

Appendix Y: choice architecture and Fairness by Design

Introduction

1. We have found that consumers value privacy and want control over their personal data for personalised advertising, but most feel that they have little or no control over their online data generally. And although there is evidence that consumers prefer advertising on websites to be relevant to them, only a small minority are happy to share their data to receive it. Surveys suggest that the more consumers understand how targeted advertising works, the more concerned they become about it and the less they feel in control.¹
2. To get a fair deal from the use of their data, consumers need to be able to make informed decisions and be able easily to control its use.² However, in our interim report, we identified how platforms' 'choice architecture'³ could be inhibiting consumers' ability to exercise informed choice. These included default settings which favour the platform; long and complex privacy policies and terms, as well as the presentation of information and choices in ways that could 'nudge' consumers to make decisions most favourable to the platforms.
3. We noted that such practices can create an imbalance between consumers and platforms – introducing frictions and limiting users' ability to make informed decisions about whether to use platforms in the first place; as well as how, why and by whom their personal information is used.
4. In our interim report, we invited views on a potential 'Fairness by Design' duty on platforms to take steps to ensure that they are maximising users' awareness and their ability to make informed choices about the use of their personal data.
5. In this appendix, we:
 - set out in more detail our concerns about platforms' choice architecture;
 - consider how choice architecture can affect consumers' engagement and decision making;

¹ See Chapter 4. Appendix L provides a fuller review of the consumer survey and academic research in relation to consumers' understanding, attitudes and behaviour in respect of the use of their data.

² We occasionally use the terms 'informed choices' or 'informed decisions' as shorthand to reflect that the provision of accurate, simple and clear information on choices and implications can potentially assist consumers to make decisions that are more informed. However, we recognise that greater availability of such information alone does not necessarily mean that consumers will take account of it in making decisions.

³ By 'choice architecture', we mean the process and outcome of design decisions about how choices are presented to people (including for user interfaces in an online environment), and the impact of that presentation on people's decisions.

- revisit the potential introduction of a duty in the light of this evidence and analysis, as well as the responses to our interim report;
- explain our recommendation for a Fairness by Design duty, including the scope of its application;
- set out how we suggest the duty be implemented, including potential monitoring; and
- summarise our assessment of the duty's implications for consumers, platforms and advertisers.

Our concerns about platforms' choice architecture

Consumer behaviour

6. It is important that consumers are not put off from engaging in decisions about the use of their data and that, for those consumers who would like to engage actively, they are able to access and understand information easily and face low transaction burdens in the course of their engagement.
7. As we note in the main report, however, there is a considerable incentive for platforms to maximise the number of users and the volume of data collected from them. We are concerned that platforms' wider choice architecture has the effect of encouraging consumers to agree to the use of their data for personalised advertising, by inhibiting informed choice – through poor accessibility and clarity, unbalanced presentation and barriers to consumer action.
8. Making decisions about privacy settings in the online world is likely to be subject to the same sorts of behavioural biases as are present in the offline environment. However, the online environment may exacerbate the impact of behavioural biases because consumers have to deal with more information and face more decisions. Consumers can find it hard to process substantial volumes of information, be sensitive to how information is presented or framed, and find it difficult to enact their intentions. Consumers naturally and unconsciously tend to rely on heuristics (mental shortcuts) to process information quickly but with the risk that they reach the wrong conclusions.
9. More specifically, academic research has identified a range of consumer behavioural biases that can impact on consumer's decision-making in an online context. These include consumers' inclination to stick with default settings that are presented to them (status quo bias); and tendency to focus

more on the near-term implications of their decisions and discount the long-term implications (myopia).⁴

10. Putting aside choice architecture, therefore, natural consumer biases and behaviours are likely to mean that many consumers may not engage sufficiently in the control of their data.

Choice architecture examples

11. Choice architecture can be designed to help mitigate and overcome consumers' natural biases by providing clear, balanced information and choices as well as smooth processes. However, we have found that the platforms' choice architectures are instead more likely to exacerbate biases.⁵
12. We consider below some specific examples we have identified and the potential consumer harms that may arise from their use, expanding on the evidence presented in Chapter 4 of the main report. We draw on the evidence presented in Appendix K,⁶ as well as responses from stakeholders and published materials, including academic research.
13. Broadly, these examples can be considered under the following three headings:
 - **Lack of accessibility and clarity:**
 - Requiring consumers to navigate a complex route to find information about the use of their data and the ability to change their settings.
 - Providing consumers with complex sets of options and controls.
 - Presenting long and complex privacy policies and terms, which consumers are unlikely to read.
 - Using unclear language and links that do not match reasonable expectations.

⁴ Appendix L considers the academic literature on behavioural biases.

⁵ It is important to note that choice architecture is not only relevant to consumers who use platforms, but also other users. In Chapter 5 of our Final Report we note how business users of the advertising self-service tools provided by the main platforms we have considered in our Study can also be influenced by how information and options are presented. For further discussion of the choice architecture of Google's and Facebook's advertising interfaces and views expressed by advertisers, see Appendix N.

⁶ Appendix K considers illustrative typical consumer journeys on platforms, to set out the choices that consumers are given about the collection and use of their data, how easy it is to exercise those choices and how the platforms treat those who do not engage.

- **Lack of balance:**
 - Providing limited up-front explanations of their use of consumers' personal data to serve them with personalised advertising.
 - Presenting information and choices in ways that could 'nudge' consumers to make decisions favourable to the platforms.
 - Setting defaults that are more likely to benefit the platform than the consumer, and which most consumers are unlikely to change.⁷
 - Using language that focuses on the benefits; and phrasing that may nudge consumers in a particular direction.
- **Lack of consistency and not enabling consumer choice:**
 - Providing insufficient opportunities to review choices and withdraw consent.
 - Designs that can encourage consumers to revert to agreeing to personalised ads.

Lack of accessibility

14. Lack of accessibility refers to where the platforms' choice architecture makes it difficult for consumers to access relevant information and options regarding personalised advertising.

Complex Navigation

15. For consumers to engage with the privacy settings that platforms provide, they need to be able to locate them easily. We found that this was more straightforward with search engines than social media platforms.
 - Google and Bing displayed a small privacy link at the top or foot of each page, which provided the consumer with access to available controls.⁸
 - All social media platforms that we reviewed purported to provide consumers with easy access to their privacy settings, but we found that it was not obvious how to access these settings and the settings

⁷ Using defaults, and the way in which they are presented, can also be relevant to our concerns about accessibility and not enabling effective consumer choice.

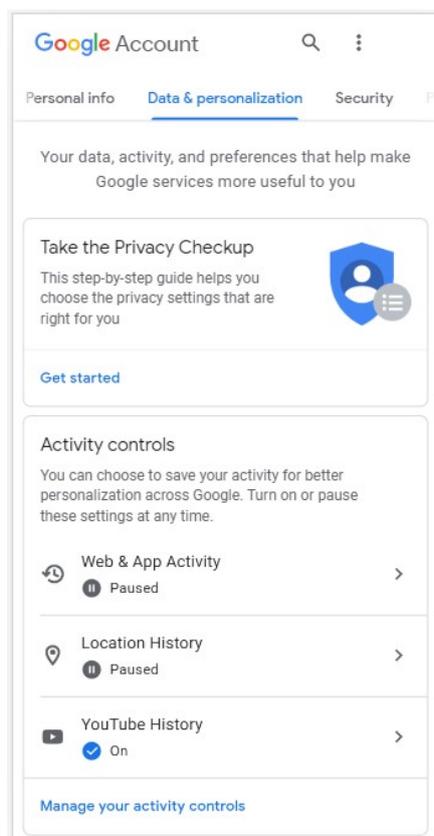
⁸ The format varied by device: Bing included a privacy option in a top-of-the-screen menu on mobile and desktop, while Google did this only on mobile.

themselves might only be visible after navigating through multiple menus. For example:

- On the Facebook desktop website, we found that the Settings webpage can only be reached via a drop-down menu which appears only when a small downward arrow symbol in the options ribbon is clicked.
 - On a consumer's Pinterest home page, as seen when accessed via a mobile device, consumers must first navigate to a page entitled 'Saved' via a location bar at the bottom of the page. The settings menu is then found via an unlabelled hexagonal button in the top right of the screen.
16. A recent survey found that most consumers reported that they did not find it easy to access and change the personal information held by businesses,⁹ and that a feeling of a lack of control arose out of difficulty with navigating to the choices available and exercising them.
17. Ease of access can also vary depending on device used. For example, on an Android Phone, if a consumer chooses to engage with its data processing settings they have to actively find 'Settings', find 'Accounts and backup' tab within which they have to click on 'Accounts', find the relevant Google account, then click on the 'Google Account' option which will open the 'Home page'. They then need to know where to find the section which will contain data processing options and be presented with the 'Activity Controls' as shown in Figure Y.1.

⁹ Information Commissioner's Office (2019). [Information rights strategic plan: Trust and confidence](#).

Figure Y.1: Google’s ‘Activity Controls’ found within the ‘Data & personalization’ section of consumers’ account settings



Source: Screenshot of Google’s ‘Activity Controls’ page captured on a mobile device.

18. The effect of making navigation towards privacy settings and the selection of alternative options to the default a multi-stepped and partially obfuscated process is likely to mean fewer consumers engage with the settings and as a result some may share more data than they might otherwise have shared.

Complex options and controls in multiple locations

19. On some platforms we examined, consumers are presented with a large number of options in relation to their privacy settings – sometimes in multiple locations. We consider that even consumers who are engaged would be likely to find it hard to understand the consequences of their decisions and difficult to make choices that match their preferences.
20. For example:
 - Google told us that consumers can ‘access privacy settings in a number of ways, including via Google Account (available in the header of Google services), Privacy Checkup, My Activity, Activity Controls or via product-specific settings’. We found that ‘Privacy Checkup’ provides settings across five themes, with around 15 options in total. Bing’s

'Privacy Dashboard' offers 10 areas where consumers can express a choice in relation to data processing with a further eight options provided on other settings.

- Facebook offers its Privacy Basics educational tool, Top Topics and a Help Centre. If a consumer chooses to go to their 'settings page' they are presented with links to 20 different tabs that all have an impact on how data is processed. The impact of all these control settings is not always made clear.
21. Firms need to comply with data protection requirements, but it is important to get the balance right so that consumers are empowered. Presenting multiple options can overwhelm consumers' abilities to process information, filter out what is relevant and assess large numbers of choices. There is a risk that users are put off from engaging in the options presented, with the effect that they leave settings as they are. As we note below, these default settings may not always reflect consumers' actual preferences and mean that they share more data than they might otherwise want to.
 22. Google's own internal research has noted the importance of educating consumers around controls to improve their knowledge and understanding.
 23. In response to the potential for controls to overlap:
 - Google told us that there was 'no "hierarchy"' of different types of settings (although some settings are a sub-control of a main control, whereby if the main control is turned off the sub-control will also automatically be turned off). It stated that 'Google will apply the settings which are most restrictive in terms of sharing that user's data if the settings directly conflict - no settings will override settings at another level in a more permissive way'.
 - Facebook told us that it was '...not aware of any setting that "unknowingly undoes" another setting or control on the Facebook Service. Facebook offers a large number of settings and tools across the Facebook Service, therefore allowing a user to select different combinations of settings. Whilst some of these settings may overlap or interact with each other, they are designed to be intuitive and work in a manner consistent with user intent and expectations'.
 24. Nevertheless, having multiple controls that contain differing sets of options means that consumers may be overwhelmed by the choice and decide not to engage; may miss options available to them; or may become confused about

how the options interact. They may as a result share more data than they might otherwise want to.

25. Consumers using the platforms we reviewed through an account do not have access to settings directly on the platform that impact how the data is processed for personalised advertising. For example, a consumer with an Instagram account whose account is not connected to a Facebook account or who does not hold a Facebook account is instructed to use their device's privacy settings or 'Your Online Choices' website to implement changes to data processing rather than have settings directly on the platform.

Length and complexity of Privacy Policies and Terms and Conditions

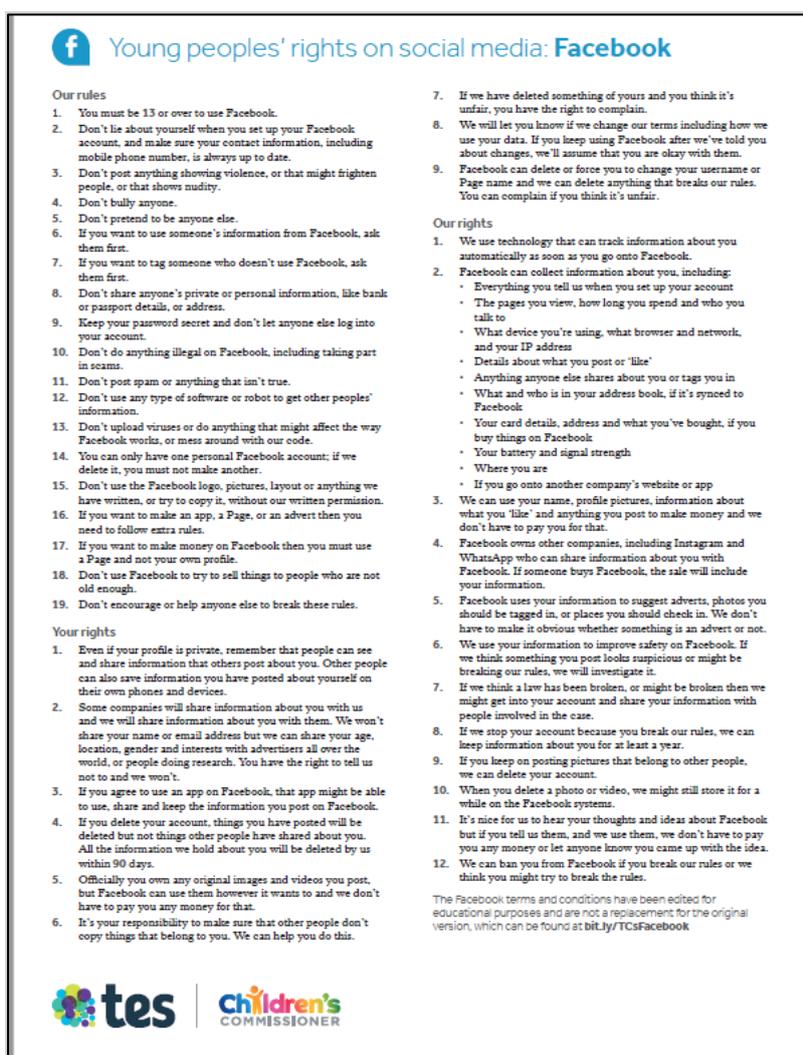
26. As we note in Chapter 4, from the evidence available to us, it is clear that few consumers engage with privacy policies on sign-up to platforms. We consider it likely that the same is true for consumer engagement with terms and conditions. As well as ease of access to this information, a critical factor is likely to be the length and format of these documents. Even if consumers want to access them and can do so, their engagement is likely to be lower if the documents are long and complex.
27. In Appendix K we report that platforms' terms and conditions were long and typically located in several places. Bing had the longest set of terms and conditions, totalling around 19,200 words, in two separate places on its platform.
28. All of the platforms we examined had terms of services and privacy/data policies that were 'difficult to read' in terms of the widely-used Flesch reading-ease test, with one exception that was 'fairly difficult to read'.
29. Taking Facebook as an example, its homepage contains limited information about the service provided by the platform. Links to Facebook's Terms, Data Policy and Cookie Policy are all provided in the statement above the Sign Up button in small font size text. Each of these documents is found on a separate webpage(s) which the relevant links navigate to and each is a layered document. Each document is of significant length and Facebook's Privacy Policy alone has been found to take around 18 minutes to read.¹⁰
30. Faced with this level of text on multiple platforms that may be used every day, it is not surprising to find that consumer engagement with privacy policies is low. A consistent finding in many surveys is that only a minority of consumers claim always to read privacy policies and academic research has shown that

⁸ 'We Read 150 Privacy Policies. They Were an Incomprehensible Disaster.' The New York Times, 12 June 2019

very few consumers read privacy policies when signing up to an online service.¹¹ Academic research also indicates that the term ‘Privacy Policy’ can itself be misleading as some consumers incorrectly infer that a privacy policy means that the form will not share their data with third parties.¹²

31. There is evidence that firms could do more to make their terms easier to read. In 2017, the Children’s Commissioner worked with lawyers to create simplified versions of Terms and Conditions for the most popular social media platforms.¹³ Figure Y.2 shows, as an example, Facebook’s terms and conditions condensed into a simpler one-page document.

