

# Online Nation

2019 report



Published 30 May 2019



Raising awareness  
of online harms



# Overview

Online Nation is a new annual report that looks at what people are doing online, how they are served by online content providers and platforms, and their attitudes to and experiences of using the internet. It brings the relevant research into a single place and aims to act as a data- and insight-driven resource for stakeholders at a time of significant evolution in the online landscape.

In this report we set out business models and industry trends, alongside people's use of and attitudes to the internet. Put together, this provides a valuable and unique evidence base to better understand any potential harms resulting from the use of online services. Alongside this report we have published our latest research on adults' media use and attitudes, and our latest research into online harms, which we commissioned jointly with the [Information Commissioner's Office \(ICO\)](#).

Ofcom's purpose is to make communications work for everyone. The growing relationship between market developments and consumer behaviour in online markets, and in the communications sectors that we regulate, make it ever more important to understand and keep track of the online landscape. We also have a duty to research and promote media literacy, which includes promoting an understanding of what is happening online.

The report is structured as follows:

- In the first two chapters we set out how we measure and understand the online landscape, looking at **people's use, attitudes and impact**, and **industry developments**.
- The following four chapters look in detail at specific aspects of the online experience, helping us to understand how online communications and media serve people in the UK.
  - A chapter on **user data** sets out how collecting people's data is key to internet firms' business models and to people's online experience.
  - We then focus on **search and discovery** to examine how people navigate the internet, how online firms help them find the information and content they are looking for, as well as content they are not looking for, but which they might find relevant or appealing.
  - A chapter on **social media** explores how the internet enables people to communicate, share content and follow news, but which is also the source of many concerns about being online.
  - The final chapter, on **video**, examines how technological advances and changing consumer behaviour have affected how people consume content and how it is presented to them.

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# Executive summary

## The internet has transformed how people consume media and communicate

**Connected devices, high-speed internet access and new services are transforming how people communicate and consume media content.** In 2019, almost nine in ten (87%) UK households had internet access, with 82% of people using home broadband and 70% using a 4G mobile service to get online.

**Adults who use the internet spent, on average, 3 hours 15 minutes a day** online in September 2018, up by 11 minutes since 2017. Children and young adults spent much more time online than they did watching television.

## But one in ten people do not use the internet

**In 2019, 13% of adults reported that they do not use the internet.** This has remained unchanged since 2014. People over 54 are less likely to use the internet (19% for 55-64s, 33% for 65-74s and 48% for those aged 75+). Working-age adults in DE socio-economic group<sup>1</sup> households are more than three times as likely as those in non-DE households to be non-users of the internet (14% vs. 4%).

**The main reason for not going online is the perceived lack of need for the internet,** cited by 47% of respondents, followed by someone else going online for the non-user (12%).

## There are great benefits to being online...

**The internet has made it easier and cheaper to communicate and to create and share content and information.** It has enabled new business models which have transformed economic and social activities. Every week 74% of internet users send or receive emails (44 million people) and 49% use the internet for instant messaging communications (29 million); 73% search and browse the internet (43 million) and 36% download information for work/school/university (21 million); 51% use the internet for banking or paying bills (30 million) and 46% for online shopping (27 million); 23% use the

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<sup>1</sup> The DE social grades comprise semi-skilled and unskilled manual workers (D) and state pensioners, casual and lowest grade workers, unemployed with state benefits only (E).

internet to find health information (14 million) and 19% look for public services information on government sites (11 million).<sup>2</sup>

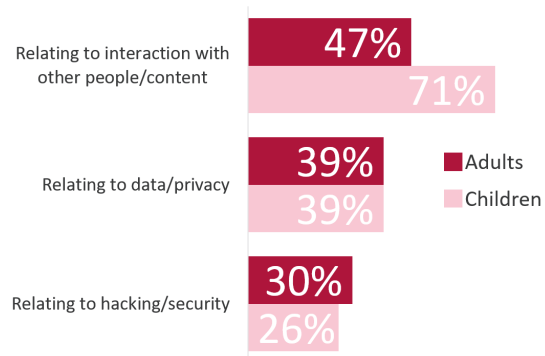
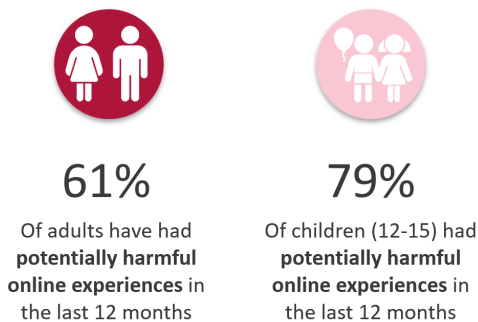
## ...but eight in ten adults have concerns about some aspects of internet use

While most internet users (59%) agree that the benefits of going online outweigh the risks, many also have concerns about being online. Just over half (53%) strongly agree that they are concerned about the internet. Compared to our 2018 survey, the proportion of adults who expressed an unprompted concern with aspect(s) of internet use appears to have increased (from 59% to 78%<sup>3</sup>).

Using a broad definition (ranging from experiences that are mildly annoying to seriously harmful), **61% of adults and 79% of 12-15 year-olds have had a potentially harmful experience online** in the last 12 months.

### Adults' and children's exposure to potential online harm in the past twelve months

**Experienced** potential online harm



Source: Ofcom-ICO research 2019

Which, if any, of the following things have you come across on the internet in the last year? PROMPTED

## There are high concerns about the potential online harm to children

When prompted, **83% of adults expressed concern about harms to children on the internet.** The greatest concern was bullying, abusive behaviour or threats (55%) and there were also high levels of concern about children's exposure to inappropriate content including pornography (49%), violent / disturbing content (46%) and content promoting self-harm (42%). Four in ten adults (39%) were concerned about children spending too much time on the internet.

**Many 12 to 15-year-olds said they have experienced potentially harmful conduct from others on the internet.** More than a quarter (28%) said they had had unwelcome 'friend' or 'follow' requests or unwelcome contact, 23% had experienced bullying, abusive behaviour or threats, 20% had been 'trolled'<sup>4</sup> and 19% had experienced someone pretending to be another person. Fifteen per cent said they had viewed violent or disturbing content.

<sup>2</sup> Ofcom *Technology Tracker* 2019

<sup>3</sup> The results of the two surveys are not directly comparable and can only be interpreted as indicative.

<sup>4</sup> A person who engages in 'trolling' is one who deliberately says something controversial in order to start arguments or cause upset.

**Social media sites, and Facebook in particular, are the most commonly-cited source of online harm for most of the types of potential harm we asked about.** For example, 69% of adults who said they had come across fake news said they had seen it on Facebook. Among 12 to 15-year-olds, Facebook was the most commonly-mentioned source of most of the potentially harmful experiences.

**Most adults say they would support more regulation of social media sites (70%), video sharing sites (64%) and instant messenger services (61%).** Compared to our 2018 research, support for more online regulation appears to have strengthened. However, just under half (47%) of adult internet users recognised that websites and social media sites have a careful balance to maintain in terms of supporting free speech, even where some users might find the content offensive.<sup>5</sup>

## **Changes in online behaviour are driven by being constantly connected, particularly to mobile internet**

**Internet use is increasingly on smartphones.** On average, a UK adult smartphone user spent 2 hours 34 minutes per day online on their smartphone in September 2018. Smartphone users spend 68% of the total time people spend online on their smartphone, up from 44% in 2015. When time spent on tablets is added in, 75% of people's total time online is on mobile devices. More than half (51%) considered the mobile as their most important device for accessing the internet in 2018.

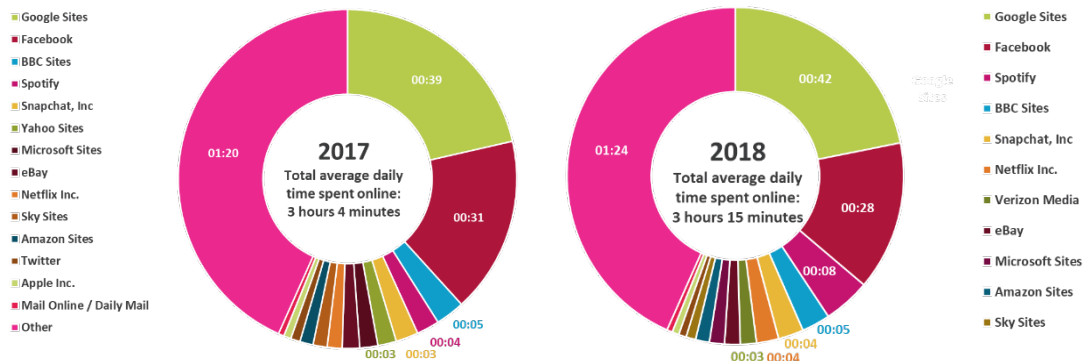
**More than a third (35%) of the total time spent online in the UK is on sites owned by Google or Facebook.** This reflects the primacy of video and social media in people's online consumption, particularly on smartphones. Around nine in ten internet users visit YouTube every month, spending an average of 27 minutes a day on the site. A similar number visit Facebook, spending an average of 23 minutes a day there.

**But overall, people have a varied online diet, on average spending a minute or more each day on 15 different internet sites and apps.** Sites and apps that were not among the top 40 sites ranked by time spent accounted for 43% of average daily consumption. Just over one in five internet users said that in the past month they had used 'lots of websites or apps they've used before' while a third (36%) said they 'only use websites or apps they've used before'.

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<sup>5</sup> [Ofcom-ICO research](#) 2019

## Average share of time spent online per day by adult digital population, split by property<sup>6</sup>: September 2017 and 2018 (hours:minutes)



Source: Comscore MMX Multi-Platform, Age: 18+, Sep 2017 & 2018, UK

## Advertising is the primary source of revenue for most online sectors

Online advertising generated £13.4bn in the UK in 2018 (up 13% since 2017). This represents 57% of total UK advertising revenue (television was the second largest sector at £5.1bn – 22% of total advertising revenue). Growth was driven by mobile advertising, which increased by 29% in 2018 and accounted for 51% of all online ad spend. Fifty per cent of online advertising revenue came from search, and 39% from display advertising, similar to last year.

Google and Facebook together generated an estimated 61% of UK online advertising revenue in 2018. Their websites are the most visited by adults in the UK, but their share of revenue is far greater than time spent (35%).

Subscription is growing fast as a business model, particularly for entertainment and news where it accounted for 64% and 39% of revenue globally.

<sup>6</sup> Properties' are groups of websites and apps owned by the same company. For instance, Google properties include Google Search, YouTube, Gmail and other Google-owned sites.

## Revenues for key online sectors in the UK

Key Sector	Primary business model	2018 Global revenue (£m)	% Global revenue change y-o-y	2018 Estimated UK share of global market (%)	2018 Estimated UK revenue per capita	Example key companies
Search	Advertising	83,582	13%	7%	£101	Google search, Bing
Social media	Advertising	49,545	17%	6%	£45	Facebook, Twitter
(Free) video	Advertising	21,046	30%	8%	£27	YouTube
News	Advertising	16,385	7%	4%	£11	Guardian Group, Sky news
Shopping	Transaction	1,541,571	9%	5%	£1,094	Amazon, eBay
Entertainment	Subscription	61,698	15%	5%	£47	Netflix, Spotify, BBC
Gaming	Transaction	82,662	15%	5%	£63	Zynga
Online directories	Advertising	14,124	7%	9%	£18	Rightmove, Gumtree

Source: O&O analysis based on data from AA WARC, PwC Global Entertainment & Media Outlook, Enders Analysis (based on company data and AA/WARC), Zenith, Statista and company information and public filings

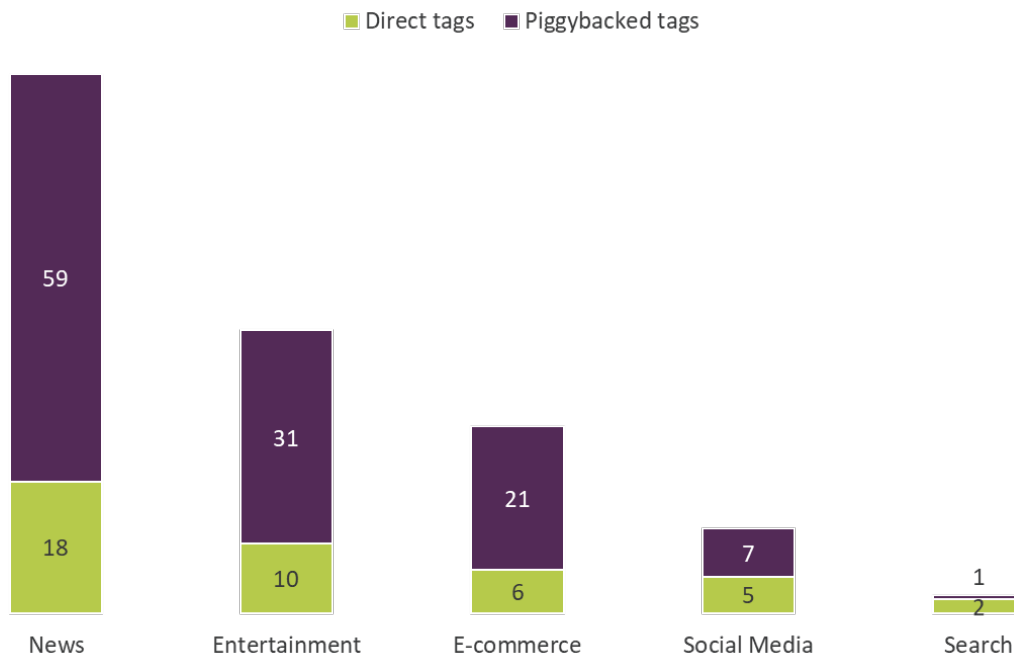
Note UK figures are indicative only and may differ from other industry sources

## There is limited understanding of how people's data is collected and used

Analysis of the 'tags' used by the most popular sites in the UK indicates highly sophisticated recording of user behaviour. 'Tags' are pieces of code that allow sites to carry out a function, such as collecting information or loading content. They are integral to how users are tracked on the internet and presented with content that is relevant to them, including personalised adverts. The number of tags on desktop sites ranges from an average of three for search engines to 77 on leading news websites.



## Average numbers of unique tags on popular sites in the UK<sup>7</sup>



Source: Crownpeak. Scans conducted 06/05/2019 & 07/05/2019. Average of top ten sites in each genre.

**Most internet users (74%) say they feel confident about managing their personal data online** and the majority of people are happy for companies to collect their information under certain conditions (with 39% saying they are not happy for companies to collect and use their personal information). However, 17% of adult internet users say they don't mind if organisations use information about them to decide the content they are shown, and 18% don't mind information being used to determine the adverts they are shown.

**Awareness of how data is collected is mixed.** Seven in ten (71%) adults are aware of cookies being used to collect information through websites, six in ten (60%) say they know about information being collected from social media accounts and just under half (49%) are aware of information being collected through smartphone apps. Most (69%) say they accept terms and conditions without reading them.

**Trust in online services to protect user data/use it responsibly varies significantly.** Among ten leading UK sites, trust among users of these services was highest for BBC News (67%) and Amazon (66%) and lowest for Facebook (31%) and YouTube (34%).

## There is limited understanding of how search engines are funded

**With an estimated 400 million active sites on the internet, the ability to search and discover content and information is critical.** People rely on search engines and particularly Google (97% of internet users say they use it, followed by 14% who say they use Bing).

