through online services can provide significant benefits, they may also introduce new harms and amplify others. Reducing harms online may therefore benefit from a forward look, to ensure that remedies can tackle the relevant issues. Regulators may find it challenging to predict these future trends, which raises the risk of under or over enforcement. Regulators and policy makers could reduce this risk through ongoing engagement with a wide range of stakeholders in the sector. This engagement could involve online platforms, businesses who are active online, potential entrants, the third sector, consumer groups, investors and academia.

Consumer decision making

5.34 Section 3 describes how information asymmetry or behavioural biases may be a source or exacerbating factor for online harms. The role of data and algorithms online implies there may be more scope for bias in consumer decisions to lead to harm in novel ways.

Understanding consumer decision bias can be relevant to identifying the sources of online harm

5.35 Understanding where and how consumer decision biases can cause or exacerbate harms can be beneficial for the design of interventions. It allows regulators to assess whether interventions need to address those biases to resolve an online harm effectively. In some
cases, this can be done by targeting remedies directly at consumers, such as providing information in a way that can allow them to make better decisions.

5.36 In other cases, it may be more effective to impose requirements on providers to limit the impact of these biases. For instance, GDPR requires that consent to the collection and use of personal data is given by an unambiguous indication of the user’s agreement, and that “silence, pre-ticked boxes or inactivity” do not constitute consent. The resulting requirements to ‘opt-in’ to data collection may reduce the risk that consumers’ bias toward defaults leads them to inadvertently share data if providers were instead to require them to ‘opt-out’ of data sharing.

5.37 Interventions could also prevent provider actions which, either deliberately or unintentionally, distort consumer choices in a harmful way. This was relevant to the European Commission’s investigation into Android. It concluded that pre-installation of search and browser apps exploited status-quo bias, such that consumers were unlikely to find a different search or browser app. The European Commission considered that this promoted the ability for Google to entrench its dominance in search and prohibited pre-installation of its search app on Android powered-phones.

5.38 However, interventions seeking to prevent actions by providers can have disadvantages compared to a principle-led and outcome-based approach. For example, where certain forms of price personalisation are considered inappropriate, it may be necessary to have an outcome-based remedy. This is because restrictions on algorithms could be avoided by finding customer characteristics which correlate with the original basis for discrimination.

**Consumer decision bias can impact remedy design**

5.39 Even where consumer bias is not at the source of an online harm, there can still be benefits from understanding how this bias can affect the outcome of an intervention. For instance, interventions that seek to give people more information on how their personal data is used might lead to disengagement with privacy terms, if that information is presented in a way that leads to information overload. Therefore, it is important to determine the appropriate design considerations that should apply to ensure information is presented to consumers in a way that is informative and sufficiently engaging.

5.40 It is also possible that a remedy creates negative unintended effects if consumer biases lead them to respond to interventions in unanticipated ways. In instances where interventions attempt to nudge behaviour by normative social influencing, some studies have shown that boomerang effects can occur. These studies suggest that a remedy


72 European Commission, Prohibition Decision: Case AT.40099 Google Android, July 2018 [accessed 15/10/2019]

73 See Wik Consult, Personal Data and Privacy, May 2015, p. 4, for a discussion on the ‘transparency paradox’.

74 Frederiks et al., Household energy use: Applying behavioural economics to understand consumer decision-making and behaviour, 2015, p. 1390. See also Schultz et al., The Constructive, Destructive, and Reconstructive Power of Social Norms, 2007, for research into the ‘boomerang effect’. 

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which tries to encourage consumers to increase their privacy protection by comparing their privacy settings to their peers could have the reverse effect for consumers with already high privacy settings.

**Remedies may have differential impacts amongst consumers**

5.41 Interventions may impact consumers differently where they exhibit different and/or varying levels of bias in their decision making. This may require that a remedy is sufficiently flexible, or comprehensive, to address different needs. This is illustrated in a report by the Behavioural Insights Team.75 This report concludes that tools which give people the ability to adjust website settings (such as the level of advertising, data collection and ranking criteria) are useful for allowing them to modify their online experiences in line with personal preferences. However, for vulnerable people (for example, those that are addicted to online gambling or pornography), the ability to adjust settings may not be enough. In this case, interventions may need to go further to include options to self-exclude or limit access to websites or certain types of payments.

5.42 In some cases, regulators may have to trade-off these differential impacts amongst consumers. For instance, some consumers may be more amenable to confirmation bias, and therefore more at risk of entering echo chambers online. In looking to remedy the loss of exposure to variety in views that may occur for these consumers, regulation may reduce the effectiveness of content curation services for all consumers.

**There can be advantages in using trials and data analytics to inform remedy design**

5.43 It may be more challenging to gain a good understanding of the role consumer biases can play in the need for, and impact of, remedies to address online harms. Depending on the circumstances, regulators may be able to mitigate these challenges, including by:

- Gaining an understanding of the operation and implications of algorithm design. This could include avatar analysis to understand how algorithms interact with users.
- Conducting experiments or randomised control trials to establish what biases arise in consumer decisions, and what actions may be effective in addressing these biases. Where possible, it could be useful to do this in cooperation with industry.
- Collecting data on consumer outcomes and using advanced data analytics tools to understand what bias may be present, and how it could affect consumers differently.

5.44 The complexity and dynamic nature of the industry can also make it harder to predict consumer and provider responses to online interventions targeted at addressing consumer bias. Where this is the case, there could be benefits from systematically monitoring the outcomes that follow from interventions.

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75 Behavioural Insights Team, *The behavioural science of online harm and manipulation, and what to do about it*, April 2019, p. 41