Figure Y.2: Simplified terms and conditions for Facebook



Source: Children’s Commissioner.

¹¹ This finding mirrors survey evidence in our report on the ‘Commercial use of consumer data’ (2015).

¹² Turow, J., Hoofnagle, C.J., Mulligan, D.K., Good, N., Grossklags, J. (2007). ‘The Federal Trade Commission and Consumer Privacy in the Coming Decade’, 3 ISJLP 723.

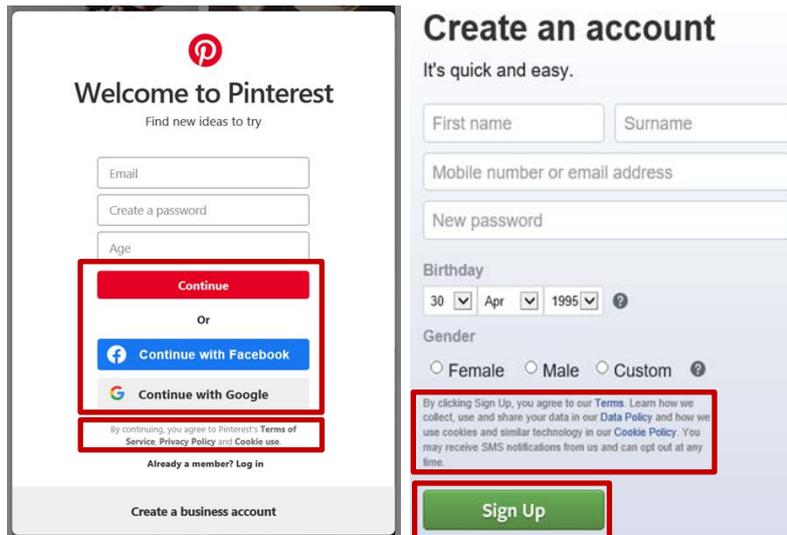
¹³ Children’s Commissioner (2017), [Simplified social media terms and conditions for Facebook, Instagram, Snapchat, YouTube and WhatsApp](#). The Children’s Commissioner notes that these have been edited for educational purposes and are not a replacement for the original version.

Unclear language and presentation

32. We found examples of language that could be considered hard to read, unclear and ambiguous, and which in some circumstances could lead consumers to draw erroneous conclusions and make decisions they might not otherwise make. For instance:
- Where platforms do allow consumers to opt-out of personalised ads, we found that almost all the platforms we reviewed, did not make it clear to consumers whether their data may continue to be collected and processed as before. For example, if consumers choose to activate Facebook's 'Hide Ad' control, Facebook does not make clear to consumers that it will continue to collect and analyse their data in the same way as if they had not activated this control.
 - Google's 'Location History' control is, by default set to 'paused'¹⁴ and the accompanying explanation of the purpose of this is that it: 'Saves where you go with your devices, even when you aren't using a specific Google service, to give you personalized maps, recommendations based on places you've visited, and more'. However, if a consumer selects a link to 'Learn more' they will be told that adjusting the setting will not change location services on their device, and that location data may continue to be saved in other settings, like Web & App Activity. There is no indication of whether location will continue to be gathered via IP address, Wi-Fi and/or other information.
33. All of the social media platforms we looked at also require consumers to accept 'clickwrap' agreements', which effectively make acceptance of the platform's terms implicit in the act of signing up (Figure Y.3). The examples we looked at presented the implications of signing up in far smaller and fainter text than the prominent buttons to 'sign up' that must be clicked to continue the process.
34. For platforms which are either only accessible via a mobile app, or most likely to be accessed via a consumer's mobile device, it is even more unlikely a consumer will read the relevant terms of service and privacy policies in full before agreeing to sign up. For these platforms, a consumer would either need to review the platform's terms and privacy policy on the small screen of their mobile device or access them via a separate laptop or desktop computer for review there, whilst in the process of signing up.

¹⁴ We observe that the term 'paused' is itself likely to be unclear to consumers – for instance, giving no indication about whether there is a timescale attached.

Figure Y.3: Clickwrap agreements



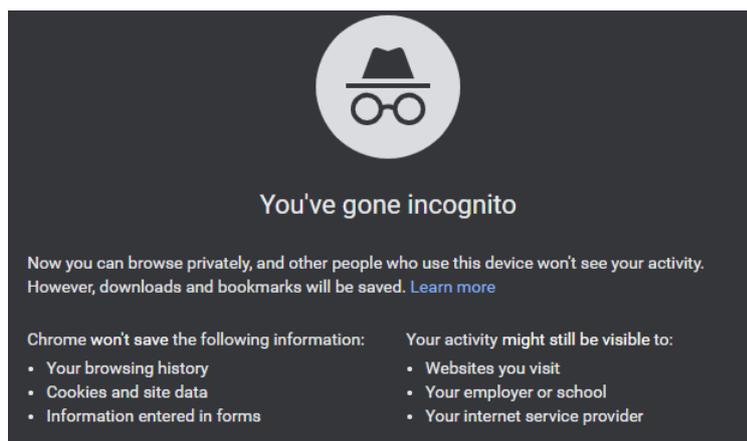
Source: screenshot, Pinterest and Facebook.

35. We also note users may misunderstand terms and images used by sites. For instance, some consumers may assume from the title of Google's 'Incognito' tool, as well as the image used, that this means that they are browsing anonymously (Figure Y.4). Google's internal research found that its Incognito mode was a highly rated Google tool when UK users were asked to consider each tool in terms of whether it demonstrated that 'Google respects your privacy' (with [over two-thirds] agreeing that Incognito mode demonstrated this).
36. Whilst the description explains that the use of Incognito does not mean that users' activity might not still be visible to websites the user visits, or their Internet Service Provider, some users may miss this detail – focusing instead on the image and the text stating prominently 'You've gone Incognito' and below this text: 'Now you can browse privately...'
37. Habib et al (2018) found that two thirds of participants overestimated the protection that 'private browsing' offers.¹⁵ A separate survey performed in 2018 found that the description of 'private browsing' offered by major platforms did not clear up common misconceptions.¹⁶

¹⁵ Habib, H., Colnago, J., and Cranor, L.F. (2018). [Away from prying eyes: analysing usage and understanding of private browsing.](#)

¹⁶ Wu, Y., Gupta, P., Wei, M., Acar, Y., Fahl, S and Ur, B. (2018). [Your secrets are safe: how browsers' explanations impact misconceptions about private browsing mode.](#)

Figure Y.4: Google's Incognito mode



Source: screenshot, Google.

38. The use of unclear language and presentation as well as lengthy and complex terms and policies, could have implications for vulnerable consumers who may be less likely to engage or find it harder to engage with complex navigation and information than others; and may be more susceptible to techniques which nudge them. It is reasonable to expect that consumers with limited digital skills might struggle to make and act on their decisions about the use of their personal data.¹⁷
39. The effect of such techniques could be particularly profound for visually impaired users who may, for example, easily see a large green 'Sign Up' button, but not see small grey text against a grey background that advises them that in doing so they are also agreeing to the platform's terms.¹⁸

Unclear links

40. We found examples where links did not clearly indicate the nature of the content they linked to. For example:
 - In the section of Google's 'Privacy Checkup' entitled 'Make Ads more relevant to you' consumers can choose to 'Manage your ad setting'. This includes an option to 'Control ad personalisation on other websites & apps that use Google ad services'. If consumers select this option, they are directed to an external website, 'Your Online Choices,'¹⁹ via a weblink. Google does not provide any further explanation here regarding how

¹⁷ The government's [Essential Digital Skills Framework](#) cites the [Lloyds Bank UK Consumer Digital Index 2019](#), which found that 11.3 million people (21%) lack full basic digital skills.

¹⁸ We also note that all UK businesses providing goods, facilities or services to members of the public must comply with the Equality Act 2010, irrespective of whether a service is provided for free or they charge for it. Under the Equality Act 2010, they should not discriminate directly or indirectly against disabled users and are required to make reasonable adjustments to ensure their website can accommodate them. Failure to make reasonable adjustments may result in a court claim and compensation as well as being required to make the reasonable adjustments.

¹⁹ [Your Online Choices website](#).

consumers' choices on the Your Online Choices website will affect their experience of using Google's services or how the use of their personal data will subsequently be affected.

- Facebook's Settings webpage, which itself can only be reached via a menu whose location is not prominently displayed, contains multiple links to other areas of the website at the bottom of the page. These include a link entitled 'Privacy' which, when clicked, directs consumers to Facebook's Data Policy, an extremely long and dense document describing the information processed by Facebook's products, rather than Facebook's consumer controllable privacy settings.
 - Options in Snapchat's Settings within its app are numerous and it may not be clear to consumers where certain controls are located within this. For example, controls relating to consumers' preferences regarding advertising are located via the 'Manage' button in the Additional Services section of the Settings menu. Other links and controls relating to consumers' privacy, such as the links to Snapchat's terms of service and privacy policy and the link for them to download their data, are located towards the bottom of the list of options, with consumers having to scroll through the equivalent of two to three screens of options to reach these.
41. We also note that there is some evidence in the platform research we have seen of consumers conflating the concepts of 'security' and 'privacy'. For example, Google's qualitative research suggested that consumers wanted both security and privacy and may conflate these. In our view, this increases the risk that consumers may incorrectly perceive platforms' messages and settings that relate to the security of their data as also addressing their privacy needs.

Lack of balance

42. Even if consumers are able to access information and options, the platforms' choice architecture may still make it difficult for them to process and assess the information independently without being unduly influenced. Thaler, Sunstein and Balz (2014) have pointed out that choice architects may not always have the best interests of the people they are influencing in mind.²⁰ This can also apply to privacy settings, where choice architecture can be employed to shift consumers towards behaviour that primarily benefits data collection organisations (Acquisti, Brandimarte, and Loewenstein, 2015).²¹ In

²⁰ Richard H. Thaler, Cass R. Sunstein and John P. Balz (2014), [Choice Architecture](#).

²¹ Acquisti, A., Brandimarte, L., and Loewenstein, G., (2015). 'Privacy and human behavior in the age of information.' *Science*, Vol. 347, Issue 6221, 509-514.

particular, how information is presented and framed can sway how consumers interpret it.

Limited up-front explanations

43. In surveys, consumers have reported that they feel disempowered by their lack of knowledge and transparency about how companies collect, use and share their data.²² In view of this lack of transparency, consumers are likely to have only a limited understanding, at the time that they sign up to the service, of the amount and nature of the data which will be collected from them. This makes them vulnerable to being influenced by how information is presented and framed.
44. Ofcom research shows that only a little over half (53%) of adults are aware that the major search engines offer their services at no monetary cost because they gain consumers' attention and data,²³ which they monetise through the sale of advertising. An understanding what data is collected and how it is processed, is imperative for consumers to make decisions about whether to share data and with whom.
45. We found that most platforms promoted the benefits of their service, rather than the nature of the exchange between the platform and the consumer. Clearly, it is important that consumers fully understand this exchange before they can make meaningful choices about whether or how to engage with a particular service. While information about the funding relationship could be found, it was not presented prominently to casual users of platforms and only rarely referred to as part of the account creation process.
46. We found that:
 - Google and Bing do not describe the functions of their service nor the funding relationship on their front pages. For Google, depending on whether viewing the desktop or mobile version, selecting 'How search works' provided a series of information screens that included a link to a statement on funding.²⁴ Consumers are also told that their data will be used for ads during the sign-up for an account, although the explanation that ads fund the site requires additional clicks to reach it. The position with Bing was mixed. For those without an account, we found some limited information²⁵ by navigating from an initial cookies statement

²² Which?, [Control, Alt or Delete? Consumer research on attitudes to data collection and use](#) (2018).

²³ Ofcom, [Adults' Media Literacy research](#) (2019).

²⁴ [How Google makes money](#).

²⁵ 'Advertising allows us to provide, support, and improve some of our products'.

through several links and screens.²⁶ However, during the sign-up for an account, consumers are told just ahead of account creation that the site relies on advertising.

- Facebook and Twitter both provide ‘tagline’ descriptions of their services on their front pages.²⁷ Facebook’s Terms of Service include a statement on how services are funded. Twitter includes the information that ‘Advertising revenue allows us to support and improve our services’ – which we reached by scrolling through several screens in the Privacy Policy.²⁸ However, Twitter users are presented with an option to ‘Customize your experience’ during the sign-up process and this includes whether or not to accept personalised ads based on information relating to them collected by Twitter ‘off-platform’. The explanation provided to consumers before making their choice includes the following disclaimer: ‘You will always see ads on Twitter based on your Twitter activity’, which is likely to suggest to consumers that advertising is important to Twitter although, again, this is not stated explicitly.

47. The fact that platforms use consumers’ data to fund their services through advertising is a very important part of the agreement between platforms and their users. Whilst platforms do provide explanations of how they are funded, these typically require consumers to click on relevant links (that do not themselves prominently explain that they address how the platform is funded). As we note in Chapter 4, few consumers engage with privacy-related controls and settings. Consumers are therefore only likely to encounter this information if they actively look for it or ‘stumble’ across it.
48. Limited consumer awareness of how platforms monetise their data is therefore likely to be perpetuated by the platforms not stating this clearly up-front. As a result it is likely that at least some consumers sign up to platforms and share data when they might not otherwise have done so had they been informed of the consequences.
49. There are some examples of publishers, for example, providing more up-front explanation of how they may use consumers’ data – for example if the consumer registers with them (Figure Y.5).