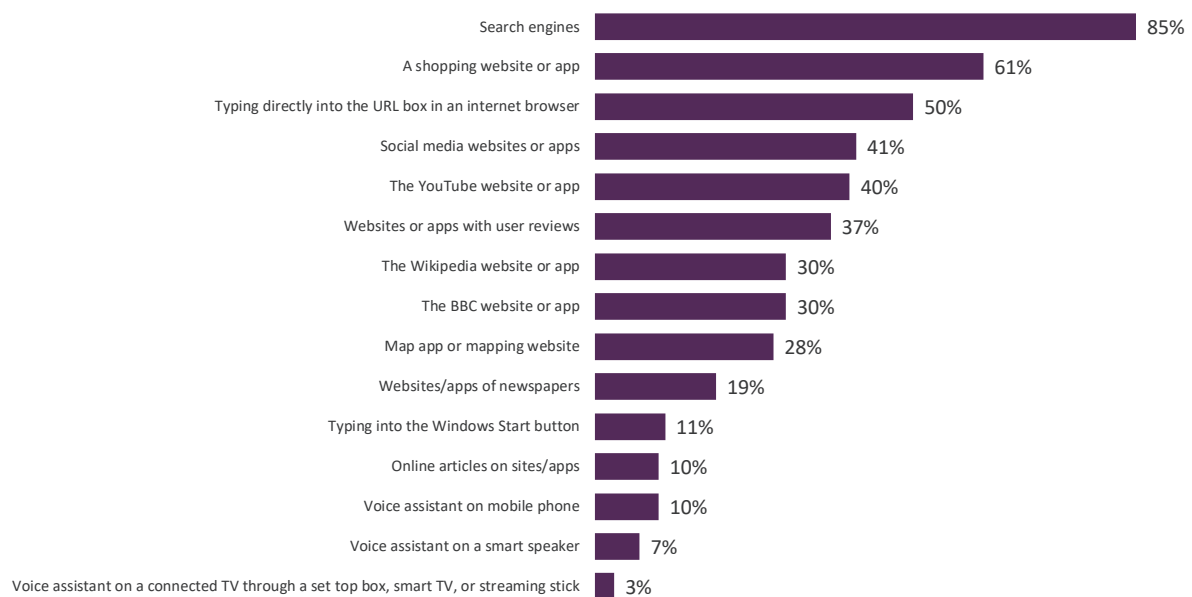
**Around half of UK online advertising revenue comes from paid-for search (£6.7bn in 2018).** However, there is still widespread lack of understanding about how search engines are funded. Fifty-

<sup>7</sup> Piggybacking refers to where tags are 'chained together' as one connects to another, then another and so on.

four per cent of adult internet users correctly said they are funded by advertising, with 18% giving an incorrect response and 28% saying they did not know.

**While 97% of internet users still use search engines to look for things online, a variety of other services are also used.** Nearly two-thirds of people (65%) say they go more often to specific sites to find specific things than they did a year ago, such as a news site for news stories or a video site for videos; and 30% say they used to have a search engine as their home page but no longer do. Recommendation engines are a key way for platforms to help people discover content and products - 70% of viewing to YouTube is reportedly driven by recommendations, while 35% of what consumers purchase on Amazon comes from recommendations.

### Sources used to search for things on the internet, proportion of all respondents (%)



Source: Ofcom Search questionnaire 2019

Question: Q2. Which of the following do you use to search for things on the internet? (THIS INCLUDES ANY TYPE OF SEARCH FOR ANY TYPE OF INFORMATION OR CONTENT)

Base: UK adults aged 16+ (2131)

### While social media use remains high, Facebook use has declined

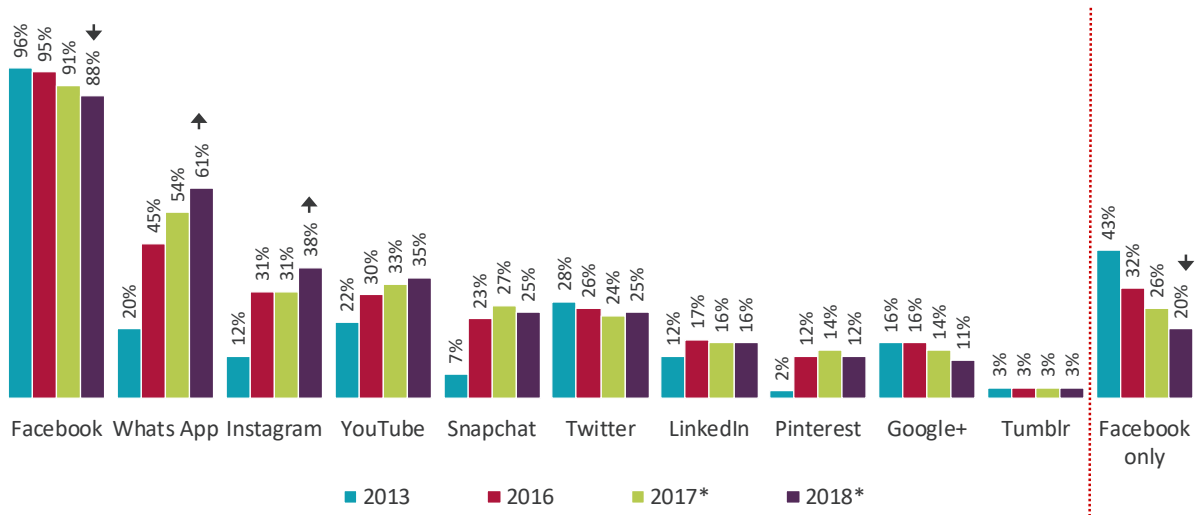
**Around 70% of UK adults have a social media account and about one in every five minutes spent online is on social media.** On average, UK internet users spend 39 minutes each day on services including Facebook, Snapchat, WhatsApp, Instagram, Tumblr, Twitter, LinkedIn, Reddit and Pinterest.

**Facebook is still the largest social media site in the UK in terms of reach, consumption and revenue,** although its use has fallen in the last two years (from 95% of social media users in 2016 to 88% in 2018). Use of Facebook-owned properties WhatsApp and Instagram both grew in the same period. There is an increase in people using multiple services: 20% of social media users *only* used Facebook in 2018 (down from 32% in 2018). However, users spend much more time on Facebook, at an average of 23 minutes a day per user, compared to around nine minutes on Snapchat and five minutes on Instagram, and 74% of Facebook users check it at least once a day.

**Social media is an important part of many aspects of internet use** including keeping in touch with friends and family, sharing photos and videos, and staying up to date with news and current affairs. In 2018, 44% of adults claimed to consume news via social media.

**Around half of 12-year-olds have a social media profile.** Most social media sites including Facebook, Twitter, Instagram and Snapchat have a minimum age requirement of 13, but 21% of 10-year-olds, 34% of 11-year-olds and 48% of 12-year-olds say they have a profile.

**Social media sites used by adults: 2013-2018**



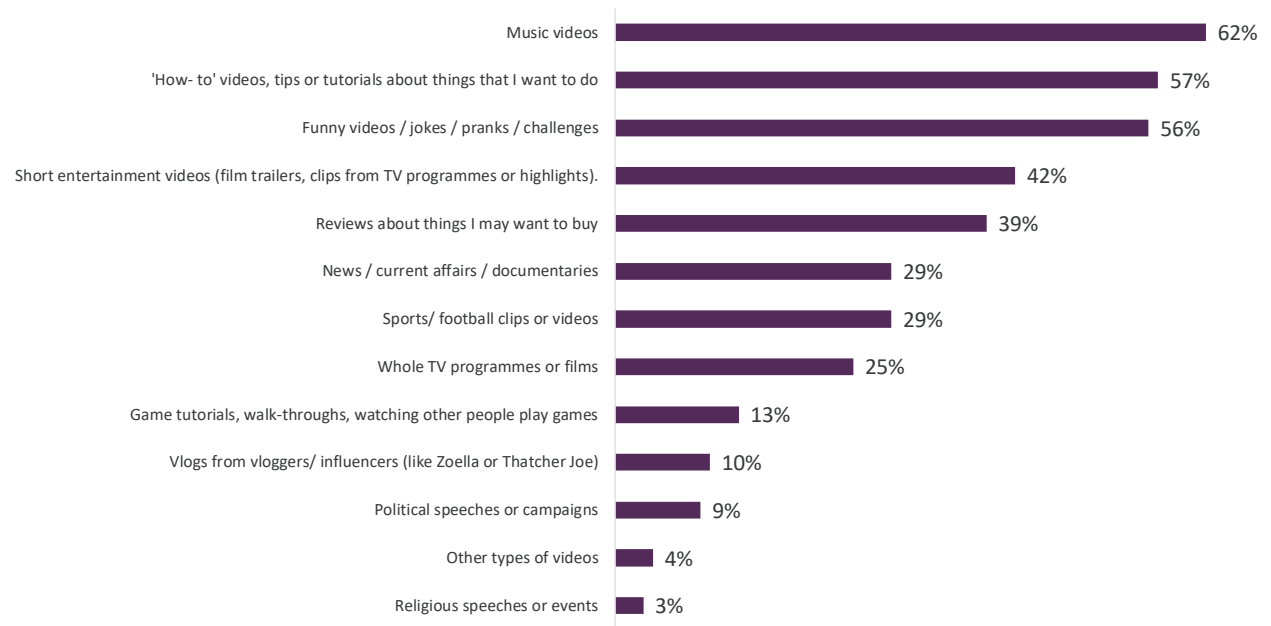
Source: Ofcom Adults' Media Literacy Tracker 2018

**UK online use is becoming increasingly video-centric**

**Video accounted for the majority of UK internet traffic in 2017, at 70% of data transferred,** including activities such as streaming TV and video, as well as making video calls and online gaming.

**YouTube is the largest video site/app, with 92% of UK internet users accessing it once a month, for 27 minutes per day on average.** This is mostly to watch music (62% of video service users) and 'how-to' videos (57%). YouTube is also increasingly used as a search tool, with 40% of UK adults searching directly via the YouTube website or app in 2019.

## Type of video content consumed online



Source: Ofcom Adults' Media Literacy Tracker 2018

Question: IN19B. (SHOWCARD) And what types of videos do you tend to watch on these sites and apps? (MULTI CODE) Base: Those who ever watch videos on sites or apps like YouTube, Vimeo, Snapchat or Facebook

# The online consumer

## Introduction

### Key metrics

Figure 1.1: UK internet and online consumer market: key metrics

UK internet and online content market	2010	2011	2012	2013	2014	2015	2016	2017	2018
Internet take-up <sup>1</sup> (%)	73	76	79	80	82	85	86	88	87
Smartphone take-up <sup>1</sup> (%)	N/A	27	39	51	61	66	71	76	78
Tablet take-up <sup>1</sup> (%)	N/A	2	11	24	44	54	59	58	68
Laptop take-up <sup>1</sup> (%)	51	55	61	62	63	65	64	64	63
Total digital audience <sup>2</sup> (million)	N/A	N/A	N/A	N/A	N/A	47.9	50.1	47.9	49.0
Smartphone only internet users aged 18+ <sup>2</sup> (million)	N/A	N/A	N/A	N/A	N/A	14.5	15.7	17.0	17.3
Consideration that the mobile is the most important device for internet access <sup>3</sup> (%)			15	23	33	36	42	48	51

Source: <sup>1</sup>Ofcom Technology Tracker 2019, <sup>2</sup>Comscore MMX Multi-Platform, Sep 2015, 2016, 2017 and 2018, UK <sup>3</sup>Ofcom Adult Media Literacy Tracker 2010-2018

Note: Caution is advised in comparing values before and after February 2011 and September 2017 because of a change in Comscore methodology.

Figure 1.2: Proportion of UK population who ever go online, at home or elsewhere, by age

UK internet penetration by age	3-4	5-7	8-11	12-15	16-24	25-34	35-44	45-54	55-64	65-74	75+
<sup>1</sup> Internet take-up (%)	52	82	93	99	99	99	96	93	81	67	52

Source: Ofcom Children's Media Use and Attitudes Tracker 2018 for age groups 3-15; Ofcom Adults' Media Literacy Tracker 2018 for age groups 16+. Note: Children's figures based on users who 'ever go online at home or elsewhere'.

In 2019, nearly nine in ten (87%) UK households had internet access.<sup>8</sup> This was through a variety of methods including fixed broadband into the home and mobile broadband via a 3G or 4G network to

<sup>8</sup> Ofcom [Technology Tracker](#) 2019

a mobile device. Of those who did not intend to get internet access at home, the majority continued to cite a lack of need for this service as the main reason.

Every week 74% of internet users send or receive emails and 49% use the internet for instant messaging communications; 73% search and browse the internet and 36% download information for work/school/university; 51% use the internet for banking or paying bills and 46% for online shopping; 23% use the internet to find health information and 19% look for public services information on government sites.<sup>9</sup>

Despite its growing importance for communication, information and entertainment, around one in ten (13%) adults in the UK do not access the internet at all, and there has been no significant change in this figure since 2014 (14%).<sup>10</sup> Understanding who these people are, and why they are not using the internet, can highlight whether a section of UK society is being digitally left behind, and reveal the barriers to take-up. Non-use of the internet is more likely for the over-54s (19% for 55-64s, 33% for 65-74s and 48% for those aged 75+) and for adults in DE socio-economic group<sup>11</sup> (23%). Compared to the average, those aged 16-54 and those in AB or C1 households are less likely to be non-users.

Given the high proportion of older people in the DE socio-economic group, additional analysis was conducted among working-age adults (16-64 year-olds) to explore whether the differences in going online are driven by age, socio-economic group or both. The analysis reveals that working-age adults in DE households are more than three times as likely as those in non-DE households to be non-users of the internet (14% vs. 4%); non-use of the internet is therefore driven both by age and by socio-economic group. For more detailed analysis on this please see our [2018 Adults' Media Use and Attitudes report](#).

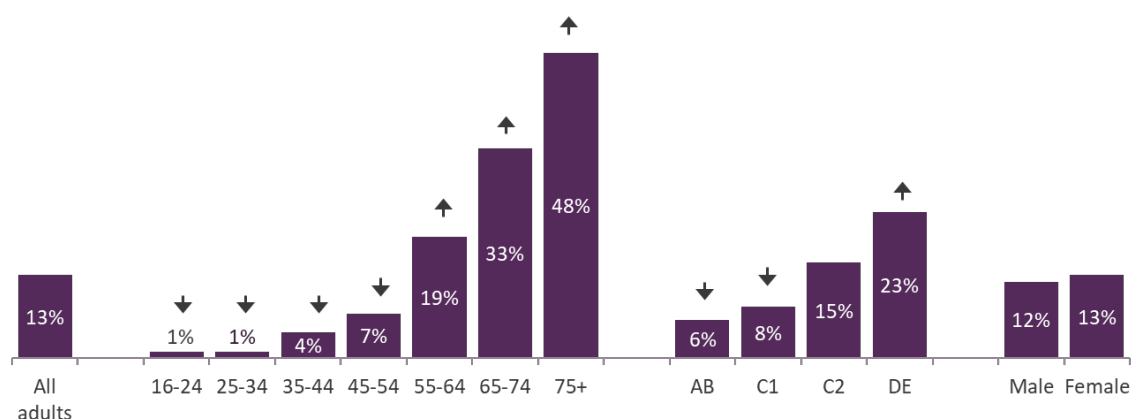
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<sup>9</sup> Ofcom [Technology Tracker](#), 2019

<sup>10</sup> Ofcom [Adults' Media Literacy Tracker](#), 2018

<sup>11</sup> The DE social grades comprise semi-skilled and unskilled manual workers (D) and state pensioners, casual and lowest grade workers, unemployed with state benefits only (E).

**Figure 1.3: Incidence of non-use of the internet, by demographic group**



Source: Ofcom Adults' Media Literacy Tracker 2018

IN1. Do you ever go online? (unprompted responses, single coded)

Base: All adults aged 16+ (1882 aged 16+, varies by demographic)

Arrows show significant differences (95% level) by age/ socio-economic group compared to all adults

Time spent online continued to grow. Comscore, the UKOM-accredited online audience measurement currency,<sup>12</sup> measured the actual time spent online by an adult on computers and mobile devices to be an average of 3 hours 15 minutes a day in September 2018, an increase of 11 minutes year on year.<sup>13</sup> This corresponds with the increase found from the estimates made by our surveyed adults.<sup>14</sup> Comparing time spent online with other activities, UK TV-viewing adults spent on average 3 hours 23 minutes watching TV per day, and radio listeners spent 3 hours 3 minutes listening to the radio per day.<sup>15</sup>

Smartphones have become the primary device for accessing the internet; more than two-thirds (68%) of UK adults' total online time is spent via smartphones, up from 44% in 2015.<sup>16</sup> Eight in ten (81%) adults who use their smartphones to go online access the internet three or more times a day (on any device) compared to just over two-thirds of adults overall<sup>17</sup>, and Ofcom research finds that smartphone users check their phones on average every 12 minutes of the waking day.<sup>18</sup>

The constant connectivity that smartphones enable has resulted in the average adult smartphone user spending 2 hours 34 minutes on the internet on their smartphone per day. The majority of this time (2 hours 13 minutes) is spent via an app, with the remainder spent on web browser use.<sup>19</sup> The

<sup>12</sup> Comscore currently does not measure online activity via a smart TV. UKOM, the governing body for online audience measurement, endorses select Comscore products.

<sup>13</sup> Comscore MMX Multi-Platform, Total Internet, Age: 18+, Sep 2017 & 2018, UK

<sup>14</sup> Ofcom [Adults' Media Literacy](#), 2018 research found that the average estimated time spent online in 2018 was 3 hours 46 minutes a day, 11 minutes higher than in 2017, Ofcom Adults Media Literacy tracker 2018, Age: 16+

<sup>15</sup> BARB, daily viewing figure for September 2018, Age: 18+, RAJAR Q3 2018, Age: 18+

<sup>16</sup> Comscore MMX Multi-Platform, Total Internet, Age: 18+, Sep 2018, UK

<sup>17</sup> TouchPoints 2018, GB, age: 15+

<sup>18</sup> Ofcom, [Communications Market Report](#), 2018, p.59

<sup>19</sup> Comscore Mobile Metrix, Total Internet, Smartphone only, Age: 18+, Sep 2018, UK

implications of ‘smartphone-first’ and ‘smartphone-only use’ are further explored in the [Adults’ Media Use and Attitudes](#) report.

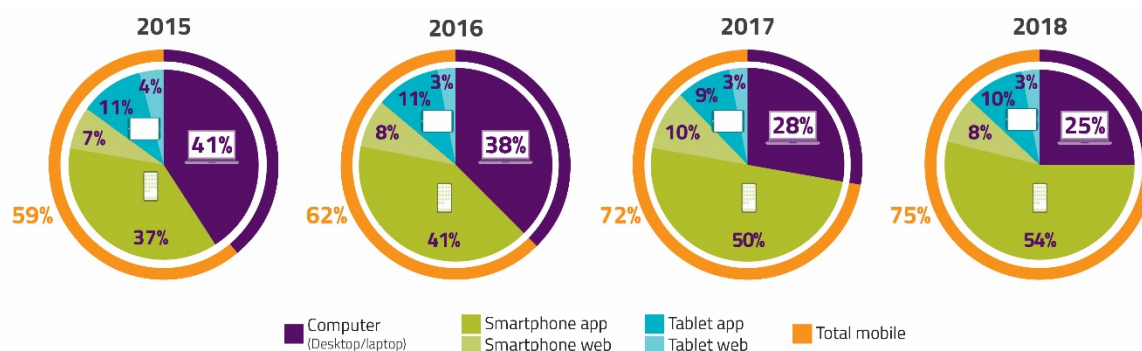
The internet is also an important part of most children’s lives, with 92% of 5-15s using any device to go online, at home or elsewhere, in 2018.<sup>20</sup> Ofcom’s research finds that children aged 5-15 spend an estimated 2 hours 11 minutes on average per day online.<sup>21</sup> As children get older they transition their online use from mostly using tablets to mostly using smartphones. Comscore does not record the time spent online by children younger than 13 years old across devices, but it does record that 13-17 year olds spent an average of 3 hours 1 minute a day online, with the majority (71%) of this time spent on smartphones in 2018.<sup>22</sup> Teenagers are more likely to use only smartphones to access the internet; 46% of 13-17s (1.65 million) only access the internet via a smartphone, compared to 33% of adults (17.3 million).<sup>23</sup>

## Time spent online, and internet device use

### On average a UK adult spent 3 hours 15 minutes per day online in 2018

The average time spent online by adult internet users increased by 6% (11 minutes) between September 2017 and 2018, to 3 hours 15 minutes per day.<sup>24</sup> This increase was driven by smartphone use, which increased by 14 minutes year on year to an average of 2 hours 3 minutes per day, while the average time spent online on computers (‘computers’ includes desktops and laptops) decreased by 4 minutes year on year to 48 minutes in 2018. The majority (86%) of time spent online on a smartphone was via an app.<sup>25</sup>

Figure 1.4: Total time spent online by adult internet users in the UK, by device share



Source: Comscore MMX Multi-Platform, Total Internet, Age: 18+, Sep 2015-2018, UK

<sup>20</sup> Ofcom [Children’s Media Use and Attitudes Tracker](#), 2018

<sup>21</sup> Ofcom [Children’s Media Use and Attitudes Tracker](#), 2018. Base: Parents of 3-7 year olds and children aged 8-15.

<sup>22</sup> Comscore MMX Multi-Platform and Mobile Metrix, Total Internet, Age: 13-17, Sep 2018, UK

<sup>23</sup> Comscore MMX Multi-Platform, Age: 18+, Sep 2018, UK. Note: social media app use not measured for 6-17 year olds. Percentages calculated using ONS 2017 population estimates.

<sup>24</sup> Comscore MMX Multi-Platform, desktop and mobile only, Total Internet, Age: 18+, Sep 2017 & 2018, UK. Note: Comscore does not measure online use via a TV set

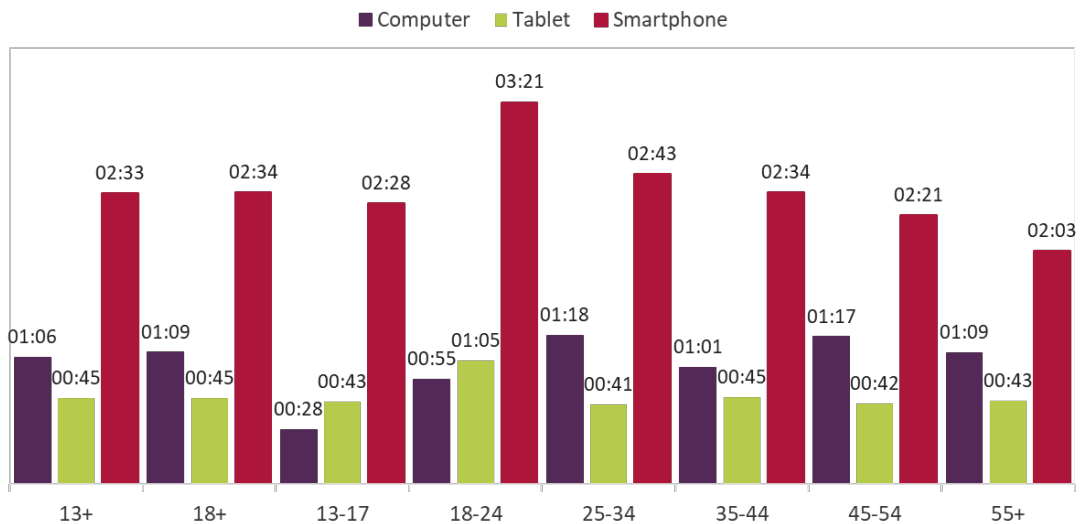
<sup>25</sup> Comscore MMX Multi-Platform and Mobile Metrix, Total Internet, Age: 18+, Sep 2017 & 2018, UK



## All age groups spend most of their time online on smartphones, mainly using apps

The average time spent by UK online adults using a computer to access the internet has remained stable year on year, at 1 hour 9 minutes per day in 2018 (2017: 1 hour 9 minutes). This is a result of two diverging trends across age groups. Over-54s are spending 19% (11 minutes) more time online via computer devices, while 18-54s, 6% less time (4 minutes) online via a computer.<sup>26</sup>

**Figure 1.5: Average time spent online, by device user per day, by age: September 2018 (hours:minutes)**

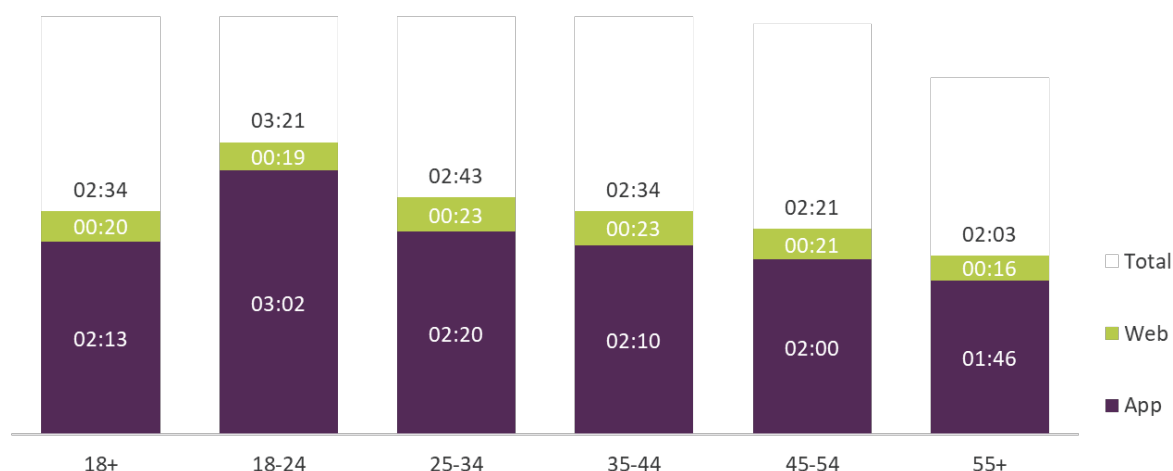


Source: Comscore MMX Multi-Platform, Age: 13+, Sep 2018, UK

UK adults spend 2 hours 34 minutes per day using the internet on their smartphones, an increase of 3% (5 minutes) year on year. The large majority (86%) of this time is spent on apps. Smartphone use decreases with age; on average 18-24 year-olds spend the most time online, at 3 hours 21 minutes per day. Over-54s spend the least amount of time on their smartphones: an average of 2 hours 3 minutes per day.

<sup>26</sup> Comscore MMX Multi-Platform, Total Internet, Age: 18+, Sep 2017 & 2018, UK

**Figure 1.6: Average time spent on online on a smartphone per day, by age group, web and apps: September 2018 (hours:minutes)**



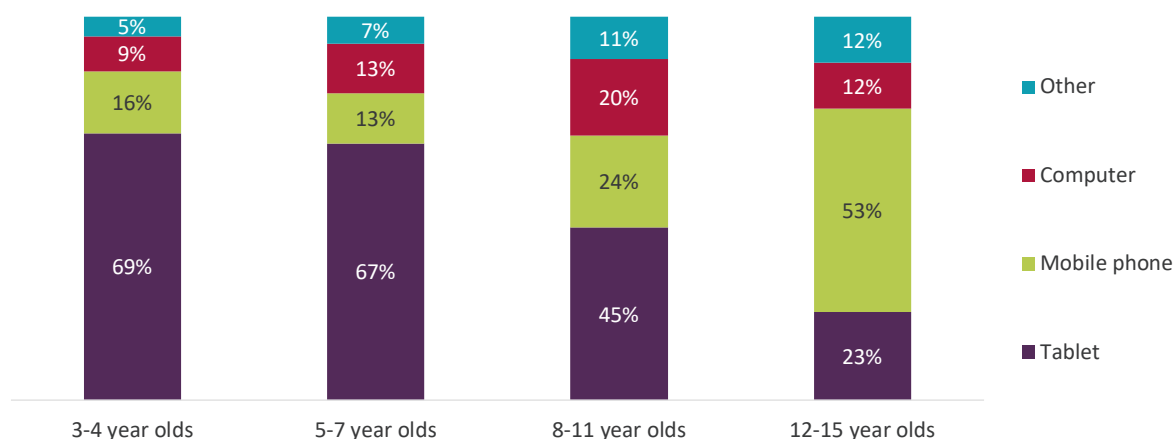
Source: Comscore Mobile Metrix, Age: 18+, Sep 2018, UK

Note: Average time by online smartphone users only

### Children spend just over 2 hours online per day, and as they get older they shift their online use from ‘mostly tablets’ to ‘mostly smartphones’

More than nine in ten (92%) children aged 5-15 go online using any type of device, and this increases with age, ranging from 52% of 3-4s to 99% of 12-15s. Around six in ten 5-15 year-olds use a tablet or a laptop or to go online, while half use a mobile phone. As children get older there is a shift in their main device used to access the internet, from ‘mostly using a tablet’ to ‘mostly using a smartphone’. This is because children’s ownership of smartphones increases as they get older. Ofcom research has found that 18% of 9 year-olds own a smartphone, 47% at age 10 and 93% at age 15.

**Figure 1.7: Device ‘mostly’ used to go online by children, by age: 2018**



Source: Ofcom Children’s Media Use and Attitudes Tracker 2018

QP24/ QC11. And when your child goes online at home or elsewhere, which device do they mostly use?

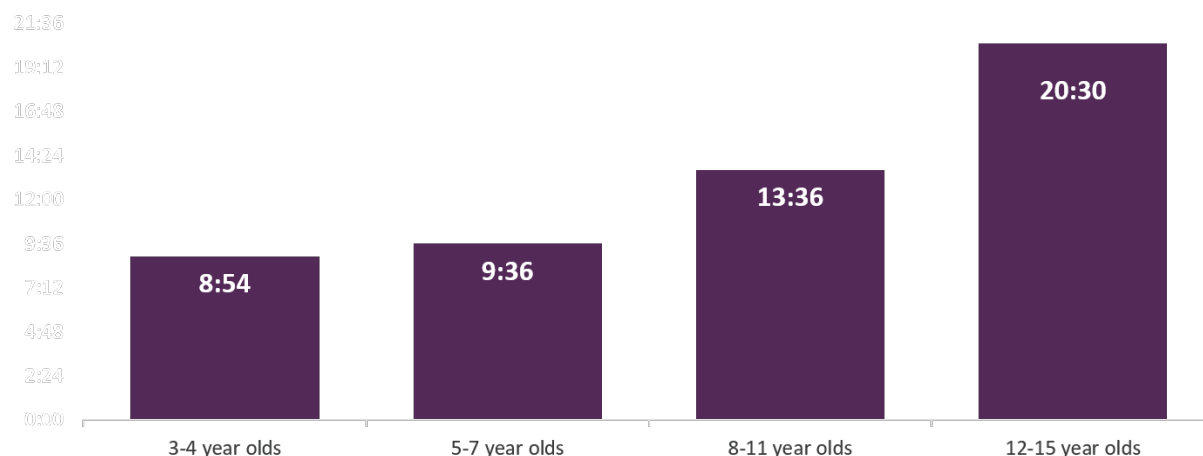
(prompted responses, single coded). Responses from parents for 3-7 year-olds and from children aged 8-15.

Since 2014 responses are taken from the child aged 8-11 or aged 12-15 rather than the parent.

Base: Parents whose child ever goes online aged 3-4 (328) or 5-15 (1298 aged 5-15, 362 aged 5-7, 456 aged 8-11, 480 aged 12-15).

Five to 15 year-olds and their parents estimate that they spend on average 15 hours 18 minutes per week online.<sup>27</sup> This is 10 hours less than the average time an adult estimates they spend online.<sup>28</sup> Children in DE households are estimated to spend slightly more time online, at 16 hours 48 minutes. Children aged 3-4 in C2DE households spend more time online than those in ABC1 households (9 hours 54 minutes vs. 8 hours).

**Figure 1.8: Estimated weekly hours children who access the internet go online at home or elsewhere, by age: 2018 (hours:minutes)**



Source: Ofcom *Children’s Media Use and Attitudes Tracker 2018*

QP25A-B. How many hours would you say he/ she spends going online on a typical school day/ on a weekend day? (unprompted responses, single coded) In 2007-2012 the response for 12-15 was taken from the child and the parent for 5-7s and 8-11s. In 2007-2013 parents/ children were asked about their use at home, whereas since 2014 they have been asked about use at home or elsewhere. Base: Parents of children aged 3-7 who use the internet at home or elsewhere and children aged 8-15 who use the internet at home or elsewhere (variable base). Significance testing shows any change between 2017 and 2018.