²⁶ From [Microsoft’s privacy information](#), selecting ‘Other Important Privacy information’, then selecting ‘Learn more’ then scrolling down several screens to reach ‘Advertising’.

²⁷ Facebook: ‘Facebook helps you connect and share with the people in your life’. Twitter: ‘See what’s happening in the world right now. Follow your interests – Hear what people are talking about – Join the conversation’.

²⁸ From [Twitter’s privacy policy](#), scroll down to ‘Additional information we receive about you’ and then ‘Advertisers and Other Ad Partners’.

Figure Y.5: Screenshot of Guardian registration

The Guardian's independent journalism is still free to read

Registering lets us understand you better. This means that we can build better products and start to personalise the adverts you see so we can charge more from advertisers in the future.

Register for free

Not Now

Already registered, contributed or subscribed? **Sign in**

Why register & how does it help?

How will my information & data be used?

Source: screenshot, The Guardian newspaper.

'Nudge' techniques

50. 'Nudge techniques' are another example of choice architecture that may sway how consumers behave. It is well documented that platforms can have choice architecture that has the effect of giving some options more emphasis than others.
51. We have identified instances where consumers may be 'nudged' to make particular decisions. For example, Google's Android sign up process uses a blue button which is visually more prominent than any other buttons or links (such as to Privacy or Terms) and thus likely to encourage the consumer to click 'next' rather than consider privacy policy and terms (Figure Y.6).

Figure Y.6: Screenshot of Google’s Android sign-up process

The screenshot shows the Google account creation interface. At the top is the Google logo and the heading 'Create your Google Account'. Below this are several input fields: 'First name', 'Last name', and 'Username' (which includes a dropdown menu for '@gmail.com'). A note below the username field states 'You can use letters, numbers & periods'. There is a link 'Use my current email address instead'. Below that is a 'Password' field with an eye icon for toggling visibility, and a note 'Use 8 or more characters with a mix of letters, numbers & symbols'. A 'Confirm' field follows. At the bottom left is a 'Sign in instead' link, and at the bottom right is a blue 'Next' button, which is highlighted with a red rectangular box. At the very bottom, there are links for 'Privacy' and 'Terms', also highlighted with a red rectangular box.

Source: screenshot, Google.

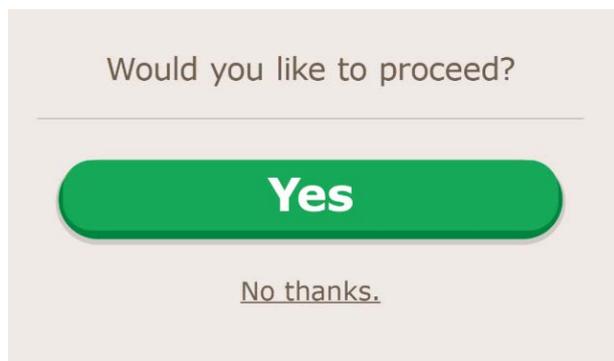
52. Platforms may not be the only part of a consumers’ journey where they may be nudged into sharing data. Some qualitative features of the CMPs we examined also appeared to be designed to encourage consumers to make choices which may not reflect their actual preferences. For example, several CMPs allow the size and/or prominence of an ‘accept all’ button to be significantly greater than an equivalent ‘reject all’ button. The links provided to relevant terms of service and privacy policies in several of the CMPs were also not prominent.²⁹
53. Authorities have undertaken work in this sector. For instance the ICO’s Age Appropriate Design Code, which is awaiting Parliamentary approval, is a statutory code of practice setting out standards for age appropriate design of online services which are likely to be accessed by children in the UK.³⁰ The Code includes a standard that firms should not use nudge techniques to lead or encourage children to provide unnecessary personal data or turn off privacy protections. It provides examples (such as Figure Y.7) and states that using techniques based on the exploitation of human psychological bias in

²⁹ We consider CMPs further in Appendix G.

³⁰ See: ICO, [Age Appropriate Design: A code of practice for online services](#), 2019.

this way goes against the ‘fairness’ and ‘transparency’ provisions of the GDPR as well as the child specific considerations set out in Recital 38.

Figure Y.7: Example of a ‘nudge’ technique



Source: ICO.

54. The Norwegian Consumer Council (NCC) also identified the example of Facebook’s GDPR popup as an example of what it referred to as ‘dark patterns’.³¹ For this popup, the ‘Accept and Continue’ button was highlighted in blue and thus likely to be more eye-catching to consumers than the white button to ‘Manage Data Settings’ which the consumer would need to click to find out more information in relation to the data processing undertaken by the platform.³² The NCC also noted that for consumers the easiest way to continue to use the service was to click ‘Accept and Continue’, which entailed only four clicks. In contrast, users who wanted to limit data collection and use had to go through 13 clicks.

Language that may ‘nudge’ consumers

55. We have seen evidence that platforms use language that promotes the benefits of using them and may prompt users to make specific choices that are likely to be beneficial to the platform. For example:
- Google’s Privacy Reminder, which summarises what consumer data Google processes and why, utilises noticeably positive language to describe these processes before providing consumers links to some of the controls available to them. For example, the first four of the five reasons Google gives for processing consumer data are all presented as beneficial to consumers.³³ This appears likely to encourage consumers to

³¹ These pop-ups were served to consumers as a result of the introduction of the GDPR.

³² Norwegian Consumer Council, [Deceived by design - How tech companies use dark patterns to discourage us from exercising our rights to privacy](#), June 2018.

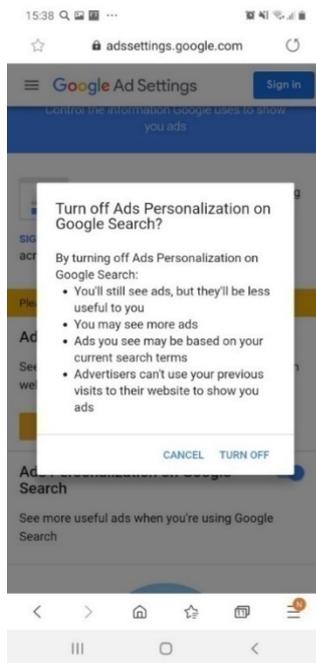
³³ In summary, these are: to help Google’s services deliver more useful and customised content; improve the quality of Google’s services; deliver adverts based on consumers’ interests; and improve security by protecting against fraud.

sign-up and use a Google account which, whilst providing them with some control over certain preferences, involves permitting Google to use more of their data.

- In the same paragraph of the advertising section of its privacy statement Microsoft states both that: "...some of Microsoft's services are supported by advertising" and "to show ads you're more likely to be interested in, we use data like your location, Bing web searches, Microsoft or advertiser web pages you view, demographics, and things you've favorited." The latter statement highlights only the possible benefits that may result for consumers if they allow Microsoft to use their personal data.
- Facebook's ad settings in its ad preferences menu use more positive language to frame the consumer selections which involve sharing and permitting the use of a greater amount of their personal data. For the setting regarding 'Ads based on data from partners', Facebook states that 'to show you better ads, we [will] use data that advertisers and other partners provide us about your activity off Facebook Company Products', if consumers allow this. For 'Ads based on your activity on Facebook Company Products that you see elsewhere', Facebook states that if consumers allow these, Facebook will 'use data about your activity on Facebook Company Products to make [ads] more relevant'.

56. We have also seen examples of how platforms can present information in ways that may dissuade consumers from making choices that could result in them sharing less information. For instance, Google presents a warning to users before they proceed with turning off personalised advertising that employs negative language that some consumers may interpret as a sign that they will experience disbenefits – including a warning that they will 'still see ads, but they'll be less useful', and they 'may see more ads'. The warning does not include a direct reference to the platform no longer using the consumer's data for advertising, which some users could consider a positive benefit (see Figure Y.8 below).

Figure Y.8: Use of warning language



Source: screenshot, Google.

57. Language that has the effect of influencing consumers may mean that some choose to share data when they might not otherwise have done or are dissuaded from going ahead with their decision to stop sharing their data.

The use of defaults

58. As we noted above and in Chapter 4, social media platforms typically do not give consumers a choice about the use of their data for personalised advertising. In this section, we consider the implication of defaults more generally for consumers using platforms – in terms of the various settings and controls available to them at registration and once they are using the service.
59. We found many examples of platforms setting defaults that are likely to benefit the platform. For example:³⁴
 - On Facebook, consumers' activity can be used to personalise ads served by Facebook on other websites and apps by default. Consumers can prevent Facebook from showing them some of these ads but cannot prevent Facebook from processing their data in the manner which informs this process. However, by default consumers are not shown ads based on data provided by Facebook's partners.³⁵

³⁴ See Appendix K for more information.

³⁵ Consumers using Facebook can enable this type of advertising via a setting on Facebook's 'Ad Preferences' page. As we note in Chapter 4, the proportion of users engaging with this tool is very low.

- Bing collects consumers' information by default and, while a control to opt out of personalised ads is provided, it does not seem likely that consumers will know of its existence.
 - In Snapchat's 'Advert Preferences' section of a consumer's settings, consumers are opted in by default to being shown 'Audience-Based Ads', 'Activity-Based Ads', and 'Third-Party Ad Networks'.
 - Twitter enables personalised ads for consumers using the platform for the first time by default. Consumers must visit Twitter's 'Personalization and data' settings and make an active choice to adjust these.
60. There is some evidence of potentially better practice. TikTok prompts consumers to make a selection regarding personalised advertising during the sign-up process and before they are required to agree to TikTok's privacy and cookies policies. They cannot progress to the next stage of sign-up without confirming the choice and this is turned off by default.
61. Although the search engines we reviewed acknowledge that their services are supported by advertising, the prominence of those acknowledgements varied, with users having to actively want to know and to navigate to this information.
62. A consumer visiting Google's search page for the first time, and who is not signed into an existing Google account, will see a prominent statement on privacy, the 'Privacy Reminder', as well as less prominent privacy, terms and settings links available on each page. The Privacy Reminder can temporarily be ignored; postponed; or reviewed. Once a consumer engages with the Privacy Reminder section, there is summary information about the processing of information by Google, why it is processed (including to 'Deliver ads based on your interests') and a link to 'Adjust the types of ads you see from Google'.
63. This immediate high-level information does not clearly state up front what types of personal information might be shared and that this will be used for personalised advertising. Furthermore, the positive framing of the language and choice architecture encourages acceptance and to set up an account, which although providing more functionality such as control over preferences, involves volunteering more information.
64. A consumer visiting Bing's search page for the first time will see an initial cookie notice displayed. The notice is more prominent in mobile displays than on desktop, but on both disappears without active engagement from the consumer as the site is used. Consumers are able to access privacy information via a menu button or a 'Privacy and Cookies' link available on each page. Bing collects consumer's information by default and, while a

control to opt out of personalised Ads is provided, it does not seem likely that consumers will know of its existence.

65. There is a general recognition that consumers' 'status quo bias' means that individuals often stick with the default choices they are presented with. From a policy perspective, status quo bias can be used to beneficial effect,³⁶ but studies have also suggested that firms may exploit it so that consumers make decisions they might not make with fuller consideration – including in relation to their privacy.³⁷ There is also some evidence that users may assume that default settings are configured to protect them and so do not review the actual settings.³⁸
66. The Behavioural Insights Team, the NCC and Which? have pointed to the power of defaults in terms of influencing consumers' choices about sharing data with service providers – suggesting that firms could be exploiting behavioural biases to get them to accept privacy-intrusive defaults.
67. The power of default settings is an area of behavioural economics that has been well researched and evidenced across a wide range of settings, such as pension savings, medical insurance and food consumption. We note in Chapter 3 that Google paid just under £1.2 billion in 2019 for mobile default positions in the UK alone – illustrating the value firms place on being the pre-set option presented to consumers.

Not enabling or respecting consumer choices

68. These examples reflect where platforms' choice architecture may have the effect of making it harder for consumers who want to engage with the privacy settings to actually do so and to do so consistently. In general, consumers' ability to act upon their intentions may be inhibited through friction, and where consumers may be encouraged to revisit and amend settings in ways that may not meet their original and ongoing preferences.

Limiting or hindering consumer review and consent withdrawal

69. We found that, based on the platforms we reviewed, search engines provided more prompts and reminders to users that they could adjust their settings than did social media platforms. For instance, Google provides non-logged-in consumers with control settings via a prominent 'Privacy Reminder' and

³⁶ For example, the Behavioural Insights Team report that the change in pensions defaults, from an opt-in to an opt-out system, has led to 10 million people in the UK newly saving for retirement – see [Nudge 2.0 blog](#), April 2019.

³⁷ Goldstein et al (2008).

³⁸ Leon et al (2012) used a lab experiment to study how well users were able to make use of tools to control data sharing. As part of that study they found that a number of participants assumed that the default configurations of those tools were designed to protect them without reviewing the settings.

consumers visiting Google’s search page for the first time will see a prominent statement on privacy, the ‘Privacy Reminder’ and if they ignore this are prompted after three days to acknowledge it.

70. Both Google and Microsoft have procedures for consumers to delete their accounts and download their data, although for Google it takes a minimum of 5 clicks to reach the relevant page and 3 clicks to enact the decision to delete; and 7 and 13 clicks respectively for Bing.
71. Furthermore, as we note in Chapter 4, the level of consumer engagement with tools that enable them to disable search and location history is very low. During the sign-up process (a time when consumers might be expected to engage with their settings), none of the social media platforms we reviewed prompted consumers to engage properly with their privacy settings, beyond providing a link to their respective policies. They often however prompted consumers to provide additional personal information to the platforms.
72. For example, once a consumer has signed up to Instagram, they are prompted to find their friends, either via Facebook or their contacts on their mobile device, to add a profile photo, and to allow Instagram access to their photos, camera and microphone. However, at no point during the sign-up process are new consumers prompted to review their privacy settings.
73. Where consent is the legal basis, it should be as easy for consumers to withdraw their agreement to the specific processing of their personal data as it is to give it.³⁹ However, as we note above, navigation can be complex and unclear.
74. Xu et al. (2012) suggest that providing consumers control through disclosure settings can reduce privacy concerns even when control is ‘illusory’. In their 2018 report, the NCC considered the example of Google’s GDPR popup which stated “You control whether we use data from partners to show you ads’, to assess whether it is was possible for the user to “easily delete specific items or entire topics” as promised in the splash screen. The NCC found that Google’s Privacy Dashboard “actually discourages users from changing or taking control of the settings or delete bulks of data” – an effect it described as ‘illusion of control’.⁴⁰
75. In our view, platforms could do more to prompt users’ review of their settings and enable them to vary what they consent to. Where consumers are hindered in their ability to vary consent, many will through inertia stick with the

³⁹ As explained in Appendix A, consent is a defined term in the GDPR (Art. 4(11)), with further provision made throughout the GDPR for example Art.7 ‘Conditions for consent’.