### Smartphones are the most popular device for accessing the internet

As smartphone take-up has grown, the use of computers to access the internet has fallen. Following rapid growth between 2010 and 2016, the use of tablets has levelled off, perhaps because users consider a large-screen touchscreen smartphone as sufficient for internet browsing and watching videos. Figure 1.9 shows the devices that users say they use to go online; however, the numbers for connected TVs<sup>29</sup> and games consoles are likely to be understated, perhaps because some people do not think of watching video on demand or playing online games as ‘going online’. Our research finds that in 2019 nearly half of all households (47%) had a smart TV and 43% had a games console (although not all of these will be connected). Smart speakers are also an increasingly common way of getting online, and in 2019 they are in a fifth (20%) of households.<sup>30</sup>

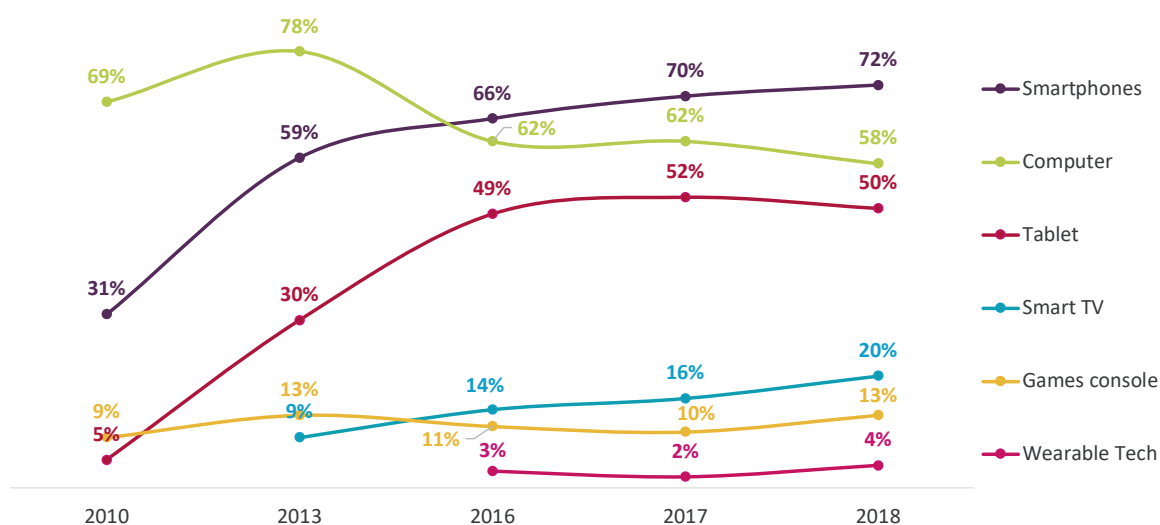
<sup>27</sup> Ofcom *Children’s Media Use and Attitudes Tracker*, 2018

<sup>28</sup> Ofcom *Adults’ Media Literacy Tracker*, 2018. Age: 16+

<sup>29</sup> Connected TVs are TVs which are connected to the internet via either smart TV functionality, a set-top box, a streaming stick or a games console. A smart TV is not always connected if it has not been connected to the internet.

<sup>30</sup> Ofcom *Technology Tracker*, 2019

Figure 1.9: Devices used to go online: 2010-2018



Source: Ofcom Adults' Media Literacy Tracker 2018

IN2. Do you go online using any of these devices? (prompted responses, multi-coded)

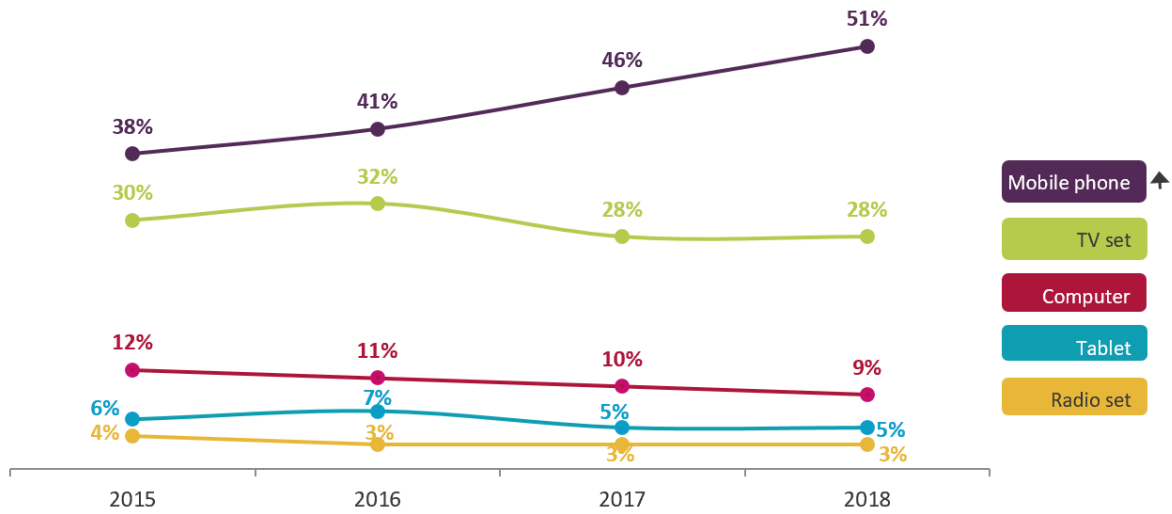
Base: All adults aged 16+ (1875 in 2017, 1882 in 2018)

Over half of adults (51%) now say their mobile phone is the device they would miss the most if it was taken away, an increase since 2017 (46%). Adults aged under 55 are more likely than average to say this, and the incidence rises to 77% among 16-24s and 72% among 25-34s. In contrast, adults aged 55 and over are less likely to say they would miss their mobile phone the most; 34% for 55-64s, 18% for 65-74s and 8% for the over-74s. This is because they are more likely than average (28%) to say they would miss a TV set the most; four in ten of 55-64s (39%), half of 65-74s (50%) and close to two-thirds of over-74s (65%) say they would miss a TV set the most.<sup>31</sup> The importance of the smartphone is reflected in its frequency of use; with only 42% of surveyed online adults stating that they personally accessed the internet at least once a day via a laptop, whereas 73% said they used a smartphone.<sup>32</sup>

<sup>31</sup> Ofcom *Adults' Media Literacy Tracker*, 2018

<sup>32</sup> TouchPoints, 2018, GB, aged:15+

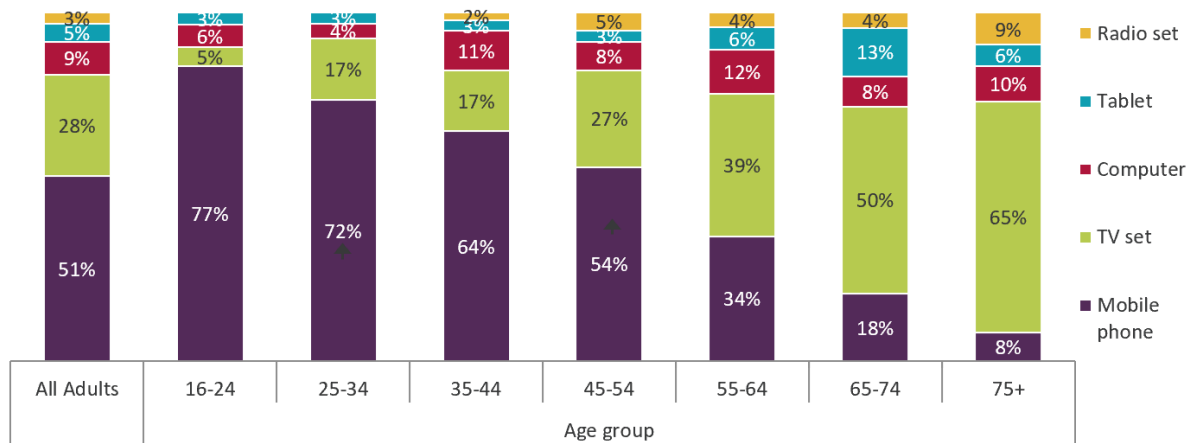
Figure 1.10: Most missed device



Source: Ofcom Adults' Media Literacy Tracker 2018, 2017, 2016 & 2015.

A5. Which one of these things you use would you miss the most if it was taken away? (prompted responses, single coded). Base: All adults aged 16+ (1890 in 2015, 1841 in 2016, 1846 in 2016, 1875 in 2017, 1882 in 2018). Showing responses by >2% of all adults in 2018. Arrows show significant changes (95% level) between 2017 and 2018.

Figure 1.11: Most missed device, by age: 2018



Source: Ofcom Adults' Media Literacy Tracker 2018

A5. Which one of these things you use would you miss the most if it was taken away? (prompted responses, single coded)

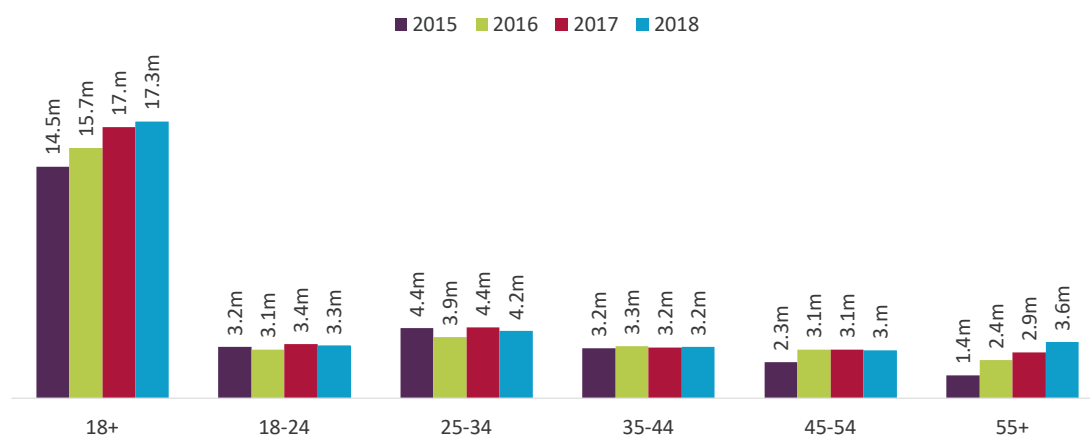
Base: All adults aged 16+ (1882 aged 16+, 246 aged 16-24, 256 aged 25-34, 322 aged 35-44, 272 aged 45-54, 309 aged 55-64, 221 aged 65-74, 256 aged 75+ in 2018)

Showing responses by >2% of all adults

More and more people are using only a smartphone to get online. Over 17 million UK adults only used a mobile phone to access the internet in September 2018, representing 30% of the digital

population.<sup>33</sup> By contrast, in September 2018, 7% (2.2 million) of the digital population were computer-only internet users, a decrease of 66% (4.3 million individuals) since 2016.<sup>34</sup> Older people are driving this change: the number of over-54s using only mobile phones to go online increased from 1.4 million in 2015 to 3.6 million in 2018. And 48% of 13-17 year-olds (1.6 million) accessed the internet only through a smartphone device in September 2018.<sup>35</sup>

**Figure 1.12: Smartphone-only unique visitors, by age: September 2015-2018**



Source: Comscore Mobile Metrix, Age: 18+, Sep 2015-2018, UK

## Online activities

### UK adults spend most time on Google and Facebook sites, but also like to visit smaller sites and apps

‘Properties’ are groups of websites and apps owned by the same company. For instance, Google properties include Google Search, YouTube, Gmail and other Google-owned sites.

The top ten properties overall have increased their reach in the last two years. Two years ago, only Google sites had a reach of over 90% of the online adult population, whereas in 2018 four of the top ten properties had a reach greater than 90%. Google sites remain the most-visited property, visited by an average of 42.3 million adults every month in 2018.<sup>36</sup> Within the Google property portfolio, YouTube had the highest reach (92% of the online adult population) and had by far the most time spent on it (users spent an average of over 27 minutes a day there in September 2018; see chapter: *Video* for more information).<sup>37</sup> After Google and Facebook (which includes WhatsApp and Instagram), BBC sites had the third-highest reach, increasing from 81% of online adults in 2016 to 93% in 2018 – up by 6.1 million users.

<sup>33</sup> Comscore Mobile Metrix, Age: 18+, Sep 2015-2018, UK

<sup>34</sup> Comscore MMX Multi-Platform, Total Internet, Age: 18+, Sep 2016 & 2018, UK

<sup>35</sup> Comscore Mobile Metrix, Age: 13-17, Sep 2018, UK

<sup>36</sup> Comscore MMX Multi-Platform, [P] Google Sites, Age: 18+, 2018, UK

<sup>37</sup> Comscore MMX Multi-Platform, [P] Google Sites, [M] YouTube, Age: 18+, Sep 2018, UK

**Figure 1.13: Top ten properties accessed by the adult online audience on mobile/desktop devices in the UK, by reach: September 2017-2018**

<div style="display: flex; justify-content: space-around; border: 1px solid black; padding: 2px;"> <span style="background-color: #e0f0ff; padding: 2px 10px;">&lt;100 mins</span> <span style="background-color: #ffe0b0; padding: 2px 10px;">100-300 mins</span> <span style="background-color: #e0b0ff; padding: 2px 10px;">&gt;300 mins</span> </div>						
	2016		2017		2018	
Rank	Property	Reach	Property	Reach	Property	Reach
1	Google Sites	97%	Google Sites	98%	Google Sites	98%
2	Facebook	88%	Facebook	95%	Facebook	96%
3	Amazon Sites	82%	BBC Sites	91%	BBC Sites	93%
4	Microsoft Sites	82%	Amazon Sites	88%	Amazon Sites	91%
5	BBC Sites	81%	Microsoft Sites	87%	Microsoft Sites	86%
6	Yahoo Sites	73%	eBay	75%	Reach Group	83%
7	eBay	69%	Reach Group	73%	Verizon Media <sup>1</sup>	72%
8	Reach Group	65%	News UK Group	71%	eBay	72%
9	Sky Sites	64%	Yahoo Sites	70%	Sky Sites	72%
10	Mail Online/Daily Mail	63%	Mail Online/Daily Mail	69%	News UK Sites	68%

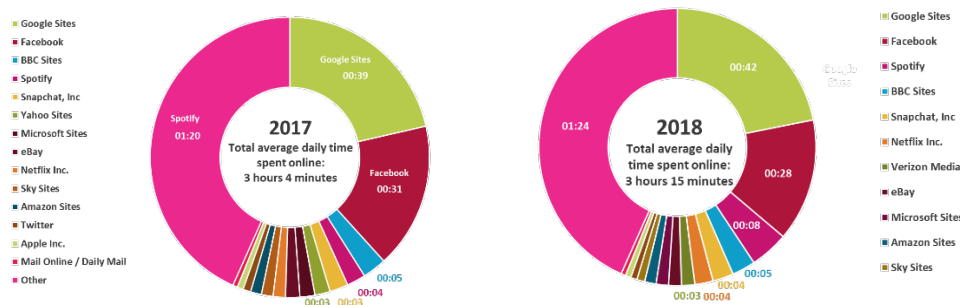
Source: Comscore MMX Multi-Platform, Age: 18+, Sep 2016-2018, UK; <sup>1</sup>Includes legacy Yahoo! and AOL sites.

Figure 1.14 shows a breakdown of the time UK adult internet users spend online (on computers, smartphones and tablets). It shows that around a third of time is spent on Google and Facebook properties. Overall, there are 14 properties on which internet users spend, on average, more than a minute a day. The remaining 43% of online time is split between a 'long tail' of properties - there are approximately 400 million active sites globally.<sup>38</sup>

The data also provide an indication of a shift in internet use towards video and audio streaming (see *Video* chapter for more detail). Properties such as Spotify, Netflix and Snapchat, which are not in the top ten for reach, are nevertheless in the top ten in terms of the time spent by users. The time spent on Spotify doubled, from 4 to 8 minutes per day, in 2018, and the three-minute increase in the time spent on Google properties is due to the increasing time spent on YouTube, whereas time spent on Facebook properties fell by three minutes. As the data only includes time spent online on computers and mobile devices, it understates Netflix viewing, which is predominantly on connected televisions, nevertheless Netflix is the only pure paid-for subscription service in the top ten.

**Figure 1.14: Average share of time spent online per day by adult digital population, split by property: September 2018 and September 2017 (hours:minutes)**

<sup>38</sup> <https://news.netcraft.com/archives/2019/03/28/march-2019-web-server-survey.html>



Source: Comscore MMX Multi-Platform, Age: 18+, Sep 2017 & 2018, UK

Figure 1.15: Top ten properties accessed on mobile/computer devices in the UK, ranked by average time spent per day by visitors to the sites: September 2016-2018

increase from prior year	decrease from prior year	stayed the same from prior year	new entrant in top 100 properties
--------------------------	--------------------------	---------------------------------	-----------------------------------

Rank	2016		2017		2018	
	Property	Time	Property	Time	Property	Time
1	Google Sites	33 mins	Google Sites	40 mins	Google Sites	43 mins
2	Facebook	28 mins	Facebook	32 mins	Facebook	29 mins
3	BBC Sites	13 mins	Spotify	10 mins	Spotify	23 mins
4	Spotify	11 mins	Netflix	10 mins	Netflix	15 mins
5	Apple Inc.	10 mins	Snapchat	8 mins	Snapchat	8 mins
6	Snapchat	9 mins	BBC Sites	5 mins	BBC Sites	5 mins
7	Netflix	9 mins	The Match Group	5 mins	ROBLOX	5 mins
8	Sky Sites	6 mins	Yahoo Sites	4 mins	Verizon Media <sup>1</sup>	4 mins
9	EA Games	5 mins	eBay	4 mins	eBay	4 mins
10	Yahoo Sites	5 mins	Microsoft Sites	3 mins	Microsoft Sites	3 mins

Source: Comscore MMX Multi-Platform, Top 100 Properties, Age: 18+, Sep 2016-2018, UK. <sup>1</sup>Includes legacy Yahoo! and AOL sites.

Note: Online use via a TV set is not measured by Comscore. Caution is advised in comparing values before and after September 2017 because of a change in Comscore methodology.

### Google-owned YouTube had the highest reach among online users and the most time spent by site visitors

The importance of YouTube in the UK's online landscape is evident in that it has the highest reach of any site and has the most time spent per visitor per day. Its vast video library may satisfy users' needs, so that they do not need to look elsewhere. For instance, Ofcom research has found that over a third (38%) of online consumers now use YouTube to search for content and information, up by 31% since 2016.<sup>39</sup> Facebook, which also offers video capabilities through its Facebook Watch service as well as via its feed, had the second highest reach, and second highest time spent by visitors using the site, at nearly 23 minutes per day.

<sup>39</sup> Ofcom's [Adults' Media Literacy Tracker](#), 2018



Figure 1.16: Top ten sites ranked by reach of digital population age 13+: September 2018

Reach rank	Top sites	Digital population reach (%)	Time spent by visitor per day (min:sec)
1	YouTube	92	27:17
2	Facebook and Messenger	89	22:49
3	BBC	87	03:45
4	Google Search	83	05:06
5	Amazon	79	02:41
6	MSN	73	02:45
7	Sky Portal	60	01:46
8	Instagram	55	05:06
9	WhatsApp	47	05:37
10	Microsoft	45	00:34

Source: Comscore MMX Multi-Platform, Age: 13+, Sep 2018, UK

Note: Comscore data excludes time spent online via a TV set

### 94% of internet users have used a search engine to look for information online

Figure 1.17: Top ten search sites, by reach of digital population, age: 13+: September 2018

Reach rank	Top search sites	Digital population reach (%)	Time spent by visitor per day (min:sec)
1	Google Search	83	05:06
2	Bing	47	01:03
3	Yahoo Search	17	00:32
4	Ask Network	9	00:16
5	Web-Explore	7	00:02
6	iZito	2	00:02
7	ZapMeta	1	00:02
8	Baidu	1	01:53
9	DuckDuckGo	1	01:09
10	Search Encrypt	1	00:16

Source: Comscore MMX Multi-Platform, Age: 13+, Sep 2018, UK

Search engines continue to have a critical role in helping people navigate the internet. Ofcom research in 2018 found that 94% of internet users had ever used a search engine to look for information online.<sup>40</sup> Google Search, the most popular search site, was visited by 39 million unique UK internet users in September 2018, followed by Microsoft's Bing with 22 million.

<sup>40</sup> Ofcom [Adults' Media Literacy Tracker](#), 2018

Google Search led both on smartphones (27 million searched using Google on their mobile device in September 2018), and on computers (22 million). Another popular search site, Bing, was predominantly used on computers; Bing had 19 million visitors on computers but was accessed by only 6 million on mobile devices. Bing’s high share on computers could be driven by its link to the default search function on Windows 10 devices, whereas only a small proportion of smartphones use a Microsoft operating system. See the *Search and Discovery* chapter for an in-depth look at search online.

### Four in five adult internet users have an account on a social media or messaging site or app

Social media continues to be a popular pastime for UK adults; 80% of internet users report that they have a profile or account on a social media or messaging site or app, stable since 2017 (77%).<sup>41</sup> Facebook is still the most common site on which to have a profile, used by close to nine in ten adults with a social media or messaging profile/ account (88%), although this is down since 2017 (91%)<sup>42</sup>. Comscore data shows that 94% of adult internet users (41 million) accessed the platform in September 2018.<sup>43</sup> The majority (67%, 28 million) of adults who accessed Facebook and Messenger accessed the platform *only* on a mobile device.<sup>44</sup>

**Figure 1.18: Top ten social media sites, by reach of digital population, age: 18+: September 2018**

Reach rank	Top social media sites	Digital population reach (%)	Time spent by visitor per day (min:sec)
1	Facebook and Messenger	94	23:05
2	Twitter	59	02:26
3	Instagram	59	05:08
4	Snapchat	53	08:56
5	WhatsApp	52	05:37
6	LinkedIn	42	01:45
7	Pinterest	32	01:25
8	Reddit	23	01:42
9	StackExchange	11	00:06
10	Google+	11	00:35

Source: Comscore MMX Multi-Platform, Age: 18+, Sep 2018, UK,

Note: Reach is not equivalent to the number of social media accounts. Snapchat data is mobile app reach only.

Ofcom research found that many children under the age of 13 have a social media profile, including 48% of 12 year-olds (Figure 1.19). Among 12-15 year-olds Facebook is still the most commonly-used social media site or messaging app (72% of 12-15s have a profile), although use of alternatives is

<sup>41</sup> Ofcom [Adults’ Media Literacy Tracker](#), 2018

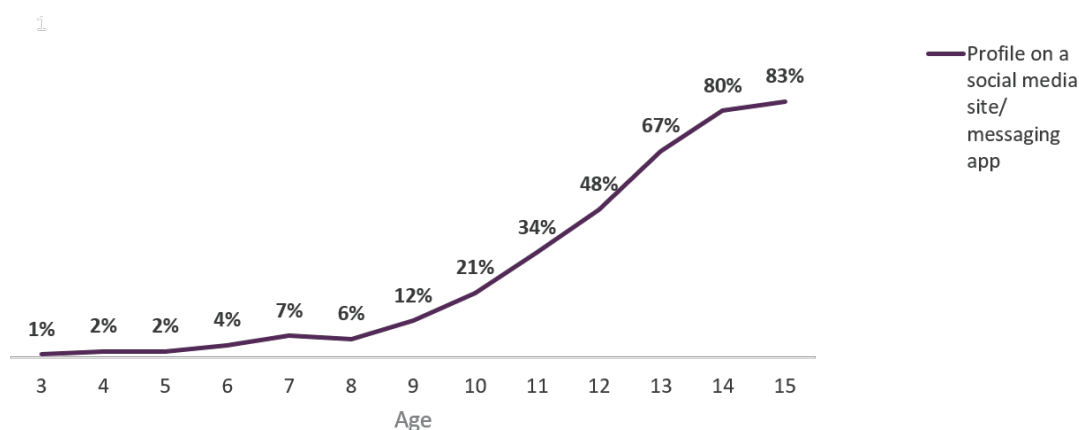
<sup>42</sup> Ofcom [Adults’ Media Literacy Tracker](#), 2018

<sup>43</sup> Comscore MMX Multi-Platform, Age: 18+, Sep 2018, UK

<sup>44</sup> Comscore MMX Multi-Platform, Age: 18+, Sep 2018, UK

increasing in the UK (Instagram: 65%, up 8pp, and WhatsApp 43%, up 11pp year on year). In 2018 children aged 12-15 were less likely than in 2017 to nominate Facebook as their main site or app (31% vs. 40%), with a corresponding increase in those who considered Instagram (which is owned by Facebook) their main social media app or site (23% in 2018, up from 14% in 2017). For more information, see the *Social Media* chapter in this report.

**Figure 1.19: Incidence of having a profile on a social media or messaging app, by age of child: 2018**



Source: Ofcom Children’s Media Use and Attitudes Tracker 2018 QP43/ QC19 – I’d now like to ask you some questions about your child’s use of social media or messaging sites or apps\* - so websites or apps like Facebook, Twitter, Instagram, Snapchat, What’s App and some activities on YouTube. Does your child have a profile or account on any of these types of sites or apps? (prompted responses, single coded). Responses from parents for 5-7 year-olds and from children aged 8-15. Base: Parents of children aged 3-4 or 5-15 (325 aged 3, 305 aged 4, 180 aged 5, 147 aged 6, 121 aged 7, 181 aged 8, 107 aged 9, 117 aged 10, 92 aged 11, 171 aged 12, 112 aged 13, 96 aged 14, 106 aged 15).

### 97% of UK online users access a news site, with BBC News the most popular

**Figure 1.20: Top ten news sites, by reach of digital population, age: 13+: September 2018**

Reach rank	Top news sites	Digital population reach (%)	Time spent by visitor per day (min:sec)
1	BBC News	67	02:26
2	The Sun Online	66	00:56
3	The Guardian	50	00:50
4	DailyMail	50	01:48
5	Telegraph	47	00:17
6	Mirror Online	43	00:23
7	Independent	41	00:14
8	Metro	36	00:11
9	Yahoo-Huffpost	34	00:26
10	Sky News	33	00:40

Source: Comscore MMX Multi-Platform, Age: 13+, Sep 2018, UK

The internet is the second most commonly-used platform for news, with 64% of adults saying they use it as a news source (behind television at 79%).<sup>45</sup> Half of British online adults (52%) say that news and current affairs is one of the main reasons they go online. Those in the DE socio-economic group are less likely than the AB socio-economic group to give this as a reason (41% vs. 63%).<sup>46</sup>

A wide range of news sites are used. BBC News has the highest reach (67% of the UK's online population in September 2018) and its users also spend the most time there. The next seven most popular sites are all the online versions of print newspapers, with the Huffington Post the only online-only news site in the top ten visited. The low average daily time spent on news sites indicates that online news services are often 'dipped into' rather than read for long periods of time, and shows that people typically use multiple news sources. Ofcom research finds that men, 16-24 year olds, those in higher socio-economic groups and ethnic minority groups are more likely to use a wider variety of online news sources.<sup>47</sup>

Social media sites are also widely used for news: 44% of adults claim to consume news via social media. Of these, 76% claim to use Facebook for news 'nowadays', followed by Twitter (32%), WhatsApp (22%) and Instagram (21%). Younger news consumers are more likely to mostly use social media channels for news, and 16-24s are more likely to mostly get their news from 'social media posts'.<sup>48</sup>

### **94% of UK online users access an e-commerce site, with Amazon the most popular**

In 2019, 70% of UK internet users claimed to have shopped online, though reach of e-commerce sites was at 94% in 2018.<sup>49</sup> It could be that some users choose to browse products on e-commerce sites, but choose not to complete a shopping transaction online. The top two retail sites, Amazon and eBay, reached 79% and 68% of the UK online audience aged 13+ respectively. More than half (54%) of all internet users claimed to do more of their shopping online 'these days'. This is up across all socio-economic groups but rises to 64% for AB internet users compared to 44% for DE internet users.<sup>50</sup>

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<sup>45</sup> Ofcom [News Consumption Survey](#), 2018

<sup>46</sup> TouchPoints, 2018, GB, age:15+

<sup>47</sup> Ofcom [News Consumption Survey](#), 2018, slide 63

<sup>48</sup> Ofcom [News Consumption Survey](#), 2018, slide 46

<sup>49</sup> Ofcom [Technology Tracker](#), 2019

<sup>50</sup> TouchPoints 2018, GB, Age: 15+

**Figure 1.21: Top ten e-commerce sites, by reach of digital population, age: 13+: September 2018**

Reach Rank	Top E-commerce Sites	Digital Population Reach (%)	Time spent by visitor per day (min:sec)
1	Amazon	79	02:41
2	eBay	68	04:02
3	Sainsburys (incl. Argos)	38	00:27
4	Tesco Stores	28	00:24
5	Apple	22	00:08
6	Samsung	20	01:49
7	Asda	19	00:31
8	Wish.com	15	01:36
9	Just-Eat	15	00:34
10	John Lewis (excl. Waitrose)	11	00:15

Source: Comscore MMX Multi-Platform, Age: 13+, Sep 2018, UK

**The top ten entertainment sites in 2018 included broadcasters and online video and music streaming services**

**Figure 1.22: Top ten entertainment sites, by reach of digital population, age: 13+: September 2018**

Rank	Top Entertainment sites	Digital population reach (%)	Time spent by visitor per day (min:sec)
1	YouTube	92	27:17
2	Spotify	41	25:21
3	IMDb	31	00:20
4	BBC iPlayer	27	04:30
5	Netflix	26	14:55
6	Comcast NBCUniversal	21	00:19
7	Mail Online –TV & Showbiz	20	00:25
8	Hearst UK Entertainment Network	19	00:13
9	Complex	18	00:15
10	ITV	18	02:32

Source: Comscore MMX Multi-Platform, Age: 13+, Sep 2018, UK

For 70% of online adults, the main reason they use the internet is for entertainment.<sup>51</sup> Video and music services lead the entertainment top ten sites, led by YouTube.

<sup>51</sup> TouchPoints 2018, GB, age: 15+

On-demand services from the BBC and ITV are in the top ten but are behind subscription service Netflix in terms of time spent. For all three, reach and time spent are understated as they are widely viewed on connected televisions, which is not included in this data.

Music services also feature strongly, and Spotify is one of the few services that rivals YouTube (itself frequently used for music) in time spent by its users.

## Mobile applications

Mobile apps were first introduced in 2008 as a way of organising a smartphone user’s contacts, emails, calendars and various other services which usually come pre-installed on devices. They have since become the main way of accessing online services on the smartphone, offering ease of accessibility and usually faster performance than web browsers. Apps are also promoted by Apple, Android and the other OS providers to grow use and support developers’ business models. OS providers can offer software development kits to app developers which among other functions can introduce a revenue-sharing process during a purchase or download.

In March 2019, 3.0 million apps were available to download on the Google Play store and 1.9 million on the iOS app store,<sup>52</sup> and in September 2018, 38 million UK individuals aged 13+ accessed an app via a smartphone.<sup>53</sup> UK smartphone users used 33 apps per month on average in 2018, with an average of 94 apps installed on their smartphone.<sup>54</sup> The share of time spent online on apps has increased by 16 percentage points since 2015, now making up the majority (57%) of an adult internet user’s total online time (86% of smartphone online time is via apps).<sup>55</sup>

**Figure 1.23: UK overall app downloads, combined iOS and Google Play stores: 2016-2018**

2016	2017	2018
1.995bn	1.917bn	2.026bn

Source: App Annie

Young people are the heaviest users of apps: 16-24 year-olds in the UK spend 33% more time, and engage with their most-used apps 48% more often than the rest of the population.

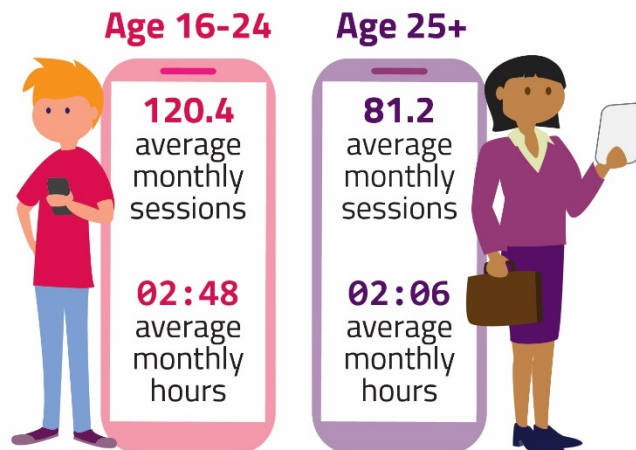
<sup>52</sup> App Annie, as of March 2019 Google had 2,979,798 apps available and iOS had 1,8825,220 apps available

<sup>53</sup> Comscore MMX Multi-Platform, Age: 13+, Sep 2018, UK

<sup>54</sup> App Annie, age: 16+

<sup>55</sup> Comscore MMX Multi-Platform, Age: 18+, Sep 2015 & 2018, UK

Figure 1.24: Engagement with apps, by demographic



Source: App Annie, UK, 2018, age: 16+

Note: Average per app among top 25 apps by usage penetration on Android phone, excluding pre-installed apps.

### Social media apps and Google's suite of apps are in the top ten most used apps

YouTube, as well as being the top site overall, is also the top app accessed on mobile devices (smartphones and tablets), reaching 81% of the mobile online audience. YouTube is a pre-installed app on Android devices, which may contribute to its reach.