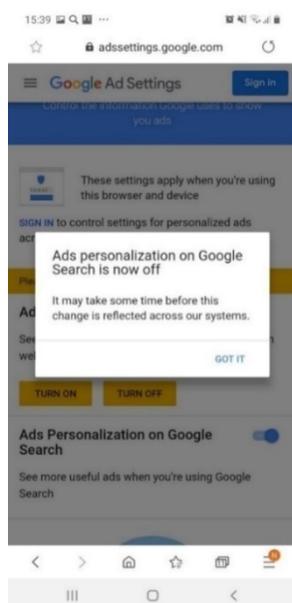
⁴⁰ Norwegian Consumer Council, [Deceived by design - How tech companies use dark patterns to discourage us from exercising our rights to privacy](#), June 2018.

status quo. This means that some may continue to use platforms and share data when they might not otherwise do so.

Designs that can encourage consumers to revert to agreeing to personalised ads

76. We also identified examples where after consumers have made choices in relation to their privacy settings, they are prompted potentially to reverse them, or the timescales for how long their choices are maintained is unclear.
77. For example, when a consumer of the Android device chooses to use Google search but does not want to receive personalised advertising, the consumer is presented with an uncertain outcome when they choose to opt out. We found Google did not provide a specific timeframe for the opt-out from personalised advertising to take effect and how consumers would be assured that their choice had been reflected (Figure Y.9 below).

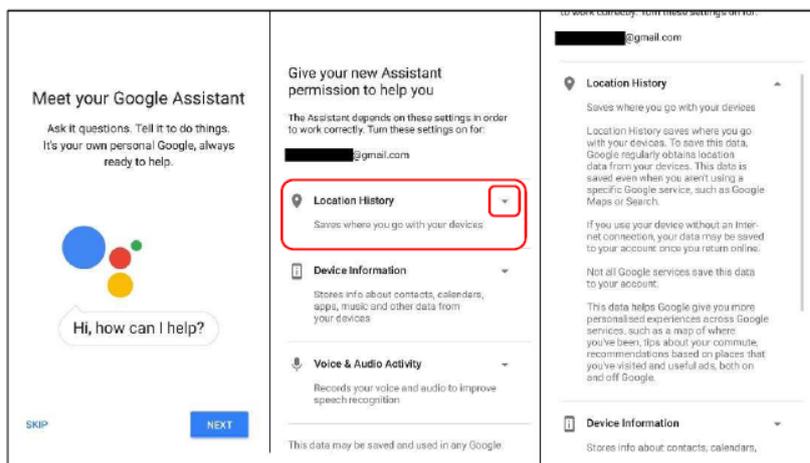
Figure Y.9: Android Ads personalisation for Google search on Android



Source: screenshot, Google.

78. Google asks an Android user to turn on Location History on a number of instances (shown in Figure Y.10), even after they have made their choice. This includes when the consumer is setting up the Android device, when using Google maps and when accessing photos. Every instance of the request lists the benefits of turning this function on, but does not explicitly state that the data collection may be used for personalised advertising, unless the consumer chooses to click on a small arrow to see further details. Conversely, we did not observe similar prompts asking whether users wish to turn off Location History when it is on and noting that their data may be being used for personalised advertising.

Figure Y.10: Location History turn on request instances



8 Google Assistant prompt, when setting up an Android device.

Source: NCC “Every step you take” p.19.

79. Facebook alerts consumers entering sensitive information, referred to as ‘special category data’ (SCD),⁴¹ in their profile that this is ‘...data that’s specially protected under EU law’ and advises them that if they confirm that they wish to keep it on their profile Facebook will share the information with the people they choose and use the data ‘...to personalise features and products’. However, this upfront description does not explain why the data is specially protected and thus why the consumer may want to pay particular attention to its use. Furthermore, Facebook told us that this ‘consent flow’ is not repeated should the consumer choose to change their information or withdraw their consent for its use, although the consumer is ‘free to access the “About” section of his/her profile at any time and revoke his/her consent’.
80. Generally, it is important for platforms to get the balance right between prompting consumers at the most appropriate points, whilst not being so frequent as to undermine consumer choice by causing confusion or fatigue.

How consumers make decisions when interacting with platforms

Behavioural biases

81. Our interim report noted how a number of studies have considered specific aspects of choice architecture presented to consumers in the online space. In particular, we noted research identifying how colour schemes and the positioning of text could influence choices; or complex navigation to locate

⁴¹ Special category data is defined in the [GDPR](#) as data which requires more protection because it is sensitive, such as gender, sexual orientation and political views. Under the GDPR such data should only be processed based on both lawful basis under Article 6 of the GDPR and a separate condition for processing under Article 9.

and change settings might dissuade consumers from changing default settings.

82. In Appendix L we provide examples of where academic literature has identified a range of behavioural biases that could impact on consumer's decision-making in an online context. Some examples of these include:
- Defaults – when one option within a choice setting is pre-selected, consumers tend to stick to the pre-selected option. This is most strongly observed when an option is pre-selected or opted in for a user and then implemented by a platform.
 - Framing – when information is framed in a certain way (eg personalised advertising is framed as relevant advertising), consumers interpret the information in the context of how it is framed, and not purely on the presented facts.
83. In this section, we provide further analysis of biases including the underlying psychological mechanisms and the links to specific types of choice architecture observed in platforms.

Psychological mechanisms and platforms' choice architecture

84. To supplement an understanding of choice architecture we developed an overview of the psychological mechanisms that influence whether consumers do or do not engage with choices to share their data for personalised advertising. This incorporates the mechanisms on the platforms' side (i.e. choice architecture features) and relates these to the mechanisms on the consumers' side (i.e. their behavioural biases and heuristics).
85. In addition, we have considered the experience of other regulators in interacting with rapidly evolving online choice architecture. For example, in its recent guidelines⁴² on the protection of online consumers, the Netherlands Authority for Consumers and Markets (Autoriteit Consument en Markt, ACM) noted that consumers can potentially make more informed decisions and are more able to compare options online than offline. However, the large volume of information available means consumers rely more on rules of thumb; make simplified choices that limit their search time; and tend to pay less attention than offline. Similarly, firms that operate online can anticipate the characteristics and circumstances of consumers during their customer journey to provide valuable services, but also to continually test and adjust their choice architecture based on their knowledge of how consumers behave.

⁴² [Protection of the online consumer - Boundaries of online persuasion](#), Feb 2020.

86. The presentation of information and choices can make it more or less likely that certain cognitive patterns and biases are engaged, leading to decisions that may or may not align with the consumers' own best interests.
87. We identified relevant psychological mechanisms through two combined approaches:
- (a) An overview of the current choice architecture used by major online platforms building on a review of user journeys (from which we draw specific examples in the next section).
 - (b) We further reviewed the academic literature (including empirical work) to identify which psychological mechanisms could explain how and why choice architecture interacts with human information processing and biases; and how they can be applied in order to promote engagement and choice.
88. The psychological mechanisms are summarised in Table Y.1 below. These mechanisms are interdependent and collectively they influence consumer behaviour. The choice architecture adopted by the firms potentially exploits consumers' behavioural biases, processing patterns and cognitive limitations.
89. While the choice architecture features in the table are very different from each other, the behavioural biases they influence largely relate to three categories:
- (a) **Limited cognitive capacity:** as mentioned above, consumers are bounded in their ability to process information. This limits the extent to which they can allocate attention, comprehend information, weight choices and make decisions. Choice architecture influences this by making information more or less (cognitively) accessible.
 - (b) **Sensitivity to how information is presented (frames and nudges):** partly due to the limited cognitive capacity, consumers to a great extent base their evaluation of information not only on facts, but also on the tone and description of the information. Choice architecture can influence this by framing information in ways that steer consumers' assessment of options in a particular direction. In other words, the presentation of different options/different sets of information is not balanced.
 - (c) **Disconnect between intentions and behaviour:** even if consumers are (1) able to comprehend information completely and (2) to evaluate it to draw a conclusion, translating their conclusions into actual behaviour is difficult due to consumers' natural tendency to be inert for behaviours that are relevant, but not directly attractive to perform. Only when choice

architecture actively addresses this intention-behaviour gap, can the gap be overcome by consumers.

90. In Table Y.1 below we have denoted the mechanisms that cut across **accessibility**, **balance** and **consistency** which are concepts used in this appendix and in Chapter 4.

Table Y.1: Psychological mechanisms and choice architecture

Underlying Psychological Mechanisms		Examples of choice architecture with negative impact on consumers
Platforms' choice architecture	Consumers' behavioural biases	
<p>Information, complexity and choice overload. Platforms present more information on privacy than other topics; in a more complex way; offering more choices than consumers can assess.ⁱ</p>	<p>Limited attention and cognitive capacity Volume and complexity of information can exceed consumers' abilities to process information,^{ii, iii} filter out what is relevant^{iv} and weight large numbers of choices.^v</p>	<ul style="list-style-type: none"> • Privacy settings that mix relevant and less relevant information • Drip feeding information. • Partitioning information so that it is hard to see the whole picture. • Lengthy, complex menus with multiple choice options.
<p>Prominence Some information is more prominent with a logical flow; and links to some information are more obvious.</p>	<p>Limited attention and cognitive capacity Consumers tend to be drawn to more prominent items^{vi, vii, viii} and miss less prominent items; and are more attracted to and influenced by fluently presented information.^{ix}</p>	<ul style="list-style-type: none"> • Design features (e.g. layouts, fonts and colour schemes) that draw attention away from key information. • Ordering (eg placing key information at the end of a list). • High reading age level of content.
<p>Obfuscation Information is provided in ways that discourage attention.</p>	<p>Recognition and expectation Consumers allocate attention according to their expectations.^x</p>	<ul style="list-style-type: none"> • Vague link titles; or titles not matching the content. • Ordering and timing (e.g. key information is presented late or when not expected).
<p>Framing and wording Platforms describe information inferring specific interpretations of the information (i.e. with more or less positive connotations).</p>	<p>Sensitivity to framing and wording When making a choice, consumers are likely to be influenced by how positive or negative options are worded and framed.^{xi, xii, xiii, xiv}</p>	<ul style="list-style-type: none"> • The sharing of information is framed in terms of what consumers gain. • Personalised advertising is described as 'relevant' whilst contextual advertising is described more neutrally. • Sharing information is presented as being 'social'.
<p>Control measures that do not provide control Choices within privacy settings appear to be easily controllable but do not offer actual or complete control.</p>	<p>Illusion of control Consumers tend to interpret the presence of control settings as a sign of having complete control. When they read words like 'choice' and 'control', they start to feel in control regardless of the level of control offered. This leads to decreased engagement with the settings.^{xv}</p>	<ul style="list-style-type: none"> • Information on data sharing uses phrasing that increase illusion of control (e.g. 'your choice', 'you are in control'). • 'Incognito'-type tabs appear to offer private browsing where data on what you look at and purchase is not used for personalised advertising.
<p>Defaults A default setting opting consumers into sharing data and receiving personal advertising is preselected, and implemented, by platforms.</p>	<p>Default bias Typically, consumers stick with the status quo, which with defaults means the pre-selected option. This is because of a variety of reasons (inertia, loss aversion, trust in recommendations).^{xvi} This effect is increased when the default is completely integrated.^{xvii}</p>	<ul style="list-style-type: none"> • Opting-out is only possible with significant effort.
<p>Presentation of inherent consequences Design focuses on immediate benefits to consumers rather than future consequences of data sharing.</p>	<p>Psychological myopia Consumers naturally tend to consider immediate consequences more than future ones.^{xviii, xix, xx} This is increased when future consequences are difficult to comprehend.^{xxi}</p>	<ul style="list-style-type: none"> • Attention is guided towards direct benefits (e.g. through prominent presentation). • Consequences are hidden (e.g. through information overload).
<p>Choice order Relevant information is not prominently offered until after key decision points for the consumer.</p>	<p>Anchoring effect and commitment bias Information presented initially to consumers acts as a reference point to assess the value of a product and 'anchor' on.^{xxii, xxiii} Consumers interpret the effort and time they invest in creating an account as commitment to the platform.^{xxiv}</p>	<ul style="list-style-type: none"> • With account creation, information on data sharing is available but obfuscated through information overload and lack of prominence.
<p>Friction related to information Information is not presented at the time or stage when it is relevant to the consumer (eg when receiving targeted advertising) and finding relevant information is difficult.</p>	<p>Inertia and effort When consumers want to engage with information or options, they can be kept from doing so when the information or option is not directly available or even difficult to find.^{xxv, xxvi}</p>	<ul style="list-style-type: none"> • Consumers need to take multiple steps to find information.

Source: CMA analysis of concepts, literature (see bibliography), and examples of platform choice architecture.

Our interim report proposals

Our interim report identified two potential interventions

91. In light of our initial concerns, we set out two potential direct interventions in our interim report that would require all platforms to:
- give consumers the option to use services without requiring in return the use of their data for personalised advertising (the ‘**choice requirement**’); and
 - comply with an overarching Fairness by Design (FBD) duty in the design of their data collection practices, to complement the GDPR ‘data protection by design’ duty (the ‘**Fairness by Design duty**’).
92. We also identified some potential additional elements to these core remedies, some of which would apply to all platforms and some of which would apply only to platforms with strategic market status (SMS).⁴³ For the Fairness by Design (FBD) duty, we asked for views on whether the platforms with SMS should be required to trial and test their choice architecture.
93. We address the first of these potential interventions (the ‘**choice requirement**’) in our main report at Chapter 8 and in Appendix X. In this appendix, we focus on the second intervention – a **Fairness by Design (FBD) duty** coupled with trialling and testing.

Stakeholders’ views on our interim report proposals for an FBD duty

94. We received no direct disagreement with our key findings about how choice architecture can impact on consumers and most responses that addressed the topic were supportive of our broad assessment.⁴⁴ For instance:
- Privacy International said that our initial findings ‘...underline several ways in which platforms may undermine consumers’ choices or even deprive them of effective control over their personal data’.
 - News UK agreed that ‘...consumers should have control over their data and that major platforms should not be able to extract excessive data either by exploiting the essentiality of their services, the power of default bias or by using complex and opaque terms and conditions’.

⁴³ We discuss the concept of strategic market status (SMS) in Chapter 8.

⁴⁴ Appendix B provides an overview of stakeholders’ responses to our interim report.