Excluding pre-installed apps, which dominate the top ten apps, social media apps have the highest reach among app users. App Annie data show that WhatsApp was the non-pre-installed app with the highest number of monthly active users in 2018, followed by Facebook and Facebook Messenger in second and third place respectively, as in the past three years.<sup>56</sup>

Of the total time spent on smartphone apps by the online app population, 29% is on social media apps, equating to an app user spending an average of 36 minutes per day on social media apps.<sup>57</sup>

<sup>56</sup> Pre-installed app includes apps such as YouTube, Google maps

<sup>57</sup> Comscore Mobile Metrix®, Age: 18+, Sep 2018, UK

Figure 1.25: Top 10 mobile apps by penetration of app audience, age 18+: September 2018

Rank	Top mobile apps	Digital population reach (%)	Time spent by visitor per day (min:sec)
1	YouTube	81	22:03
2	Facebook	73	17:25
3	Google Search	66	05:59
4	Snapchat	62	09:01
5	Facebook Messenger	61	11:40
6	WhatsApp Messenger	58	05:45
7	Google Maps	56	01:49
8	Google Play	53	01:05
9	Gmail	49	03:06
10	Instagram	48	06:58

Source: Comscore Mobile Metrix®, Age: 18+, Sep 2018, UK

Figure 1.26: Top ten apps by consumer spend, combined iOS and Google Play stores: 2018

Rank	App	Headquarter
1	Tinder	United States
2	Netflix	United States
3	Bumble App	United Kingdom
4	Google Drive	United States
5	Headspace	United Kingdom
6	YouTube	United States
7	Spotify	Sweden
8	Deezer	France
9	Sing! by Smule	United States
10	Calm	United States

Source: App Annie, UK

In contrast to most commercial websites, which are typically free to use and generate revenue through advertising, many apps either offer a subscription service to use the app, or provide in-app purchases where the app itself is free to use but users pay to upgrade their service or unlock features within the app.

Dating, video, music and meditation apps make up the top ten apps on which UK consumers spend money. Tinder, the free dating app that also offers a membership service, has been the top UK app



based on consumer spend for the past two years. The top UK-headquartered app in 2018 was dating app Bumble.

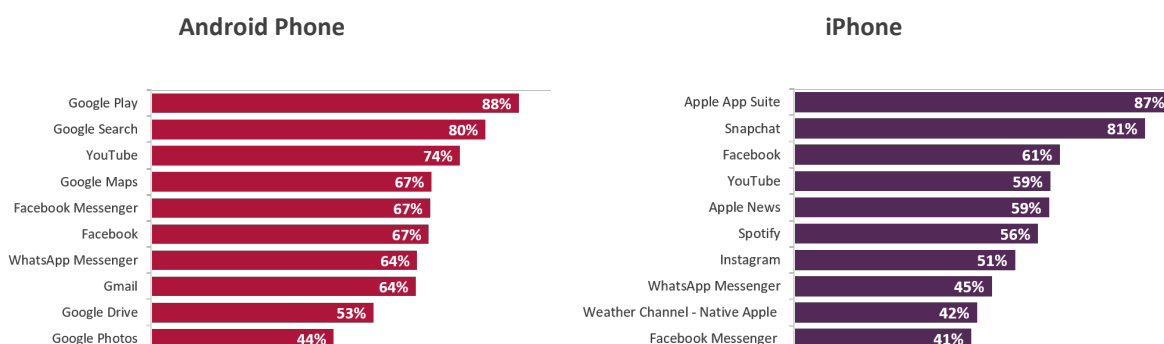
Five of the top 30 UK apps based on consumer spend are headquartered in the UK, with 18 in the USA.

### Seven of the top ten most used apps on Android phones are owned by Google

Google products have very high usage levels on Android phones; seven of the top ten apps by reach in the UK are Google-owned, while the remaining three are owned by Facebook. On iPhones, three of the top ten apps are Apple-owned, and four of the top ten are Facebook-owned. Google Play had the highest reach, at 88% of Android phone users, while Apple’s App Suite had the highest reach among iPhone users at 87%. Although the YouTube app has the fourth-highest user base on UK iPhones, with 59% reach, its reach is much higher on Android (74%), perhaps because it is pre-installed.

Even among apps which are not owned by Google or Apple, there are big differences in their popularity on Android and on iPhone. Snapchat has the second highest reach among iPhone apps but does not feature in the top ten for Android phone users. This may be why Snapchat, at the end of Q1 2019, launched a redeveloped version of its Android app. Spotify is more popular on iPhone than on Android, even though Spotify is in competition with Apple’s own music app, Apple Music, which is typically pre-installed on iPhones.

**Figure 1.27: Top ten smartphone apps, Android phone vs. iPhone, app audience, age 13+, by reach of app audience**



Source: Comscore Mobile Metrix®, Age: 13+, Sep 2018, UK

### Personalisation is being used by online sectors such as banking and quick service restaurants to improve app use

Apps can be personalised based on a user’s interests, behaviour, location and so on. Some apps also allow users to access content while offline, such as downloading a film from a video platform to be viewed offline or playing a game offline. These make mobile applications typically more user-friendly than websites. The banking sector and quick service restaurants are two sectors which use such app functionalities, discussed further below.

Almost two-thirds (64%) of UK internet users carried out internet banking in 2019. Internet users aged 35-54 were the age group most likely to do this (73%), followed by those aged 16-34 (68%) and those aged 55+ (51%). Online banking also varies by socio-economic group; 72% of ABC1 internet

users go online to carry out online banking, compared to 54% of C2DE internet users.<sup>58</sup> Most online banking is done via apps, and users typically have high levels of engagement – in 2018 users in the UK checked their bank apps on average more than seven times a week (up from just over five times a week in 2016); higher than the worldwide average.<sup>59</sup> More than two-thirds (68%) of adult app users accessed a financial services app in September 2018; the PayPal app was the highest-reaching financial services app in September 2018, used by 19% of app users.<sup>60</sup> Mobile banking has transformed the banking sector, improving access for banking customers who as a result do not need to visit bank branches so often. This has facilitated new entrants, such as UK-based companies Monzo Bank Ltd (which offers current accounts) and Tide Platform Limited (which offers business banking), which are challenging the traditional banking sector by offering online app-only services.

**Figure 1.28: Top five UK QSR apps: 2018**

Rank	Top quick service restaurant apps
1	Domino's Pizza UK
2	Costa Coffee Club
3	Starbucks USA
4	Subcard UK & Ireland
5	KFC Colonel's Club

Source: App Annie

The quick service restaurant sector is also using apps to deliver customer service and build customer loyalty, using apps to incentivise repeat orders and personalise offers and notifications. The use of apps removes the need to carry loyalty cards, while apps also enable more sophisticated marketing using platforms such as strategic app store optimization (ASO), using customer location to deliver promotional texts and flash deals.

Similarly, apps on smartphones can remove the need for physical tickets. More than two in five (44%) smartphone owners have used their phone as a ticket; for example, 11% of smartphone owners have used their phone as a contactless travelcard. More than half (55%) of 25-34 year-olds have used their phone as a ticket.<sup>61</sup>

### **With just 4% of the online audience, Candy Crush is the highest-reaching gaming app**

In 2018, games accounted for 74% of consumer spend in app stores globally. In the UK consumers spent £982m on games on Apple and Android phones in 2018, an increase of 36% since 2016.

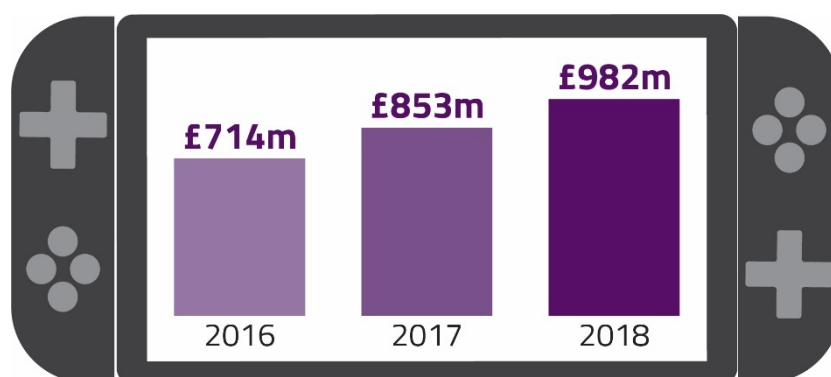
<sup>58</sup> Ofcom [Technology Tracker](#), 2019

<sup>59</sup> App Annie, [The State of Mobile 2019](#)

<sup>60</sup> Comscore Mobile Metrix, Age: 18+, Sep 2018, UK

<sup>61</sup> Touchpoints 2018, GB, age: 15+

Figure 1.29: Total annual consumer spend on games, UK, combined iOS and Google Play<sup>62</sup>



Source: App Annie

Figure 1.30: Top ten mobile gaming apps, by reach of app audience, age 13+: September 2018

Reach rank	Top games smartphone app	Digital population reach (%)	Time spent by visitor per day (min:sec)
1	Candy Crush Saga	4.1	09:58
2	Pokémon GO	3.5	17:10
3	Word Link – Word Puzzle Game	3.0	03:14
4	8 Ball Pool	3.0	07:53
5	Coin Master	2.8	06:49
6	Words with Friends 2	2.8	18:20
7	Happy Glass	2.7	01:53
8	Helix Jump	2.5	01:45
9	Candy Crush Soda Saga	2.3	10:58
10	Toon Blast	2.3	09:48

Source: Comscore Mobile Metrix®, Apps only, Age: 13+, Sep 2018, UK

Nearly two-thirds (62%) of the UK app audience accessed a gaming app in September 2018, and 13% of the total time spent on apps was on gaming apps.<sup>63</sup> There is a long tail of gaming apps available on the market, catering to a wide variety of interests; in September 2018, Candy Crush had the highest reach among the digital app population, at 4.1%. Helix Jump – a Hyper-Casual<sup>64</sup> game in

<sup>62</sup> App Annie figures provided in USD converted using Bank of England Yearly Average 2018, £1 = \$1.33, 2017 £1 = \$1.28 and 2016 £1=\$1.35. Figures are nominal.

<sup>63</sup> Comscore Mobile Metrix, Age: 13+, Sep 2018, UK

<sup>64</sup> Hyper-casual games are instantly playable and replayable as they offer simple gameplay mechanics

which the player navigates a ball down a helix tower - was the top game in the UK based on downloads in 2018,<sup>65</sup> and reaches 2.5% of the app-using online population.<sup>66</sup>

## Consumer impact: perceptions, attitudes and harms

This section draws on data from our [2019 Online Harms quantitative research](#), conducted jointly with the [Information Commissioner's Office](#) (ICO), and our [2018 Adults' Media Use and Attitudes](#) research. We found a higher level of unprompted concern in our 2019 Online Harms research than in our 2018 Adults' Media Literacy research. This is probably due to a combination of a difference in the question wording (the 2019 survey prompted respondents to think about apps, social media, online gaming and video clips) and news stories relating to social media sites before and during the 2019 fieldwork (when the live streaming of the mass shooting in Christchurch and news coverage about the role of social media in the suicide of Molly Russell may have been front-of-mind for survey respondents).

### 61% of adult internet users have come across at least one form of potential harm in the past year

As the internet pervades all sectors of economic and social activity, it brings great benefits but also carries the potential for harm. Ofcom has conducted quantitative and qualitative research jointly with the [Information Commissioner's Office](#) and found that eight in ten (78%) adults and nine in ten 12-15 year-old internet users have concerns about using the internet.<sup>67</sup> The most common causes of concern among adults about the internet in general are in relation to security, data and privacy, but around half (47%) of adult internet users say that they always agree to terms and conditions without reading them, so that they can access the service or content (see the *User Data* chapter for more information).<sup>68</sup>

Six in ten adult internet users (61%) say they have experienced a form of potential harm online in the past 12 months. However, there are relatively low incidences of some of the harms that people are most concerned about; 5% had had their personal information stolen/hacked, 8% had had their personal data used without their knowledge/consent, 2% had reported coming across material showing child sexual abuse and 5% had experienced private material being made public. Similarly, some of the most commonly experienced potential harms generated relatively low levels of concern, such as spam email, fake news and offensive language. Overall, those aged 16-34 are generally more likely than older people to say they have come across a potential online harm; this may be because they spend more time on the internet and use a wider variety of services.<sup>69</sup>

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<sup>65</sup> App Annie, [The State of Mobile 2019](#)

<sup>66</sup> Comscore Mobile Metrix, Age: 13+, Sep 2018, UK

<sup>67</sup> [Ofcom-ICO research](#), 2019

<sup>68</sup> [Ofcom-ICO research](#), 2019

<sup>69</sup> [Ofcom-ICO research](#), 2019

**Figure 1.31: Top ten concerns, after prompting, and proportion of adults who claim to have experienced each concern in the past 12 months**

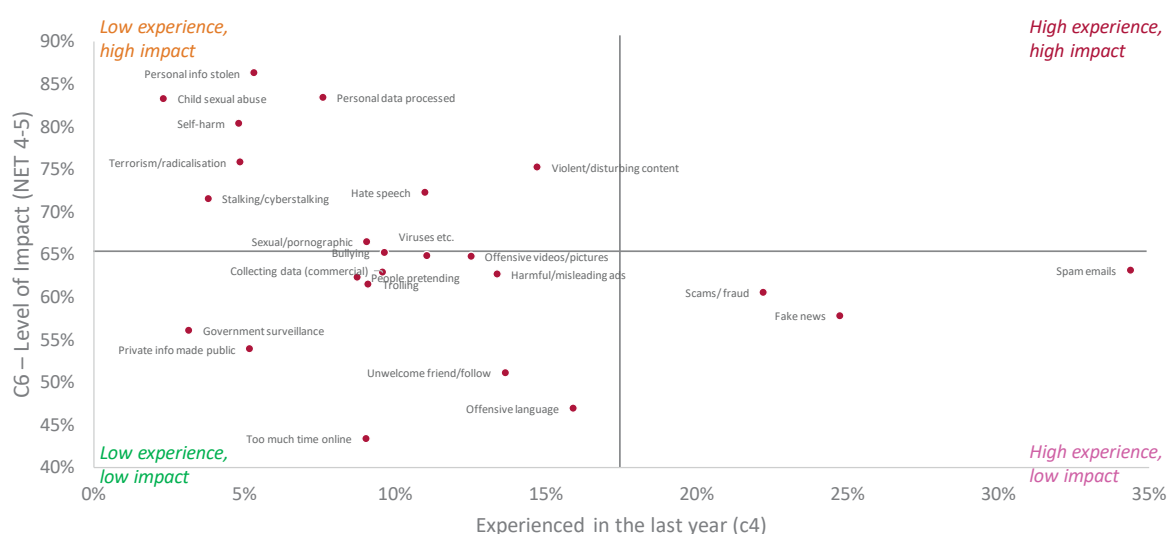
Concern rank	Harmful internet activity	Adult internet users general concerns	Adult internet users experience
1	My personal information being stolen/hacked	48%	5%
2	Scams/fraud	43%	22%
3	My personal data being processed without my knowledge/consent	41%	8%
4	Bullying, abusive behaviour or threats	34%	10%
5	Material showing child sexual abuse	33%	2%
6	Violent/disturbing content	31%	15%
7	Sexual/pornographic content	30%	9%
8	Viruses/trojans/worms/spyware/malicious software	30%	11%
9	Private information being made public (e.g. photos)	28%	5%
10	Spam emails	28%	34%

Source: Ofcom Online Harms quantitative research 2019

Note: Adults questionnaire: "Which, if any, of the following things have you come across on the internet in the last 12 months?"

To better understand the gravity of potential sources of online harms, we mapped the frequency of harms experienced and the consequent impact identified by UK internet users. While offensive language and spam emails are frequently experienced by UK adults, most identify these as having a low impact on them. Conversely, child sexual abuse, self-harm and terrorism/radicalisation were rarely experienced, but had a much higher impact on those that had been exposed to them.