- Doteveryone welcomed the report's '...analysis and findings in relation to the challenges consumers face to manage their data, and the need to reduce the friction platforms impose on users to do so'.
 - Which? welcomed our '...detailed research on the extent to which consumers engage with the current controls available...' and agreed '...that the choice architecture used by platforms affect consumers' ability to take control of their data and that consumers are unlikely to opt-out of personalised advertising which is set as a default on platforms'.
 - Snap Inc. noted that that 'services' terms and conditions and privacy policies should be intelligible and as brief as reasonably (legally) possible', although it also considered that its own Privacy terms and ToS were not long and hard to read but '...the minimum length to reach required legal thresholds of applicability and enforceability'.
 - Barclays welcomed our '...analysis of consumer privacy policy and data use and in particular the privacy paradox...' and said that 'on privacy policies, we can see the need for clarity as to how consumer data in general should be used going forward'.
 - Facebook said that it supported our proposals '...to deliver increased transparency and control for consumers and advertisers to make well-informed choices...', although it also stated that it '...offers a number of market-leading privacy tools...that provide users with transparency and choice over the use of their data'.
95. Views differed in terms of our proposals for an FBD duty as a remedy. Some respondents welcomed the suggestion as helpful and complementary to existing regulation. For instance, the ICO noted that '...some of the interventions put forward...have the objective of giving consumers greater control over their data...and that such '...provisions would complement the data protection principles and individual rights under the GDPR'. The Data and Marketing Association (DMA) considered the proposed duty to be a 'bold and encouraging step to further accountability'. DuckDuckGo were '...supportive of rules that require platforms to design consent and privacy policies...[which] facilitates informed consumer choice'. The Centre for Data Ethics and Innovation (CDEI) noted that 'participants in [their] public dialogue generally felt that they could not control how their data is used online...' and welcomed our proposed duty and '...interventions to improve consumer information and people's control over their online experiences'.
96. However, others responded that the duty would be unnecessary and disproportionate. For instance, IAB UK suggested that our remedies were

'...similar to those already introduced by the GDPR...', '...risk exacerbating the problems identified [in our interim report] and fell more to responsible data protection authorities (DPAs), thus risking '...regulatory overlap and confusion'. The Advertising Association considered that the duty '...appears to duplicate elements already covered by data protection law'...and that there needs to be '...greater effort from consumers to understand the implications of what they are giving consent to...' addressed by more effort to support media literacy. Facebook suggested that we should be cautious about imposing a different balance on GDPR or going beyond with 'additional requirements' and described the duty as 'unnecessary and disproportionate'.

97. Arete thought that the duty would be ineffective, as it feared that '...getting consumers to activate (and understand) their rights will be difficult and efforts to include "privacy by design" have been subverted regularly by woefully inadequate application and subsequent enforcement of GDPR requirements'.
98. We also received mixed responses on whether the duty should apply to all platforms. For example, Guardian Media Group noted that the duty, if imposed on platforms with SMS '...would be a positive intervention to the benefit of UK consumers'. Snap Inc suggested that should the duty apply to all platforms, as with any industry-wide regulation, it would be the larger platforms that would find it easier to comply with, whilst smaller businesses would struggle to. In contrast, Facebook considered values should be applied across the industry (for instance as an industry-wide code), rather than being targeted at SMS.
99. The Competition Law Forum considered trialling and testing requirements should initially be restricted to platforms with SMS, since 'running the trial and test could amount to an unduly financial burden for small companies'. DuckDuckGo, supported SMS platforms being required to trial and test their choice architecture, noting that '...It's our understanding that that large platforms do in fact test this, through third party consultants, and actually implement the opposite, i.e., design their "choices" in a manner that dissuades consumers from selecting the option that protects their privacy'. As we discuss further below, we received a largely negative response to the potential extension of an FBD duty to publishers.

Our assessment and recommendation

100. For consumers to be able to make decisions, they not only depend on relevant information, but also on how, and when, information and choices are presented. Our view is that platforms' choice architecture may exacerbate natural consumer biases, with the effect of discouraging consumer engagement so that users are more likely to share their data. These include

default settings and presentation of information and options that nudge consumers into sharing data. Consumer engagement with privacy controls is correspondingly low.

Our recommendation for a Fairness by Design duty

101. Having considered the responses to our proposed interventions and the evidence in more detail, we conclude that there remains a strong case to introduce a Fairness by Design (FBD) duty on platforms accompanied by a requirement to conduct trialling, testing and monitoring to demonstrate that they are compliant.
102. We consider that the balance of control over consumers' data is too far in favour of the platforms. The fact that five years on from CMA's report on 'The Commercial Use of Consumer Data'⁴⁵ consumers are still expressing concern about the use of their personal data, including for the provision of personalised advertising, demonstrates that the situation is unlikely to resolve itself.
103. Information asymmetries as well as the scale and persistence of market power in a few firms places individual consumers at a disadvantage compared with large online platforms and means that the situation is unlikely to be resolved without direct intervention.
104. As we set out above, a key factor is natural consumer biases and how platforms' choice architecture can exacerbate these with the effect of discouraging consumer engagement. We think this results in consumers sharing more data than they might otherwise have decided to do, that they may not receive a fair return for their data and more broadly may not have their data used for personalised advertising in a way that they are happy with. We consider that more effective choice architecture could instead help to mitigate these biases and enable more effective engagement.
105. These harms may be magnified for more vulnerable consumers, who may have more constrained capacity to make decisions and be more susceptible to techniques which nudge them; and who in some cases may be particularly reliant on services such as social media. For example, by the age of 15 almost all children have a social media profile;⁴⁶ as do one in five people aged 75 or over.⁴⁷ Furthermore, Ofcom reported in 2019 that although most social media sites including Facebook, Twitter, Instagram and Snapchat have a

⁴⁵ [The Commercial Use of Consumer Data](#). CMA (2015).

⁴⁶ Ofcom, [Children and parents: Media use and attitudes report 2019](#), February 2020.

⁴⁷ Ofcom, [Adults' Media Use and Attitudes Report, 2020](#).

minimum age requirement of 13, 21% of 10-year-olds and 34% of 11-year-olds said they had a profile.⁴⁸ In some cases, such as the COVID-19 pandemic, people may be particularly reliant on services such as social media and thus be more likely to be affected by the issues we have identified.

106. Recent qualitative research published by Which? has focused specifically on the issue of opting into or out of data collection for personalised advertising on Facebook. Which? reports that interview participants expressed a clear preference to opt-in, rather than opt-out, to data collection for targeted advertising and that people wanted more control over where the data was collected from. Which? considers that its approach allows it ‘shed light on nuanced, but often strongly held, consumer attitudes’ and we consider that this analysis provides useful insights.⁴⁹
107. It is unreasonable to expect consumers to have to hunt for information, interpret complex material and engage with complicated settings. The burden should be on platforms to present information fairly and make the process as straightforward as possible – so that there are no barriers to consumers engaging effectively.
108. We therefore **recommend that the government empower the Digital Markets Unit (DMU) to require platforms to meet a “Fairness by Design” (FBD) duty.**⁵⁰ This duty would form part of the Trust and Transparency Principle in the Code of Conduct set out in Chapter 8 and Appendix U.
109. We propose a high-level principles-based duty to ensure that consumers can make more informed choices: ‘To ensure that choices and defaults provided by the platform are presented in a way that facilitates informed consumer choice over the use of their personal data’.
110. The duty would help to raise consumers’ awareness and understanding of the use of their data for personalised advertising; ensure that information and choices available to consumers about the use of their data for advertising are presented fairly; and ensure that they can exercise their choice freely.
111. Platforms would also be required to demonstrate compliance with the duty to the DMU – i.e. that they were actively monitoring user knowledge and levels of engagement; and taking appropriate steps to improve these metrics through trialling and testing alternative approaches and improving their choice architecture.

⁴⁸ Ofcom, [Online Nation 2019](#).

⁴⁹ Which?, [Are you following me? - Consumer attitudes towards data collection methods for targeted advertising](#), June 2020.

⁵⁰ The role of the DMU is discussed in Chapter 8 of the main report.

112. Measures which improve consumer engagement, knowledge and understanding means that consumers are better placed to express their privacy preferences on a case-by-case basis. We think this will have a positive impact on consumers. We also consider that duty will have pro-competitive effects, by enabling consumers to make more informed choices and encouraging firms to innovate and compete in terms of effective choice architecture.

Focusing the Duty initially on platforms with strategic market status (SMS)

113. In our interim report, our provisional view was that an FBD duty could apply to all platforms. As we note above, we received a range of responses on which platforms should be required to implement our proposed remedies – notably whether the remedies should be applied to platforms with strategic market status (SMS) or to all platforms. Some respondents considered that it would be appropriate to apply them widely given widespread practices we identified, but others suggested that it would be burdensome and unnecessary to apply them to smaller firms. Publishers in particular, were concerned that it would be disproportionate and could be detrimental to online news publishers that are funded by advertising to apply the FBD duty to them – we consider this specific issue further below.
114. In this market study, we have identified concerns in the practices of a range of market participants regarding how effectively consumers can control the use of their data for personalised advertising.
115. However, having carefully considered responses and the evidence we have seen, as well as the most effective way to implement the remedies, we conclude that in the first instance, the DMU should apply the duty only to platforms with SMS.
116. In introducing remedies it is important to consider their proportionality and potential impact on platforms. The initial development and application of changes to platforms' choice architecture will incur some costs. Imposing such developmental costs on new platforms could hinder the entry or expansion of much smaller platforms which may act as a competitive constraint on platforms with SMS. We consider the impact of the duty will be manageable for larger and well-established platforms which already carry out some testing and trialling of their choice architecture.
117. Furthermore, we consider it reasonable to prioritise the application of the FBD duty according to the extent to which firms hold and use data on consumers, and the extent of their market power. The largest platforms we have identified in our study are used by very large numbers of consumers and use very

substantial volumes of their data. In addition, as noted above, where platforms have SMS, consumers often have little meaningful choice of whether to use the platform, resulting in an imbalance of power between controller and consumers, which this intervention is intended to address.

118. We therefore consider it reasonable to focus the duty on platforms with SMS in the first instance so that the DMU can review and refine its implementation and assess the impacts before considering wider application. Adopting a developmental approach to the Duty through trialling and testing could help to mitigate any negative impacts. We explain below how the duty could be implemented, as well as our assessment of its implications for consumers, platforms and advertisers.
119. Finally, whilst other platforms would not initially be subject to the remedies, they would still need to comply with the requirements of the GDPR, including the fairness and transparency provisions and the requirements for data protection by design. We set out below how the duty complements the requirements under GDPR (which would also continue to apply to platforms which have SMS).⁵¹

Online publishers

120. In our interim report, we indicated that we would consider whether a similar FBD duty should apply to publishers, such as newspapers.⁵² As we note above, publishers raised concerns that this would be disproportionate. For example, the Guardian Media Group suggested that the ‘...news media and wider publishing industries will offer this level of granular consent through the development of the industry’s IAB TCF framework,⁵³ and therefore should not be subject to the same duty’.
121. The News Media Association (NMA) considered further regulatory intervention unwarranted for publishers, noting that ‘news publishers differ from tech platforms in that no single news website constitutes an unavoidable social and

⁵¹ Chapter 4 and Appendix A address the relevant regulatory framework.

⁵² See our interim report, paragraph 6.116.

⁵³ The IAB Transparency and Consent Framework (TCF). The TCF is a framework, developed by IAB Europe in collaboration with the digital advertising industry, to help publishers, technology vendors, agencies and advertisers meet GDPR and ePrivacy transparency and user choice requirements, by collecting and transmitting signals of consent from an individual to third party vendors. Site and app operators provide disclosures and seek consumers’ consent through a Consent Management Platform (CMP) and pass this through the supply chain. IAB Europe maintains a list of registered and compliant CMPs and a Global Vendor List (GVL), of all registered and approved third parties (‘Vendors’) participating in the TCF. IAB told us that TCF v2.0 enables consumers to grant or withhold consent and exercise their ‘right to object’ to data being processed on the basis of legitimate interest. In addition to signalling a user’s consent choices, the TCF will signal whether a vendor’s legitimate interest has been disclosed and whether the user has exercised their right to object. We consider CMPs in more detail in Appendix G.

commercial space and consumers have a genuine choice as to which publishers' websites they visit'.

122. We conclude that it would not be appropriate at this stage for the duty to be applied to online publishers. As we note above, we consider it proportionate to target the FBD duty in the first instance on the largest platforms responsible for the most substantial use of consumer data for personalised advertising.
123. We also note that the nature of the relationship between consumers and publishers differs to that between consumers and the online platforms we have addressed in our study. For instance, social media platforms typically rely entirely on user-generated content and require consumers to share their data to gain access to this, whereas publishers typically provide content to consumers and in some cases require payment or enable ad-free access.

The scope of the Duty and possible wider application

124. The FBD Duty focuses on consumer users of the platforms and how their data is used for personalised advertising. Specifically, it is intended to enable effective consumer control of the collection and use of personal data as defined in the GDPR⁵⁴ for the purpose of serving personalised adverts to individual consumers.
125. By personalised advertising we mean the practice of targeting advertising to a consumer, based on his or her characteristics and previous browsing activity, i.e. data collected on the consumer's behaviour over time is used to determine the advert they see.
126. Given the scale and importance of personalised advertising and heavy use of consumer data in its delivery, the duty could have a significant impact in addressing the harms we have identified. Although our remedies may not address all the reasons for the low levels of trust expressed by consumers, more transparency and control should have a positive impact on consumer understanding and attitudes towards platforms. We consider the impacts of the duty below.
127. Furthermore, as we explain in Chapter 8 of our main report, despite the immediate and focused scope of application, the broad nature of the duty, as well as some specific aspects of it could be developed to have wider application. For example, in Appendix N we highlight potential concerns with the use of choice architecture and defaults in the advertising interfaces used

⁵⁴ Personal data only includes information relating to natural persons who: can be identified or who are identifiable, directly from the information in question; or who can be indirectly identified from that information in combination with other information. Pseudonymised data can help reduce privacy risks by making it more difficult to identify individuals, but it is still personal data. See: ICO, [What is Personal Data?](#)

by Google and Facebook. Given the importance of choice architecture in platforms' business models, it is possible that a Fairness by Design duty could be applied to markets beyond those we have considered in this study.

Complementarity with Data Protection by Design

128. As we noted above, some parties considered that FBD may duplicate elements of GDPR.
129. The GDPR has a 'data protection by design and default' duty that requires firms to process data in accordance with a set of principles which include fairness and transparency (Article 5). Data protection by design requires data controllers to put in place appropriate measures to implement the data protection principles and to integrate safeguards to meet the GDPR's requirements and protect individual rights. The GDPR is not prescriptive about how this can be achieved, and the ICO guidance suggests approaches that may be appropriate depending on the circumstances.⁵⁵
130. We consider that the Fairness by Design duty will complement the GDPR duty. First, it will initially be applied only to firms with SMS, although in the long run it could have wider application. Second, Fairness by Design could also be used to inform other elements of platform design beyond the use of personal data, such as sales interfaces. Third, it will also include an express ongoing requirement for trialling and testing, with the DMU setting out what steps are needed to test and trial choice architecture and iterating to improve it.
131. The ICO in its response to the interim report agreed that the interventions put forward in the interim report that have the objective of giving consumers greater control over their data would 'complement...the GDPR'.

Relationship with the choice requirement remedy

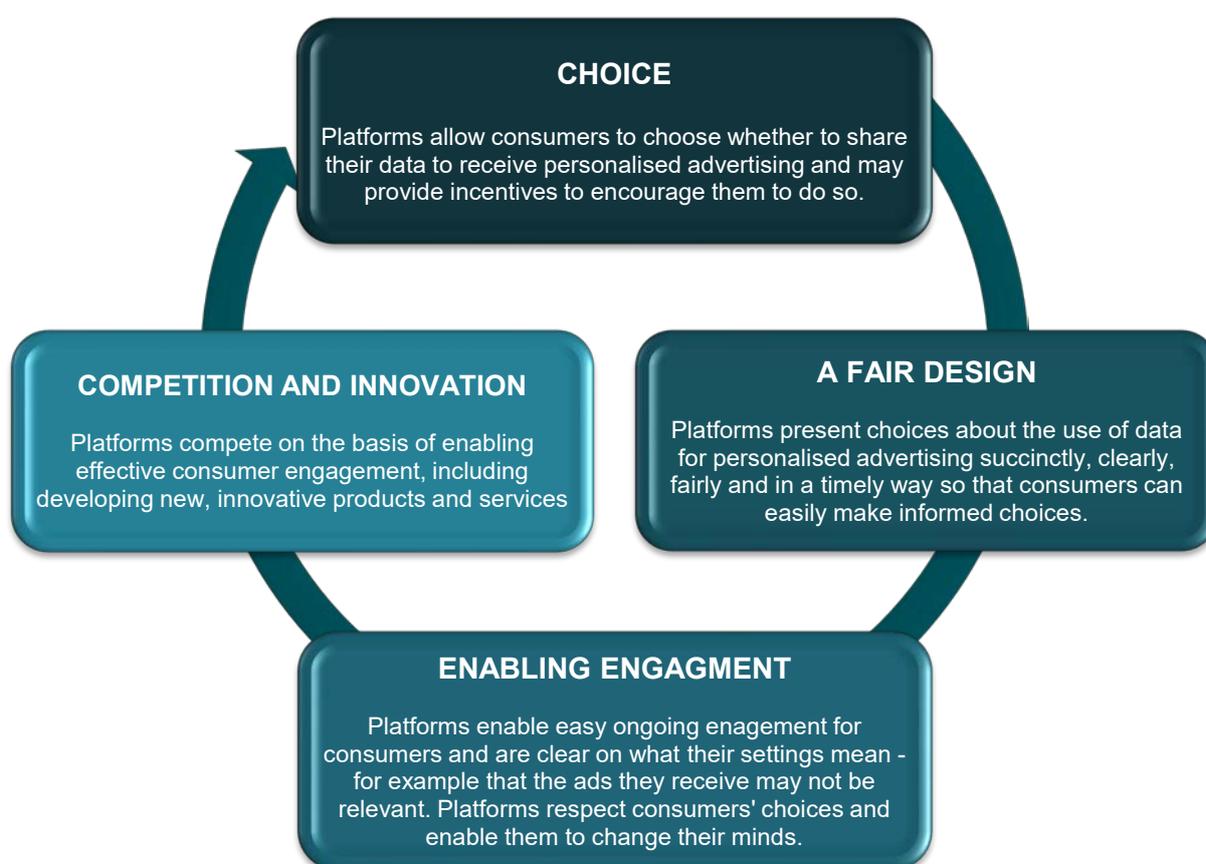
132. As we note above, in addition to the FBD duty we recommend requiring platforms to give consumers the choice not to share their data for personalised advertising, but instead to receive adverts that are not personalised (the 'choice requirement remedy').
133. Whilst our choice requirement remedy addresses the need to give consumers the option to use services without requiring in return the use of their data for

⁵⁵ These include offering transparency tools, strong privacy defaults, user-friendly options and controls and respecting user preferences. We note, for instance, in Chapter 4 that the ICO has produced the Age Appropriate Design Code which includes requirements for transparency, for default settings to be set to high privacy by default and for not using nudge techniques to lead or encourage children to provide unnecessary personal data or weaken their privacy protections. See: ICO, [Age Appropriate Design: A code of practice for online services](#).

personalised advertising, the FBD duty addresses how choices are presented - including at a more granular level.

134. These remedies are intended to address the harms we have identified. Cumulatively, they should establish a virtuous cycle (Figure Y.11) – where platforms are made to give consumers a fair and more informed choice and competition benefits consumers through quality improvements and new innovations, which in turn respect their control of their data.

Figure Y.11: Virtuous cycle through privacy-enhancing competition



Source: CMA.

Implementing the Fairness by Design Duty

135. We recommend that the DMU adopt high-level principles rather than defining detailed requirements to ensure that the duty can flex to new market and technological developments. It would be for the DMU to set the high-level basis of compliance with this principle. We address in Chapter 8 of our main report how we propose the DMU enforce the code and penalise non-compliance. We anticipate that the DMU would wish to establish high-level

expectations for how platforms should behave to comply with the duty and to enable it to assess compliance.

136. The proposed duty addresses the evidence presented in Chapter 4 and this appendix, which shows examples of platforms' choice architecture which are likely to hinder users from engaging with exercising control. Three broad behavioural themes emerged from this evidence: (1) the need for information and options to be accessible, (2) the need for information and options to be presented in a fair, balanced way and (3) the need to users to be able form preferences and act upon them in a consistent way. To address these three themes, we conducted behavioural analysis to identify relevant psychological mechanisms that would drive consumer behaviour.
137. In 2010, the Office of Fair Trading (OFT) considered the role of behavioural economics and competition in markets and identified that markets work well where there are efficient interactions on both the demand (consumer) side and the supply (firm) side.⁵⁶ In particular, the OFT noted that consumers needed to be able to:
- **access** information;
 - **assess** the information presented; and
 - **act** on this information.
138. In the case of online platforms and digital advertising, our goal is to achieve this end – i.e. ensuring that consumers can access, assess and act on information about how their data is used for personalised advertising. In meeting this Duty, platforms should enable consumers to Access information, Assess the information and Act on it (AAA).
139. As we explain above, in Appendix L we provide examples of where academic literature has identified a range of behavioural biases that could impact on consumers' decision-making in an online context. In this appendix we have then considered the specific interaction between psychological mechanisms and choice architecture. We propose that the DMU take such biases and their causes into account when defining the FBD duty.
140. The choice architecture adopted by the firms potentially exacerbates consumers' behavioural biases, processing patterns and cognitive limitations. The FBD duty should therefore address the choice architecture features

⁵⁶ OFT, [What does Behavioural Economics mean for Competition Policy?](#), March 2010.

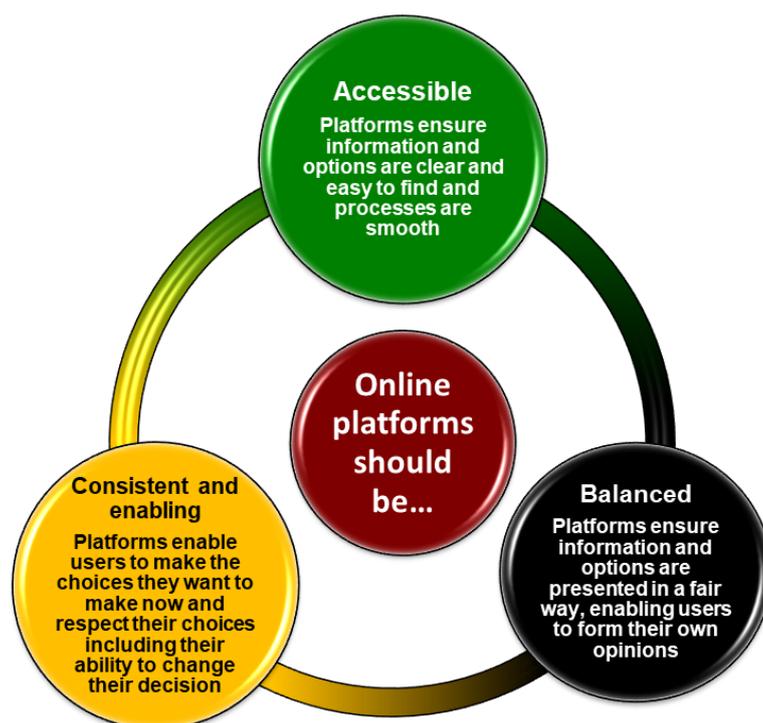
summarised in Table Y.1. The psychological mechanisms could be used to help define the detail of the FBD duty so that:

- (a) It is possible for the DMU and platforms to implement recommendations and ensure that they will have positive impacts for consumers.
- (b) The duty can adapt to iterations of choice architecture in platforms and how it is applied is grounded in an understanding of human behaviour which has been demonstrated to have longevity.⁵⁷

141. Drawing on the evidence in this appendix and established consumer behavioural theory we have developed an illustrative model of how in practice the DMU could operationalise the duty to meet this objective in terms of expected platform behaviours.

142. Broadly, we think that to comply with the duty platforms should, in presenting information and options about personalised advertising, treat users fairly by being Accessible, Balanced, Consistent and Enabling (ABC) – Figure Y.12.⁵⁸

Figure Y.12 Fairness by Design – High Level Responsibilities



Source: CMA.

⁵⁷ How People Read Online: The Eyetracking Evidence. 2nd Edition. Nielsen Norman Group, 2020.

⁵⁸ Our proposals here are intended as illustrative examples to assist the DMU in its consideration of how it may decide to implement the Duty.

143. To address the harms we identified in Chapter 4 and provide further clarity to platforms about the expectations on them under the duty, the DMU could set examples of what these expectations mean in practice in the form of guidance. For instance:

- **Accessible** – Ensure information and choices are clear and easy to access so that consumers can easily review and adjust settings.
- **Balanced** – Present all information and options in a fair and balanced way, using the same colours, fonts, language and other design features across all options.
- **Consistent and enabling** – Periodically remind users of their current choice settings and available controls.

144. We set out below in more detail some further draft examples the DMU could consider including (Table Y.2). We anticipate that the DMU would wish to develop these further and as we set out below, the approach could be further refined through initial testing and trialling with SMS platforms before being adapted and adopted more widely. It could also flex to reflect new platform behaviours as they arise as well as new technological developments.

Table Y.2: Fairness by Design – Examples of possible guidance

<p>Accessible</p> <p>Platforms ensure information and options are clear and easy to find and processes are smooth</p>	<ol style="list-style-type: none"> 1. Ensure information and choices are clear and easy to access, so that consumers can easily review and adjust their settings. 2. Provide the key information without adding superfluous or distracting information. 3. Provide the key information, where consumers would expect it and ensuring titles and link descriptions clearly convey the content they represent. 4. Clearly and simply communicate the value of the consumer’s data to the platform, the implications of data sharing, and how they affect the consumer. 5. Ensure platform design and how information is presented is understandable for all consumers - including those with less capability to use online services or specific vulnerabilities.
<p>Balanced</p> <p>Platforms ensure information and options are presented in a fair way, enabling users to form their own opinions</p>	<ol style="list-style-type: none"> 1. Present all information and options in a fair and balanced way, using the same colours, fonts, language and other design features across all options. 2. Explain up-front, the use of consumers’ data for personalised advertising and how the platform generates revenue from the data so that consumers can take this into account before committing to using the platform. 3. Describe options in a balanced way including not describing one option in unconnected positive terms (e.g. describing sharing data for advertising as ‘social’) nor frame options by describing what the consumer would lose out on if the option was not chosen.
<p>Consistent and enabling</p> <p>Platforms enable users to make the choices they want to make now; and respect their choices including their ability to change their decision</p>	<ol style="list-style-type: none"> 1. Periodically remind users of their current choice settings and available controls allowing them to change their choice, including enabling new users to choose to experience an option for a fixed time period and automatically be prompted to confirm or change their choice at the end of the period. 2. Present information in a timely manner and logical order when it is most relevant for the consumer’s decision making on privacy settings (e.g. when experiencing personalisation). 3. Ensure consumers can compare the direct and longer-term consequences of data sharing as well as the direct and longer-term benefits. 4. Use formats and language for options and settings which are consistent with each other and with the wider platform design to help users understand and engage with the choices presented to them. 5. Ensure control options increase meaningful control for consumers rather than only increasing the perception of being in control.

Source: CMA.

Trialling, testing and monitoring

145. The FBD duty puts the responsibility for promoting user engagement onto platforms. To check that it is having the desired impact on outcomes for users, we recommend that it be supplemented with a trialling and testing and monitoring regime.
146. Platforms should demonstrate compliance with the duty to the DMU – i.e. that they are actively monitoring user knowledge and levels of engagement; and doing what is reasonably possible to improve these metrics through testing alternative approaches and improving their choice architecture.

147. We consider it likely that the DMU will also wish to track the implementation of the duty to:
- ensure that it is putting consumers at the heart of choice architecture and having a positive effect on consumer engagement and confidence;
 - assess over time the impact on the platforms concerned, to identify whether any adjustments are required, including in light of the evolving nature of technology and the active debate about the most effective methods for facilitating more informed choices; and
 - inform consideration of possible wider application of the duty.
148. All platforms invest time and resource in designing their platforms to ensure that consumers find it easy to use their core service. We consider that they should invest the same attention to detail in ensuring that consumers can make more informed decisions about the use of their data for advertising.
149. As we explain above, we consider that this requirement should be restricted initially to SMS platforms on proportionality grounds and in line with our proposal that the FBD duty itself should initially be focused on SMS platforms.
150. We suggest that the DMU could work with these platforms to develop and implement a framework for such a regime. This would involve taking advantage of the analytical capabilities and huge reserves of data available to the largest platforms to develop the best approaches to empower and protect consumers.
151. The actual trialling and testing would be carried out by the platforms themselves but would be subject to monitoring by the DMU.⁵⁹ Platforms would be expected to put in place systematic, hypothesis driven trialling and testing programmes – in line with good practice – to evaluate changes in consumers' knowledge, understanding and engagement with the privacy choices available to them over time.
152. Before considering how the DMU might establish a trialling, testing and monitoring regime, we first consider below the examples we have seen of platforms' own current approach to testing and trialling.

⁵⁹ We noted above that platforms also need to comply with relevant equality legislation. We suggest that the DMU may wish to engage with the Equalities and Human Rights Commission where the accessibility and equity issues overlap with choice architecture design of platforms.

Platforms' current approach to trialling and testing

153. Our further requests for information and discussions with platforms have indicated that some do carry out more research than the initial evidence provided to us. As we note in Chapter 4, whilst platforms have produced more evidence than they initially provided of their trialling and testing, overall, we expected to see a more extensive and rigorous evidence base of user research in relation to privacy and data sharing issues.
154. Various parties submitted evidence of the use of different types of user research, including contextual research, moderated usability testing, and A/B testing. We consider below:
- The extent to which we can draw lessons from this research about user needs on privacy.
 - Some limitations in the evidence that has been submitted and their implications for effective user testing approaches.