**Figure 1.32: Adults' experience vs. impact of potential sources of online harm**



Source: Ofcom-ICO research 2019

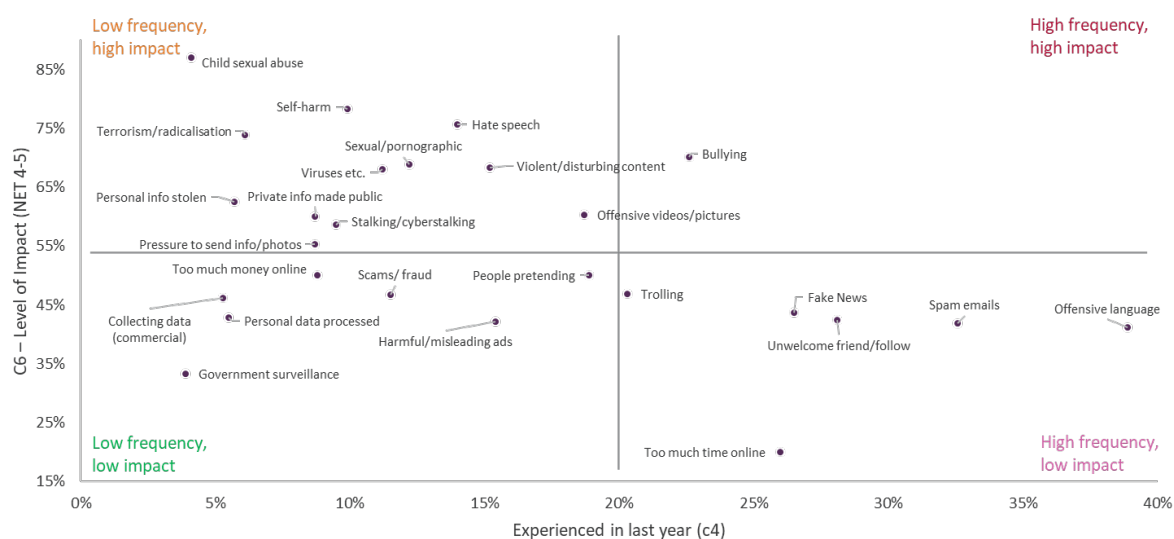
Question: C2b) Which, if any, of the following aspects of the internet concern you more generally? Base: All adults 16+ (2057) C6) Thinking about all of the times that you have experienced [INSERT CODE FROM C4] in the last 12 months, what impact has this had on you? Please use a scale of 1 to 5, where 1 means Mildly annoying or upsetting or frustrating and 5 means Very annoying or upsetting or frustrating.

Base: All adults 16+ who have experienced and are concerned about X (bases vary)

Children aged 12-15 are most concerned about harmful conduct by others on the internet; about half reported that they were concerned about bullying, abusive behaviour or threats (53%) and about people pretending to be another person (49%). These were also the types of harmful experience that they were most likely to report having experienced – 28% reported that they had had unwelcome friend or follow requests or unwelcome contact, 23% had experienced bullying, abusive behaviour or threats, 20% had been trolled and 19% had experienced someone pretending to be another person.

Similarly to adults, for 12-15 year-old children, offensive language and spam emails were also the most frequently experienced harms; however again this was identified as having low impact on the respondents. But, unlike for adults, bullying was both frequently experienced and had a significant impact on children, the fifth highest of all the potential sources of harm identified. Ten per cent of 12-15s said they had experienced internet content related to self-harm and this was reported as the potential source of harm with the second greatest impact, after content showing child sexual abuse.

**Figure 1.33: Children’s experience vs. impact of potential sources of online harm**



Source: Ofcom-ICO research 2019

Question: C4) Which, if any, of the following things have you come across on the internet in the last 12 months?  
 PROMPTED. Base: All children 12-15 (1001)

C6) Thinking about all of the times that you have experienced [INSERT CODE FROM C4] in the last 12 months, what impact has this had on you? Please use a scale of 1 to 5, where 1 means Mildly annoying or upsetting or frustrating and 5 means Very annoying or upsetting or frustrating. Base: All children 12-15 who have experienced and are concerned about X (bases vary)

Our quantitative research also investigated how adults felt about the risks to children on the internet. When prompted, 83% of adults expressed concern about harms to children on the internet. The greatest single concern was bullying, abusive behaviour or threats, and there were also high levels of concern about children’s exposure to inappropriate content including pornography (49%), violent / disturbing content (49%) and content promoting self-harm (42%). Concerns around these potential harms were also reflected in our qualitative research. Further, in the quantitative survey, four in ten adults (39%) were concerned about children spending too much time on the internet.

**Figure 1.34: Top ten concerns, after prompting, and proportion who claim to have experienced each concern in the past 12 months: children**

Harmful internet activity	Children who go online aged 12-15: concerns	Children who go online aged 12-15: experience	Harmful internet activity: Adults' concerns about children going online	Adult internet users
Bullying, abusive behaviour or threats	53%	23%	Bullying, abusive behaviour or threats	55%
People pretending to be another person	49%	19%	Sexual/pornographic content	49%
My personal details or information being stolen/hacked	44%	6%	Violent/disturbing content	46%
Viruses/trojans/worms/spyware	41%	11%	Material showing child sexual abuse	44%
Scams/fraud/being tricked into giving away money or information	40%	11%	Content promoting self-harm e.g. cutting, anorexia, suicide	42%
Trolling	40%	20%	People pretending to be another person	40%
Personal details or information being processed without knowledge/consent	39%	5%	Offensive videos/pictures	39%
Unwelcome friend/ follow requests or unwelcome contact	38%	28%	Spending too much time online	39%
Cyberstalking	35%	9%	Stalking/cyberstalking	34%
Violent/disturbing information, videos, pictures or audio	35%	15%	Unwelcome friend/ follow requests or unwelcome contact	34%

Source: Ofcom-ICO research 2019

Note: 12-15 YEAR OLDS' QUESTIONNAIRE "C4 Which, if any, of the following things have you seen or experienced on the internet in the last year?"

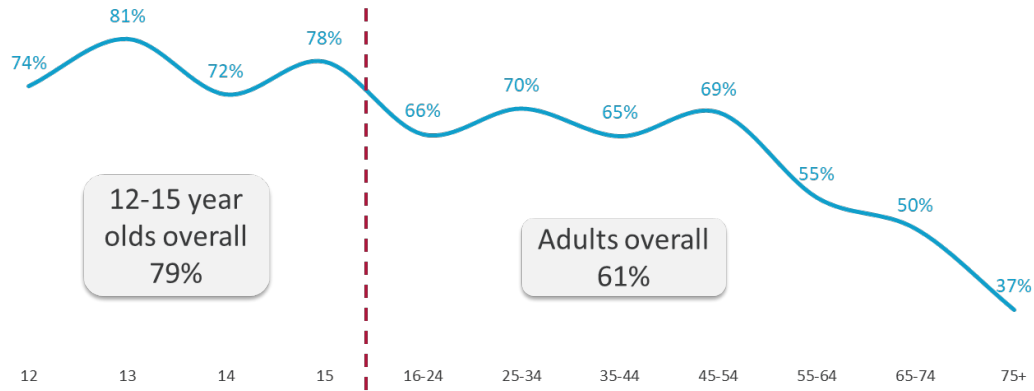
Younger people are more likely to have experienced potential harms. Overall, when prompted around eight in ten 12-15 year-olds reported that they had experienced at least one potential harm compared to six in ten adults. Internet users over-55 were least likely to report having experienced any of the harms. This may be related to older internet users typically spending less time online (over 55 internet users spend on average 2 hours 27 minutes per day online whereas the average adult spends 3 hours 15 minutes online<sup>70</sup>) and being less likely to use social media (72% of 55-64 year old and 51% of 65-74 year old internet users have a social media profile/messaging account<sup>71</sup>).

<sup>70</sup> Comscore MMX Multi-Platform, Total Internet, Age: 18+, Sep 2018, UK

<sup>71</sup> Ofcom [Adults' Media Literacy Tracker](#), 2018



**Figure 1.35: Proportion of internet users reporting to have experienced at least one potential harm**



Source: Ofcom-ICO research 2019

Question: C4) Which, if any, of the following things have you come across on the internet in the last 12 months?  
PROMPTED.

Base: All adults 16+ (2057) All children 12-15 (1001)



# The online industry

## Introduction

The development of the internet has gone hand-in-hand with the development of new business models that have re-shaped many aspects of economic life and transformed the ways in which content and information is distributed and consumed. Enormous benefits flow from the rapid growth in the ways in which people are connected to each other, to global markets and to information. The use of a variety of online business models typically enables services to be available at a lower price than their traditional equivalents, and many are free at the point of use. But internet business models may also reinforce scale with global companies benefiting from a presence in incumbent markets.

In this section we provide an overview of the UK online market by key sectors. We identify how different business models employed by online companies generate revenue and from what devices this tends to originate. We also look at how the online market is constructed and provide a top-level description of key entities such as platforms and publishers. This is not intended to act as an economic analysis exercise and the categories in this section are contestable and often overlapping.

As the internet is a global experience, characterised by multi-national platforms competing and collaborating with local and multi-national content publishers, we put the UK market in a global context. We provide an overview of the total global market, how the UK market sits within the rest of the world, and how the UK market may be growing and changing. We also look at this at a sector level, at how the UK market compares with other key international markets such as China, Germany and the US.

## Key metrics

Figure 2.1: Leading online sectors with estimated share of revenue and growth rate: 2013-2018

Estimated share of UK market (%)	2013	2014	2015	2016	2017	2018	Estimated Compound Annual Growth Rate (CAGR) 2013-18	As % global market (2018)
Search	6%	5%	5%	5%	6%	6%	12%	7%
Social media	1%	2%	2%	2%	3%	3%	30%	6%
(Free) video	0%	1%	1%	1%	2%	2%	51%	8%
News	1%	1%	1%	1%	1%	1%	5%	4%
Shopping	84%	84%	83%	82%	80%	79%	10%	5%
Entertainment	3%	3%	3%	3%	3%	3%	17%	5%
Gaming	4%	4%	4%	4%	4%	5%	16%	5%
Online directories	1%	1%	2%	1%	1%	1%	11%	9%

Source: O&O analysis based on data from PwC, Zenith, Enders Analysis (based on company data and AA/WARC, and company information and public filings)

Notes: Adjusted for CPI (2018 prices). Definitions used may differ from other industry sources. Figures are indicative only. UK market represents eight key online sectors of search, social media, (free) video, news, shopping, entertainment, gaming, and online directories.

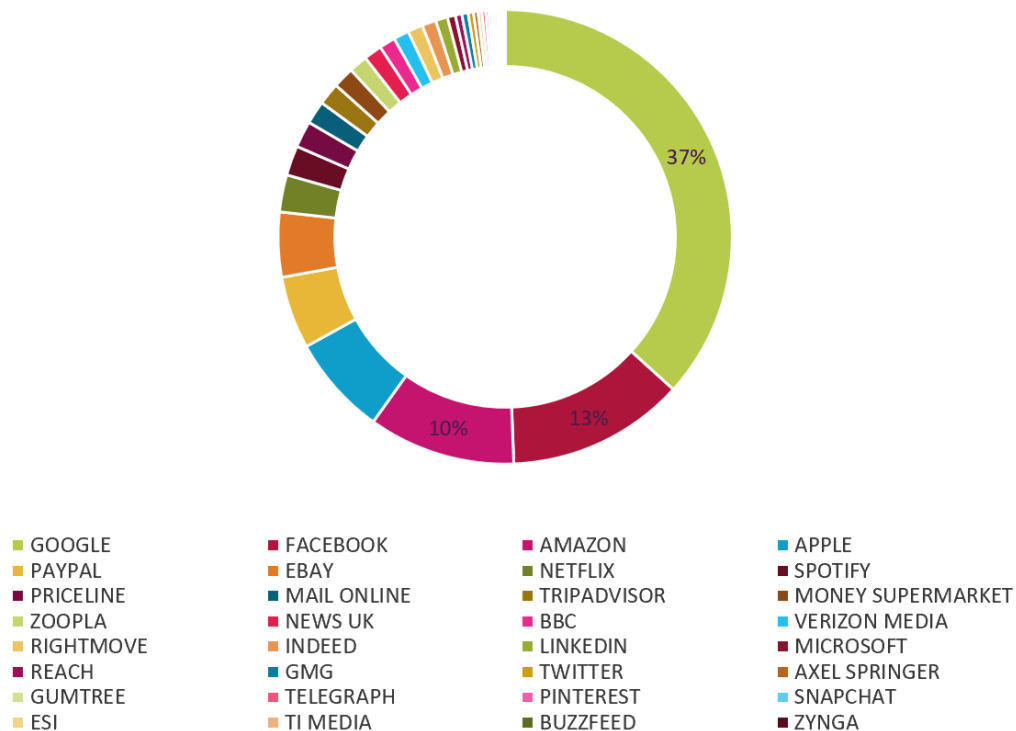
Figure 2.2: Estimated share of UK market, by business model: 2013-2018

Estimated share of UK market (%)	2013	2014	2015	2016	2017	2018	Estimated CAGR 2013-18
Total estimated UK revenue	54,370	61,780	72,281	83,654	87,735	92,395	11%
Advertising	10%	10%	10%	11%	12%	13%	18%
Subscription	2%	2%	2%	2%	3%	3%	25%
Transactional	88%	88%	87%	87%	85%	84%	10%
Public funding	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	1%

Source: O&O analysis and estimates, based on data from PwC Global Entertainment and Media Outlook, AA/WARC, Enders Analysis (based on company data and AA/WARC) and Statista

Notes: Adjusted for CPI (2018 prices). Definitions used may differ from other industry sources. Figures are indicative only. UK market represents eight key online sectors of search, social media, (free) video, news, shopping, entertainment, gaming, and online directories

Figure 2.3: Estimated UK online revenue of top 40 UK online properties: 2018



Source: O&O analysis based on reported company revenues and estimates of UK-derived revenue

Notes: Sky revenues not included as these could not be estimated with an acceptable degree of accuracy. Apple revenues represent online services revenue only (e.g. Apple store). Amazon revenues represent online advertising and subscription revenues

## How is the internet constructed?

### The internet comprises a web of services and entities that help consumers and businesses navigate, interact with each other and with companies, and purchase goods and services

The internet is made up of services, such as websites, blogs, search engines, online stores, and other online entities. Another way of looking at the internet is through the lens of platforms and publishers and how these entities interact. This is not a clear-cut distinction, however, and there are sometimes ambiguities about whether any particular service is acting as a platform or publisher. In this section we provide a conceptual overview of platforms and publishers using the definitions below but note that the line between these two can often be quite fluid.

#### Platforms

A platform is a ‘matchmaking’ entity that facilitates interaction between two, or many, sides of the market, enabling different types of participants to exchange information, money, or some other unit of value. Some examples may include:

- Search engines, platforms that help consumers find information and content across the internet, matching search requests to sources with relevant content.
- Mobile app stores, which allow app developers to place mobile apps for sale and for consumers to find and purchase these apps.

- Social media platforms, which help users find and interact with each other through posts, photos, and video.
- Marketplaces for products or services, which aggregate the offers of many providers and allow consumers to search and purchase from the available inventory.
- User review sites, which enable consumers to leave reviews and information on products and services for other consumers to use in their decision-making.

### Publishers

Publisher entities are the content generators of the internet. The definition of a publisher includes anyone who generates content online. Publishers can range from large, multinational companies to small one-person blogs. Some examples include:

- A blog or informational website (e.g. a blog focused on baking) which is written and maintained by a single person or group of people, with new content continually added.
- Large informational sites that are the websites of traditional journalism outlets.
- Audio-visual media companies which create and distribute online video content.

### **An analysis of a selection of top UK platforms highlights the strong relationship between platforms and publishers**

To better understand the relationship between platforms and publishers, we used Comscore data to analyse the course of internet traffic to and from a selection of the top UK internet properties.<sup>72</sup> This type of analysis is known as a source/loss analysis and shows from what “source” a user accesses another site; for example from logging on to their computer or coming from a website that they use as a home page, or from clicking on a link on the current site they are visiting. It also identifies where people go after accessing the specified site (“loss”), which could be logging off from their internet session or going to another website. The analysis is only available for laptop and desktop traffic (i.e. it excludes smartphones, tablets and other devices) and hence provides a limited view of behaviour. However, it helps us understand UK user journeys between sites.

The source/loss analysis for Google shows that the largest percentage of the total entries<sup>73</sup> to Google sites<sup>74</sup> comes from when users log on to their computer (16.8%), suggesting that many users have a Google site as their home page (our consumer research indicates that 50% of people have a search engine set as their browser home page<sup>75</sup>). Logging off is the most common action that many users take after visiting a Google site (13.1%). Facebook is the second key source and loss site, with 7.6% of total entries to Google sites coming from Facebook and 7.1% of traffic flowing away from Google to Facebook.

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<sup>72</sup> We identified the top UK internet properties based on time spent using data from Comscore’s desktop online-only panellists.

<sup>73</sup> Entries are the total number of times all users have visited a site. This calculation includes all times a single visitor accessed the site in total over the same reporting period.