Findings relevant to user needs on privacy

155. It is notable from the evidence we have seen that what users want from platforms on these issues is very consistent with our recommendations on Fairness by Design. The following common themes emerge from platforms' own research findings provided to us:
- **Clarity:** Users often reported the importance of having clarity when being asked to make decisions. Examples include having greater clarity on the context in which personal data choices are being presented to them on platform and avoiding ambiguous options like 'paused' rather than a clear opt-out such as 'no thanks'. Having opt-out options upfront on main pages not in later pages further down the user journey would also aid users. Platforms' own research suggests that technical and legalistic language should be avoided in privacy policies/explanatory text, with visuals or video used to aid both user comprehension and engagement. Further, platforms' own research acknowledges that users may not always be well-informed or motivated to engage with privacy decisions, in which case presenting too many privacy controls can be confusing or unhelpful. Research for Facebook stated that the Facebook app alone had over 100 privacy controls and that, amongst other things, it was unreasonable to expect users to spontaneously navigate these in the most optimal way for their needs, without more guidance. Facebook told us it provides guidance for each tool.

- **Transparency:** The need for transparency emerged from several user research studies and it took a number of forms. Platforms' own research identified a need for transparency on default settings and that ideally they should be presented upfront in any sign up or reminder process. The need for transparency in how personal data would be shared with third parties and vice-versa in exchange for platform access was also reported. Users were sometimes surprised and concerned when they discovered in usability studies that this was happening without their knowledge. Users also welcomed transparency from platforms in the relationship between different network brands where one was owned by another.
- **Choice:** The submitted research suggested that including more granular levels of choice when presenting data sharing options, could lead to a more informed choice by users. Users were critical when only one choice 'I agree' was obvious in specific designs of platform access pages. There was also evidence that when only binary choices were presented to users on personalised advertising (e.g. "see personalised ads" / see "non-personalised ads") users were more likely to agree to see personalised ads than if they were presented with a longer list of options. Further, asking consumers to make an active opt-in choice, for example on data retention settings, encouraged them to 'stop and think' about their privacy and led to increased engagement.
- **Control:** Wider contextual research provided by the platforms reported that consumers value having control over their data even more than data transparency – although both are important. Examples from usability testing on some platforms re-enforced this, with certain user groups seeing control over their privacy as a major part of feeling safe on the platform. The option to delete data on location settings or to 'remove comments/replies' on social networks proved popular with users giving them a sense of control. The provision of specific advisory or support tools also helped users feel more in control of their data and it is notable that when platforms actively promote these tools there is evidence it increases both awareness and engagement with these privacy tools.

156. We also note that the findings of research carried out by platforms tended to echo the findings from our review of the consumer survey and academic research. That is, the consumer research provided to us by the parties points to users wanting greater clarity and transparency, more granular levels of choice and greater control.
157. We have seen some evidence of improvements following research by platforms – for instance, Google added a button to promote the account

settings and other options when research participants responded in 2015 that they felt they only had the option to agree.

Limitations of the submitted user research and testing

158. Whilst some research submitted to us by the platforms appeared to have clear methodologies, this was not always the case. Furthermore, where we could consider the research design and methodology, we identified a number of limitations.

- **Sampling** – the sampling in the submitted research studies was generally focussed towards frequent users and more digitally savvy consumers, rather than more representative or inclusive population samples. Some studies specifically excluded those who were below average on the ‘tech savvy’ scale. Approaches to sampling also did not appear to be informed by any deeper analysis of existing user needs beyond basic demographic or platform access criteria. Further, there was very limited inclusion of more vulnerable groups in the research submitted (such as those in older age groups, with problematic shopping behaviours, financial difficulties or addictive behaviors).
- **Research environment** – the usability testing research submitted had almost always taken place in a test-lab setting. This involved testing taking place in a central location, often behind a two-way mirror so designers can observe the research. There are valid reasons for this approach but there are also limitations. This environment is artificial and does not reflect a real-world setting. Complementing this approach with research that takes place in users’ homes/workplaces can add real depth in understanding user behaviour and be more appropriate when researching users who need more support or who are vulnerable in some way.
- **Research quality** – we did not see a rigorous research process from objective setting to reporting based on a deep understanding of user needs being consistently applied. This is most problematic when the research objectives are not clearly defined and commercial goals (such as brand perception) are conflated with other objectives such as achieving improved user engagement

159. Given these limitations, we propose the DMU establish some principles for effective user research designed to improve user engagement on privacy.

Developing a testing, trialling and monitoring regime

160. We propose the DMU explores with platforms, appropriate forms of trialling and testing that are robust and practical to implement at scale. We would expect platform to use a range of different types of testing according to the issue under consideration.
161. To help inform this consideration, and for illustration, we set out below our observations on how a regime might operate – in particular:
- What principles could underpin an effective regime;
 - What the regime’s framework might involve;
 - Potential metrics; and
 - Benchmarking and compliance.

Principles for effective testing, trialling and monitoring

162. Conducting user research to a high standard on issues relating to privacy and data sharing will be an important part of ensuring SMS platforms are adhering to the FBD duty. In light of the evidence we have received and publicly available structured approaches⁶⁰ we believe it is both reasonable and proportionate for the SMS platforms to undertake user research that satisfies the following principles:
- When researching or testing issues relating to privacy and data sharing the primary research objective should be to explore the best way to achieve **understanding of user behaviour, experience and engagement**. Within this, comprehension of and interaction with the relevant choice architecture should be researched, tested and optimised.
 - An **inclusive approach** to sampling for these studies should be undertaken. This means making provision for user groups in the research who may require further support on these issues, lack key digital skills or have specific vulnerabilities. The Government Digital Service (GDS) cites research⁶¹ that estimates 21% of the UK population lack basic online skills. Research approaches which only include digitally savvy or confident user groups should be avoided.
 - User research should be **rigorous**, involving a clear process – from setting hypotheses to investigate at the start of the project, defining user

⁶⁰ For example, see [Service Manual: User Research](#).

⁶¹ [Government Digital Inclusion Strategy](#), 2014.

needs (tasks) for different user types in the testing phase to creating user maps and stories which describe the specific features and content needed to meet users' needs.

- **Deploy and combine different research approaches** and avoid relying on one methodology. The most appropriate approaches will depend on identified user needs and the relevant stage in the design process when designing choice architecture. We consider possible methods and tools below.
- User research should be undertaken **regularly** and not as a one-off exercise. It is reasonable to expect SMS platforms to undertake user research at each stage of the design process or when significant design changes are made, and with reference to a defined structured approach and methodology.⁶² We suggest user research could be undertaken at least once every 12 months.

163. Over time, the DMU could identify and promote examples of good practice in terms of user engagement. At the same time, the DMU could also identify measures which do not work in practice so that lessons can be learnt.

What a testing, trialling and monitoring regime could involve

164. We note that platforms already use in certain contexts A/B testing (i.e. randomised control trials of alternative design patterns in the live platform) and qualitative user research on proposed alternative designs. There are also a range of alternative research and experimental approaches to understand engagement that appear not currently utilised by platforms.

165. Monitoring the implementation of the Fairness by Design duty could be informed by the evidence we have reviewed in this study. Effective testing, trialling and monitoring is likely to involve a combination of methods and approaches, in order to provide rigorous evidence of improved user engagement. Table Y.3 is an example framework of how different methods could be used as evidence against the illustrative Fairness by Design responsibilities we outline above.

⁶² We note, for instance, that the GDS has produced materials for the public sector on planning and conducting user research. See [Service Manual: User Research](#).

Table Y.3: Example framework for testing and monitoring compliance with the FBD duty

FBD responsibilities (ABC)	Possible Indicators (CUE)	Types of evidence required at design stages of choice architecture	Types of evidence required for on-going monitoring
Accessibility	Comprehension:	Reading age assessment Q&A testing ⁶³	Survey of users
	Usability:	Moderated usability testing, User tests on task completion, Accessibility testing ⁶⁴	Mystery shopping Behavioural data; choice of options and changes in choices over time;
	Engagement:	A/B tests of specific formats Eye tracking	time spent on page, clicks on links, video views, engagement with settings
Balance	Comprehension:	Moderated usability testing Qualitative depth interviewing Q&A testing	Survey of users Mystery shopping
Consistent and enabling	Usability:	Moderated usability testing, User tests on task completion	Survey of users Mystery shopping Behavioural data; choice of options and changes in choices over time; time spent on page, clicks on links, video views, engagement with settings
	Engagement:	A/B tests of specific formats Eye tracking	

Source: CMA.

Moderated usability testing

166. This was the most common type of user research submitted by parties, where design teams observe users, often in a test-lab setting, trying to complete specific tasks on the platform. These approaches tend to involve small sample sizes (n=5-10) and more qualitative observation/interview sessions. They can be very effective when choice architecture is being designed and responds to user feedback in an iterative process. We note that Google has for example, used this technique over a sustained programme of user research, to explore

⁶³ Question and Answer (Q&A) testing can involve asking users to take a short test after reading a policy and is a direct test of understanding. The technique could also be used to test retention of key terms e.g. testing after reading and test a week later.

⁶⁴ For example, GDS describes accessibility testing as testing the service with disabled and older users and making sure the service works with the most common assistive technologies such as screen readers or speech recognition software. See [Testing for Accessibility](#).

and respond to changing market conditions when designing its privacy settings and content.

Metrics of Consumer behaviour

167. As stated in Chapter 8, the aim of the FBD and Choice Requirement remedies are to promote user engagement and we are not, for example, necessarily expecting large numbers of consumers to opt-out of receiving personalised advertising or changing privacy settings if they are content with the choices they have made. A monitoring framework would seek evidence of greater engagement that supports a conclusion that consumers have a better understanding of the choices available to them; and are able to make a choice that matches their preferences. Platforms' own behavioural data such as user choice between options and changes in choice over time, time spent on privacy pages, clicks through to privacy policies/terms and conditions, video views of explanatory content on privacy would be relevant to collect and monitor.
168. With this in mind, the DMU could consider collecting data from platforms on the amount of time that consumers spent on privacy policies or particular sections of privacy policies (depending on how the privacy policies are presented to users) and the extent to which users click through to different sections of the privacy policy. We noted in Chapter 4 that platforms do not collect data on engagement with privacy policies at the account creation stage. In the case of Google, we also noted that the average amount of time spent on Google's privacy policy was less than one minute; and that Google's privacy policy page had a very high 'bounce' rate. Looking at the data available to us, we have concluded that users cannot be engaging meaningfully with privacy policies which may be several thousand words long.

Independent data gathering

169. Two example methods which would involve independent data collection, either by the DMU or an independent research agency, are a survey of platform users and mystery shopping.

Survey of platform users

170. An independent representative survey of platform users could provide robust measurement of the on-going user experience on privacy issues. The survey could be used consistently across platforms and repeated over-time to track performance and inform target setting. Indicators could include;

- Awareness and understanding of the types of data users are sharing with platforms;
- Attitudes towards the privacy settings and designs on platform defined to test alignment with the draft FBD responsibilities of accessibility, balance and consistency; and
- Sentiment towards the platform based on users' experiences of privacy and data sharing choice architecture and content.

Mystery shopping

171. Mystery shopping is a research method that organisations use to evaluate their services from the customer perspective, involving professional interviewers completing surveys after using the organisation's service or product. One of its strengths as a research methodology is that it provides an objective view of the customer experience and can uncover deep insight into the customer journey.
172. In this case mystery shopping could be used by the DMU to monitor compliance with the FBD duty. This would involve the DMU or an independent research agency undertaking the research with professional 'mystery users' being deployed to sign up to SMS services and engage with their choice architecture. After this experience mystery users could rate SMS platforms against key criteria linked to FBD principles such as comprehension, accessibility, clarity and the balance of information provided.

How testing and monitoring data could be developed and used

173. We suggest that the DMU could gather a range of statistics on levels of user engagement that could act both as a benchmark against which to compare changes over time and to avoid over-reliance on any one single measure.
174. We note that platforms have suggested that data on users accessing privacy policies or engaging with privacy settings / controls are not necessarily good measures of user engagement. In parallel to the DMU collecting data on a standard basis across platforms, we suggest that platforms could be invited to develop their own metrics of user engagement which they consider best reflect consumer behaviour on their platform and which can be monitored over time. There would be a need to collect data on consumer behaviour across the different platforms to be able to monitor how user behaviour might be changing over time and whether levels of consumer engagement were improving.

Benchmarking and compliance

175. Rather than setting hard targets, based on the sources of evidence above, we believe a developmental approach to monitoring the duty is more appropriate. This would initially involve working closely with the platforms to agree the best approaches, timescales and the frequency of data collection, given the complexity involved and to leverage the expertise of the platforms.
176. However, we do suggest that in addition to receiving standardised behavioural data from SMS platforms, the DMU consider also carrying out its own evidence gathering so that it has access to independent sources of data about consumers understanding, attitudes and behaviours – examples of which are in the framework above. This approach could help to establish standard metrics, providing a baseline against which to assess ongoing changes of platform design and evidence future improvements.

Our assessment of the potential implications of the FBD duty

177. We set out below a high-level assessment of the implications of the duty for consumers and platforms. It is intended to identify the relevant issues and provide a qualitative assessment of the potential impact of imposing this remedy.
178. The FBD duty puts a responsibility on SMS platforms to promote greater consumer comprehension and engagement with the privacy policies, controls and settings on the SMS platforms. It also requires them to carry out trialling and testing of the measures they use to promote consumer comprehension and engagement on a regular, systematic basis.
179. The objective of this remedy is to enable consumers to be better able to make choices which reflect their privacy preferences according to the context in which they are making decisions about the processing of their personal data.
180. The remedy will thus help to address information asymmetries and lack of transparency that are present between SMS platforms and consumers and which can prevent markets working effectively.

Intended Outcomes

181. As a result of the FBD duty, a successful outcome would be greater engagement on the part of consumers in terms of:
- (i) Being better able to understand the implications of SMS platforms' privacy policies in terms of the collection, analysis and sharing of their personal data, including for the purpose of advertising.

- (ii) Having a better understanding of their rights in relation to data processing by SMS platforms.
 - (iii) Being better able to make active choices (i.e. form and express preferences) in relation to the use of privacy controls or settings on an on-going basis. An example of this could be in terms of consumers being able to access and change privacy settings / controls quickly and easily whenever they want.
182. (i) and (ii) above would mean that consumers are better able to make an informed assessment of the implications of SMS platforms' privacy policies. (iii) would mean that consumers are able to act on their privacy preferences as their understanding grows and as their preferences change.
183. The requirement to carry out trialling and testing on a regular, systematic basis will also mean that it will be possible for SMS platforms (and the DMU) to establish how best to engage with consumers and to be able to demonstrate which approaches are the most effective in practice. It will help to capture factors such as the long-term implications of increased understanding of data processing, consumers' attitudes towards online advertising etc. It would also provide a record of those approaches which do not work.

Potential impact on consumers

184. Our starting point is that the consumer survey research (as set out in Appendix L) indicates that consumers express a preference for advertising that is relevant to them, but that they become more uncomfortable with this once they understand more about the data processing involved. We note that 'relevant' advertising could encompass both contextual and personalised advertising but we assume that the relevance of the advertising is likely to be enhanced by it being personalised i.e. based on a consumer's behaviour, interests etc.⁶⁵
185. Consumer research indicates that consumers have concerns in relation to the processing (i.e. collection, analysis, sharing) of their personal data and a key outcome from the processing of personal data is the serving of personalised advertising. Furthermore, consumers do not have a good knowledge about the nature and extent of data processing and this will affect their ability to

⁶⁵ We recognise that it is the case that contextual advertising is becoming more sophisticated through the use of Artificial Intelligence and Machine Learning. This will enable the targeting of consumers in real time (i.e. based on inferences from the content they are looking at rather on (say) browsing history).

make informed assessments of the nature of the harms to which they might be exposing themselves.

186. There is also a considerable body of academic research which points to the power of default settings and the role of choice architecture in influencing consumer choice (as detailed above). That research indicates that even with greater comprehension and understanding, a relatively small amount of “friction” can mean that consumers do not take the steps necessary to change their privacy settings.
187. More engagement from consumers, greater use of privacy settings and controls will mean that consumers are better able to express their privacy preferences in different contexts on SMS platforms. Greater engagement will also include being clear about the role that privacy settings perform in terms of data and advertising and the distinction between privacy and security.⁶⁶
188. We recognise that consumers have heterogeneous preferences in terms of the type of personal data they are willing to share and the organisations with which they are prepared to share that data. There is thus a need for consumers to be able to make choices which reflect these different preferences rather than relying on a ‘one-size fits all’ approach.
189. Privacy-conscious consumers will be better placed to take steps to set their privacy settings to ensure that their personal data is not processed by an SMS platform. Consumers who want to be able to express different levels of privacy concern according to the type of personal data involved and the organisations with which the data is being shared, will better be able to do that. By making it easier for consumers to exercise their privacy preferences, the FBD duty should help to reduce the concerns about that data then being used to deliver personalised advertising.
190. Consumers who do not have any concerns about sharing their data will equally be able to do that and (potentially) to enjoy the rewards of doing so e.g. they may have access to services with higher functionality or receive rewards.
191. As set out in Appendix L, evidence from behavioural experiments and trials in this area (e.g. work by the Behavioural Insights Team) indicates that measures to improve comprehension and engagement in relation to privacy terms and conditions can be effective at prompting greater consumer

⁶⁶ We saw qualitative research from Google that suggested consumers wanted both security and privacy and may conflate these.

engagement and action. However, at the same time, these experiments suggest that it may not be possible to overcome inertia in all consumers.

192. The requirement on SMS platforms to make use of trialling and testing will mean the platforms will be able to identify which measures are most effective at promoting consumer engagement and understanding and to make use of those measures when making changes. Furthermore, there would be an expectation that SMS platforms would also be able to establish which combinations of measures worked well together and to avoid combinations which actually detracted from improved engagement and understanding.
193. Overall, there could be an improvement in the competitive conditions in digital markets as a result of a reduction in information asymmetry between consumers and SMS platforms. Greater transparency on the part of the SMS platforms could prompt more competition between SMS platforms and other platforms on the basis of the privacy choices they offer to consumers. This could also reduce barriers to entry for new firms if they are able to offer a product or service that was differentiated on the basis of privacy and benefit consumers as a result.
194. A mandate on SMS platforms to implement the FBD duty could further benefit consumers' welfare if there are 'spill-over' effects – for example if smaller platforms or potential new entrants also choose to differentiate themselves from their competitors by adopting an FBD duty voluntarily.

Potential impact on platforms

195. Implementation of the FBD duty by SMS platforms would be expected to result in some additional spend to ensure compliance with the duty or diversion of resources from other projects. The extent of the expenditure cannot be quantified without individual application of the principles by the platforms themselves. We are aware that the larger platforms already carry out a certain amount of consumer research which does include some trialling and testing but it is not clear what level of expenditure is involved or how systematic that is. However, we consider that the developmental approach outlined above will help to mitigate this impact.
196. The requirement to carry out trialling and testing on a more regular, systematic basis could result in higher levels of expenditure or it could simply mean that existing budgets for trialling and testing are used in a more structured way.

197. Platforms already carry out a significant amount of trialling and testing on other aspects of their business.⁶⁷ As a result, we consider that the potential costs associated with the implementation of the FBD duty are only likely to represent a small proportion of total R&D spend that is expended by SMS platforms on an annual basis.
198. There would also potentially be a negative impact on individual platforms that had “unfair” privacy terms (e.g. in terms of amount of data collected or sharing of that data) or made it difficult for users to find privacy controls / settings. That is, better informed and more engaged consumers will be able to better express their privacy preferences and so could choose to avoid such practices. As a result, such platforms would suffer a reduction in their ability to offer personalised advertising and with that some loss in revenue (although they would still be able to serve contextualised advertising to those consumers). However, this outcome would be an indication that the FBD duty was having its intended effect and provide an incentive to improve choice architecture. Further, where consumers are better able to express their privacy preferences according to circumstances, that is likely to improve the trust and confidence that they have in those platforms and improve their willingness to use / remain engaged on them. It could also mean that they are less likely to engage in ad avoidance strategies.
199. At the same time, we recognise that another consequence of the FBD duty could be that – as a result of becoming more engaged – some consumers may choose not to receive personalised advertising. It is clearly difficult to estimate what proportion of consumers this might be because much will depend on the way in which choices are framed. The potential impact on platforms from more consumers choosing not to receive personalised advertising is discussed in more detail in Appendix X.

Potential impact on advertisers

200. Advertisers derive a benefit from being able to serve personalised advertising to potential customers in terms of:
- (a) less ‘wastage’: an advert would only be shown to consumers who were likely to be interested in the product or service and therefore could be more likely to purchase; and

⁶⁷ For example, Google reports that in 2019, it ran ‘over 464,065 experiments, with trained external Search Raters and live tests, resulting in more than 3,620 improvements to Search’. See [Google Search – Rigorous testing](#).

- (b) consumers would be less likely to engage in ad avoidance techniques such as ad skipping (“ad blindness”) or ad blocking.
201. Research and feedback from the industry indicates that advertisers are typically prepared to pay more for targeted advertising which implies that advertisers see value in the ability to target. For instance, one of the features of the studies on the impact on publishers / media owners of removing targeted advertising, is that the price of impressions which have personal information attached is higher than impressions without personal information.
202. We consider that the FBD duty should not result in a detrimental impact on advertisers. As a result of the FBD duty, personalised advertising would be delivered to consumers who are more aware of how their data was being used and had been able to express their willingness to receive personalised advertising according to the specific situation. It could be possible to target those consumers more closely and for longer periods of time because they have signalled they are willing to receive personalised advertising and so targeting could be more effective.

Overall assessment

203. Measures which improve consumer engagement / knowledge and understanding so that consumers are better placed to express their privacy preferences on a case by case basis would be expected to be positive impact on consumers.
204. A reduction in asymmetries of information and an improvement in transparency could also benefit consumers in terms of improving the extent of competition between platforms. That is, consumers would benefit from platforms being able to compete more effectively on the basis of the privacy choices that they offer.
205. As indicated above, we do not consider that the FBD duty will have a detrimental impact on advertisers. That is, advertisers will be better able to target those consumers that have indicated that they are willing to receive personalised advertising and advertisers will be able to track their behaviour for longer / more consistently because those consumers will be less likely to resort to ad avoidance measures. It is not clear what the overall impact will be on advertising expenditure.
206. There is potentially an impact on SMS platforms in terms of increased costs associated with compliance with the FBD duty and the requirements to carry out trialling and testing on a more regular basis and in a more systematic

fashion. However, it is also likely that such measures will improve the trust and confidence that consumers have in SMS platforms.

207. Overall, based on this qualitative assessment, we consider that the benefits to consumers are likely to be greater than the costs imposed on platforms.

Conclusions

208. Our study has found that consumers value their privacy and want control, but that where platforms do allow consumers to turn off personalised advertising, their users have to hunt their website to find the settings, interpret complex material and engage with complicated privacy settings.
209. Natural consumer biases and behaviours are likely to mean that many consumers do not engage in the control of their data – to the advantage of the platforms. Choice architecture can be designed to help mitigate and overcome consumers' natural biases by providing clear, balanced information and choices as well as smooth processes.
210. However, we have found that the platforms' choice architectures are instead more likely to exacerbate biases - discouraging consumer engagement so that users are more likely to share their data. These include default settings and presentation of information and options that nudge consumers into sharing data. Consumer engagement with privacy controls is correspondingly low.
211. We think this results in consumers sharing more data than they might otherwise have decided to do, they may not receive a fair return for their data and more broadly may not have their data used for personalised advertising in a way that they are happy with.
212. It is unreasonable to expect consumers to have to hunt for information, interpret complex material and engage with complicated settings. The burden should be on platforms to present information fairly and make the process as straightforward as possible – so that there are no barriers to consumers engaging, making informed decisions and having these implemented.
213. We therefore recommend that the government empower the DMU to require platforms to meet a high-level principles-based 'Fairness by Design' (FBD) duty. We conclude that in the first instance, the DMU should apply all the remedies only to platforms with 'Strategic Market Status' (SMS).
214. SMS platforms would also be required to demonstrate compliance with the duty to the DMU – i.e. that they were actively monitoring user knowledge and levels of engagement; and doing what is reasonably possible to improve

these metrics through testing alternative approaches and improving their choice architecture.

215. While there would be some costs incurred in implementing a testing and trialling regime, overall, we consider that the intervention will give rise to important consumer welfare benefits and our qualitative assessment is that the benefits to consumers are likely to be greater than the costs imposed on platforms. The DMU would manage and monitor implementation of the intervention to maximise net benefits to consumers.

BIBLIOGRAPHY FOR TABLE Y.1

- ⁱ Persson, P. (2018). Attention manipulation and information overload. *Behavioural Public Policy*, 2(1), 78-106.
- ⁱⁱ Miller, G. A. (1956). The magical number seven, plus or minus two: Some limits on our capacity for processing information. *Psychological review*, 63(2), 81.
- ⁱⁱⁱ Obar, J. A., & Oeldorf-Hirsch, A. (2020). The biggest lie on the internet: Ignoring the privacy policies and terms of service policies of social networking services. *Information, Communication & Society*, 23(1), 128-147.
- ^{iv} Davis, N. (2011). Information overload, reloaded. *Bulletin of the American Society for Information Science and Technology*, 37(5), 45-49.
- ^v Chernev, A., Böckenholt, U., & Goodman, J. (2015). Choice overload: A conceptual review and meta-analysis. *Journal of Consumer Psychology*, 25(2), 333-358.
- ^{vi} Parkhurst, D., Law, K., & Niebur, E. (2002). Modeling the role of salience in the allocation of overt visual attention. *Vision research*, 42(1), 107-123.
- ^{vii} Ahn, J. H., Bae, Y. S., Ju, J., & Oh, W. (2018). Attention adjustment, renewal, and equilibrium seeking in online search: an eye-tracking approach. *Journal of Management Information Systems*, 35(4), 1218-1250.
- ^{viii} Tsai, J. Y., Egelman, S., Cranor, L., & Acquisti, A. (2011). The effect of online privacy information on purchasing behavior: An experimental study. *Information systems research*, 22(2), 254-268.
- ^{ix} Im, H., Lennon, S. J., & Stoel, L. (2010). The perceptual fluency effect on pleasurable online shopping experience. *Journal of Research in Interactive Marketing*, 4(4), 208-295.
- ^x Summerfield, C. & Egner, T. Expectation (and attention) in visual cognition. (2009). *Trends Cogn. Sci.* 13, 403–409.
- ^{xi} Huang, N., Chen, P., Hong, Y., & Wu, S. (2018, January). Digital nudging for online social sharing: Evidence from a randomized field experiment. In *Proceedings of the 51st Hawaii International Conference on System Sciences*.
- ^{xii} Yee-Lin Lai and Kai-Lung Hui. 2006. Internet opt-in and opt-out: Investigating the roles of frames, defaults and privacy concerns. In *Proceedings of the Conference on Computer Personnel Research (CPR'06)*, 253–263.
- ^{xiii} Kuvaas, B., & Selart, M. (2004). Effects of attribute framing on cognitive processing and evaluation. *Organizational Behavior and Human Decision Processes*, 95(2), 198-207.
- ^{xiv} Adjerid, I., Acquisti, A., Brandimarte, L., & Loewenstein, G. (2013, July). Sleights of privacy: Framing, disclosures, and the limits of transparency. In *Proceedings of the ninth symposium on usable privacy and security* (pp. 1-11).
- ^{xv} Brandimarte L, Acquisti A, and Loewenstein G. (2013). Misplaced Confidences: Privacy and the Control Paradox. *Social Psychological and Personality Science*, Volume 4, Issue: 3, 340–347.
- ^{xvi} Sunstein, C. R. (2013). Deciding by default. *U. Pa. L. Rev.*, 162, 1.
- ^{xvii} Ericson, K. M. M. (2014). *When consumers do not make an active decision: Dynamic default rules and their equilibrium effects* (No. w20127). National Bureau of Economic Research.
- ^{xviii} Gabaix, X., & Laibson, D. (2006). Shrouded attributes, consumer myopia, and information suppression in competitive markets. *The Quarterly Journal of Economics*, 121(2), 505-540.
- ^{xix} Debatin, B., Lovejoy, J. P., Horn, A. K., & Hughes, B. N. (2009). Facebook and online privacy: Attitudes, behaviors, and unintended consequences. *Journal of computer-mediated communication*, 15(1), 83-108.
- ^{xx} Rabin, M., O'Donoghue, T.: The economics of immediate gratification. *Journal of Behavioral Decision Making* 13(2) (2000) 233–250
- ^{xxi} Gabaix, X., & Laibson, D. (2017). *Myopia and discounting* (No. w23254). National bureau of economic research.
- ^{xxii} Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *science*, 185(4157), 1124-1131.
- ^{xxiii} Acquisti, A., & Grossklags, J. (2007). What can behavioral economics teach us about privacy. *Digital privacy: theory, technologies and practices*, 18, 363-377.
- ^{xxiv} Cunha, Jr, M., & Caldieraro, F. (2009). Sunk-cost effects on purely behavioral investments. *Cognitive Science*, 33(1), 105-113.
- ^{xxv} Bettinger, E. P., Long, B. T., Oreopoulos, P. & Sanbonmatsu, L. (2012). The role of application assistance and information in college decisions: Results from the H&R block FAFSA experiment, *The Quarterly Journal of Economics*, 127(3), 1205-1242.
- ^{xxvi} Thaler, R. H., & Sunstein, C. R. (2009). *Nudge: Improving decisions about health, wealth, and happiness*. Penguin.