<sup>74</sup> Includes Google Search (web and images), Gmail, Maps, Shopping, YouTube

<sup>75</sup> Ofcom *Search questionnaire 2019*

**Figure 2.4: Google source/loss analysis**

**Source**

Property	% of entries
Logon	16.8%
Facebook	7.6%
Microsoft sites	5.3%
Verizon Media	2.7%
eBay	2.7%

Source 6-10: Amazon sites (1.7%), Twitter (1.6%), ROBLOX (1.6%), BBC sites (1.4%), Wikipedia (0.9%)

**Loss**

Property	% of exits
Logoff	13.1%
Facebook	7.1%
Microsoft sites	4.0%
eBay	2.6%
Verizon Media	2.3%

Loss 6-10: Amazon (1.8%), Twitter (1.6%), ROBLOX (1.6%), BBC sites (1.5%), Wikipedia (1.1%)

Source: Comscore MMX, desktop only, Age: 18+, Sep 2018, UK<sup>76</sup>

Traffic flows for Facebook correspond to the Google data; Facebook gains a large amount of traffic from Google sites (20.3%) and drives traffic from its properties to Google sites (21.8%). Like the source/loss analysis for Google, Facebook is also a first-or-last stop destination for many user sessions, with 14% of visitors going to Facebook first after log on, and 16% logging off immediately after visiting Facebook, suggesting the importance of Facebook in the online lives of many users.

**Figure 2.5: Facebook source/loss analysis**

**Source**

Property	% of entries
Google sites	20.3%
Logon	14%
Microsoft sites	5.7%
Verizon Media	4.1%
eBay	1.4%

Source 6-10: BBC sites (1.1%), Twitter (1%), Zynga (0.9%), Amazon sites (0.8%), Activision Blizzard (0.6%)

**Loss**

Property	% of exits
Google sites	21.8%
Logoff	16%
Microsoft	5%
Verizon Media	3.7%
eBay	1.4%

Loss 6-10: BBC sites (1%), Twitter (1%), Zynga (1%), Activision Blizzard (0.8%), Amazon (0.7%)

Source: Comscore MMX, desktop only, Age: 18+, Sep 2018, UK

Sector-specific properties, such as news or shopping, have more focused traffic patterns. Amazon, for example, draws in a considerable traffic from Google sites (24.9%), but also from Microsoft sites (including Bing search), 7.8%, and Verizon Media sites (includes Yahoo shopping and Yahoo search), 3.7%. This traffic pattern suggests that users may be searching for a product on Google but may then

<sup>76</sup> ROBLOX is a massively multiplayer online (MMO) and game creation system

do comparison shopping on Amazon or go to Amazon to buy the product. Similarly, 23% of Amazon users go to Google, which might mean that they look for a product on Amazon, use Google to ‘comparison shop’ and make their final purchase at another retailer. eBay generates almost as much traffic to Amazon as does Verizon Media (3.6%), suggesting that users might check prices or products at eBay and then ‘comparison shop’ on Amazon. Amazon has a lower number of properties than Google that generate traffic flow, with 1,546 properties generating traffic to Amazon, and 1,477 properties receiving traffic from Amazon, compared to over 17 thousand properties generating traffic to Google and over 19 thousand properties receiving traffic from Google. This indicates that Amazon is important for product and price information but typically does not generate or receive traffic, apart from those actions.

**Figure 2.6: Amazon source/loss analysis<sup>77</sup>**

**Source**

Property	% of entries
Google sites	24.9%
Log on	9%
Microsoft sites	7.8%
Verizon Media	3.7%
eBay	3.6%

Source 6-10: Facebook (3.6%), Microstar-Intl Co (1.4%), BBC sites (0.8%), WEB-EXPLORE.Com (0.7%), QMEE.COM (0.7%)

**Loss**

Property	% of exits
Google sites	23.2%
Log off	13.6%
Microsoft sites	6.8%
eBay	4.1%
Facebook	4.0%

Loss 6-10: Verizon Media (3.5%), Micro-Star Intl Co (1.4%), BBC sites (0.9%), QMEE.Com (0.7%), MYLOAP.com (0.5%)

Source: Comscore MMX, desktop only, Age: 18+, Sep 2018, UK

Travel-focused review site TripAdvisor exhibits a similar traffic pattern: almost half of the incoming web traffic is generated by Google sites, Microsoft sites, or Verizon Media sites. Visitors to TripAdvisor exit the site to platforms such as Expedia (3.1%) and Priceline (3%) where they can book travel and accommodation they may have read about on TripAdvisor.

<sup>77</sup> Qmee is a shopping/survey site, Microstar sells high-end desktop gaming machines

**Figure 2.7: TripAdvisor source/loss analysis**

**Source**

Property	% of entries
Google sites	30.7%
Microsoft sites	10.1%
Verizon Media	6.0%
Log on	5.2%
Facebook	2.8%

Source 6-10: Expedia (2.2%), Priceline (1.6%), jscache.com (1.0%), LITTLEHOTELIER.COM (0.9%), TUI.co.uk (0.7%)

**Loss**

Property	% of exits
Google sites	22.5%
Log off	10.1%
Microsoft sites	8%
Verizon Media	4.5%
Facebook	4.2%

Loss 6-10: Expedia (3.1%), Priceline (3%), JSCACHE.COM (1.5%), LITTLEHOTELIER.COM (1.2%), BOOKATABLE.COM (0.8%)

Source: Comscore MMX, desktop only, Age: 18+, Sep 2018, UK

Traffic to news sites such as the Guardian and the BBC exemplify the importance of the relationship between publishers and platforms such as Google. Both sites get approximately a quarter (25%) of their traffic from Google sites, and Google is the most popular source of traffic for both. They also both lose the largest amount of traffic to Google sites. News sites are also frequently the first places people go online - 15.5% of visits to the BBC and 7.9% for the Guardian come straight from log on.

**Figure 2.8: Guardian and BBC source/loss analysis**

**Guardian Source**

Property	% of entries
Google sites	27.7%
Log on	7.9%
Microsoft sites	6.1%
Facebook	4.6%
Verizon Media	3.2%

Source 6-10: BBC sites (3.2%), Twitter (1.1%), Amazon sites (1.0%), Mail online/Daily Mail (1.0%), Telegraph Media Group (0.5%)

**Guardian Loss**

Property	% of exits
Google sites	20.5%
Log off	11.8%
Microsoft sites	5.3%
Facebook	5.2%
Verizon Media	3.2%

Loss 6-10: BBC sites (3%), Independent and Evening Standard (1.3%), Amazon sites (1.2%), Twitter (1.0%), Mail Online/Daily Mail (0.7%)

Source: Comscore MMX, desktop only, Age: 18+, Sep 2018, UK



### BBC Source

Property	% of entries
Google sites	24%
Log on	15.5%
Microsoft sites	10.2%
Facebook	5.8%
Verizon Media	3.5%

Source 6-10: BBCI.co.uk (1.2%), Twitter (1.1%), Amazon sites (1.1%), eBay (0.9%), Sky sites (0.6%)

### BBC Loss

Property	% of exits
Google sites	22.8%
Log off	19.7%
Microsoft sites	7.4%
Facebook	6.4%
Verizon Media	2.9%

Loss 6-10: BBCI.co.uk (1.8%), Twitter (1.1%), eBay (1%), Amazon (0.9%), Mail Online (0.9%)

Source: Comscore MMX, desktop only, Age: 18+, Sep 2018, UK

## What are the key business models?

### Revenue is generated online through a variety of business models

Online entities use a range of business models to generate revenue to support the cost of operating the site and to make a profit. Most online business revenues generate revenues through one or a combination of: advertising, subscriptions, e-commerce/transactions, donations (and for the BBC, the television licence fee).

#### Subscription

Users are charged a monthly or yearly fee to access content behind a paywall, or premium services that are otherwise not part of a free service. Key examples include newspapers, such as The Times, which charge a subscription for users, similar to a subscription to a print newspaper.

#### E-commerce/transactional

Consumers or businesses buy products from a business selling products or services that are either unique to that business or sold by other businesses. Amazon is a primary example: it charges sellers a fee to sell on the Amazon platform, although consumers benefit from the ability to search for what they want across the entire Amazon platform. Amazon also makes money by selling digital items, such as e-books.

The e-commerce/transactional model also includes consumer purchases within video games for virtual products or services, or to access additional areas for a fee. For example, a consumer may choose to purchase, from another seller or the game maker, a custom outfit for their character in the popular video game Fortnite.

#### Advertising and sponsorship

This is a broad category that comprises many different models of advertising that are delivered to consumers during their online interactions. Advertising is a popular revenue model for many online companies. Some of the key sub-categories of advertising include:

- Search (e.g. sponsored links within Google or other search engine results). These are paid-for listings that appear embedded or alongside search results when a consumer has typed a phrase into a search engine. They are sponsored or promoted listings and are typically indicated as such by the search engine.
- Banner (e.g. an advertisement displayed at the top of a web page). These often include images or video-based ad content; the banner is a standardised display unit on the website.
- Native (e.g. sponsored product links appearing in an Instagram feed or LinkedIn, or a promoted pin on Pinterest). These ads are embedded in other content.
- Sponsored content (e.g. blog posts or articles about a topic or product, sponsored by a third party). This content may look like a regular news article, but the content tends to espouse the virtues and benefits of the product or service it is promoting. These articles are typically badged as sponsored content.
- Video (e.g. video advertisements embedded in a news article). These ads resemble a traditional TV advertisement; they capture the reader's eye and entice them to click on the advertisement.
- Other (classifieds, lead generation,<sup>78</sup>audio, unspecified).

### Donation or tipping

This model is typically employed on a limited basis, primarily by entities with either an ethical stance towards user contribution or in order to remain independent of external influences, such as from advertisers, and to deliver information freely. Two of the largest and best-known sites that use donations are Wikipedia, where donations keep the site free for all to use, and the Guardian news site, where more than a million readers have financially contributed to support its reader-funded business model<sup>79</sup>.

### Some sectors employ a broader range of business models than others

Figure 2.9 below outlines which business models are currently employed in some of the most significant sectors in the UK online market. These sectors comprise many of the top 40 online properties most used by UK consumers, as highlighted in Figure 1.14 in *The Online Consumer* chapter. By breaking down the wider industry into sectors, it is easier to understand the difference in business models across the industry. For this analysis we considered eight key sectors:

- Search (e.g. Google Search)
- Social media (e.g. Facebook, Pinterest)
- Video (e.g. YouTube)
- News (e.g. Guardian Media Group, BuzzFeed)
- Shopping (e.g. Amazon, eBay)
- Entertainment (e.g. Netflix, Apple iTunes)
- Gaming (e.g. Zynga)
- Online directories (e.g. Gumtree, Rightmove)

<sup>78</sup> The process of attracting and converting consumers through online content such as blog postings.

<sup>79</sup> [Why readers are critical for the future of Guardian journalism](#), 20 February 2019

**Figure 2.9: Overview of key sector business models**

	Subscriptions	E-commerce/ transactions	Advertising/ sponsorship	Donations/ tipping	Licence fees
Search			X		
Social media	X	X	X		
(Free) video	X	X	X		
News	X	X	X	X	X
Shopping	X	X			
Entertainment	X	X	X		
Gaming	X	X		X	
Online directories	X		X		

Source: O&O analysis (based on top-40 UK Properties – see Figure 1.14 in *The Online Consumer*)

News is the sector with the widest range of business models, reflecting the wide range of revenue sources in the offline news sector. Conversely, the leading search sites draw all their revenue from advertising. Shopping platforms like eBay and Amazon make a small proportion of their advertising revenue from paid-for product promotion. For Amazon this equated to approximately 2% of overall global revenues in 2018, compared to the 84% that made up transactional revenue.<sup>80</sup> The bulk of Amazon’s other revenues comprised subscription-based services, including its Amazon Web Services (AWS) cloud computing and storage business and Amazon Prime, where consumers pay a subscription fee for free unlimited expedited shipping and Amazon Prime Video.<sup>81</sup>

## Global and UK online industry market analysis

### Overview of our approach to data collection

In this section we present a range of industry data including global revenue figures and an estimate of the UK share of the global market for eight key online sectors, as well as company revenues for the top UK online properties. We also provide estimates of revenues derived in each sector by device type and business model and also provide high-level comparisons of the UK market with other key international markets. Underlying UK revenue figures have been adjusted for CPI (2018 prices) in accordance with standard Ofcom practice. Ofcom engaged strategy consultants Oliver and Ohlbaum (‘O&O’) to provide data collection, analysis, and broader sector insight. The data is based on estimates provided by O&O and therefore should be treated as indicative only; it is designed to provide general context of the online industry in the UK. It has been sourced from publicly available company reports, trade associations and estimated where applicable and appropriate.

The figures presented may differ from other estimates in the industry due to differences in sector definition and methodological differences. This is not intended to act as an economic analysis exercise and the categories in this section are contestable and often overlapping.

<sup>80</sup> O&O analysis

<sup>81</sup> Amazon company information, O&O analysis

## UK online market sectors are growing at a similar rate to global market sectors

Between 2017 and 2018 the UK online market sectors tracked at a similar growth rate to the broader global markets, suggesting that the UK market continues to develop and take up new innovations that are developing.

Video, gaming, and entertainment, all sectors characterised by innovation and benefiting from the take-up of faster broadband connectivity and connected televisions, showed double-digit growth between 2017 and 2018, both globally and in the UK market. The lower rate of UK growth in the shopping market, the largest sector, suggests that in the UK, where e-commerce is well established, there may be less opportunity for further growth at this time, either due to market maturity or other external economic factors affecting consumer willingness to spend. The UK news and online directory sectors are much smaller than the other sectors and have relatively low rates of growth.

**Figure 2.10: Global and UK online sector revenues: 2018**

Key Sector	Primary business model	2018 Global revenue (£m)	% Global revenue change y-o-y	2018 Estimated UK share of global market (%)	2018 Estimated UK revenue per capita	Example key companies
Search	Advertising	83,582	13%	7%	£101	Google search, Bing
Social media	Advertising	49,545	17%	6%	£45	Facebook, Twitter
(Free) video	Advertising	21,046	30%	8%	£27	YouTube
News	Advertising	16,385	7%	4%	£11	Guardian Group, Sky news
Shopping	Transaction	1,541,571	9%	5%	£1,094	Amazon, eBay
Entertainment	Subscription	61,698	15%	5%	£47	Netflix, Spotify, BBC
Gaming	Transaction	82,662	15%	5%	£63	Zynga
Online directories	Advertising	14,124	7%	9%	£18	Rightmove, Gumtree

Source: O&O analysis based on data from AA/WARC, PwC Global Entertainment and Media Outlook, Enders Analysis (based on company data and AA/WARC), Zenith, Statista, and company information and public filings

Note: Definitions used may differ from other industry sources. UK figures are indicative only.

## Advertising is a key revenue generator and business model for online properties

In 2018, online advertising generated £13.4bn in the UK, up 13% since 2017.<sup>82</sup> It accounts for the majority (57%) of total UK advertising revenue (television, the second largest sector at £5.1bn accounted for 22% of total advertising revenue<sup>83</sup>). Fifty per cent of online advertising revenue came from search, and 39% from display advertising. However, display is growing faster than paid for

<sup>82</sup> [IAB/PwC 2018 Digital Adspend Study](#). Note: 2017 figure adjusted for CPI prior to calculation of percentage change.

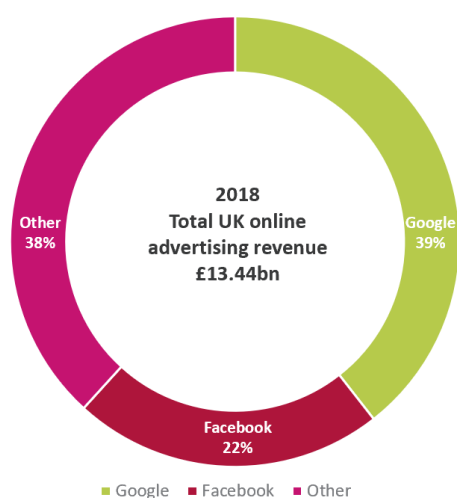
<sup>83</sup> [AA/WARC Expenditure Report 2018](#)

search due to display growing primarily on smartphones. Between 2017 and 2018 display revenue in the overall online advertising market grew 19% compared to 13% for paid for search.<sup>84</sup>

Almost all the growth in advertising revenues is coming from mobile and the use of more display advertising on smartphones. Mobile advertising increased by 29% in 2018,<sup>85</sup> to £6.9bn, and accounted for 51% of all online spend, the first-time mobile advertising has comprised more than half of the revenue for digital advertising. Paid-for search and display advertising made up an almost equal amount of revenue in mobile, at 49% and 50% respectively.

Changes in the UK online advertising landscape are largely driven by the growth dynamics of two companies: Google and Facebook together represented over two-thirds of all online advertising revenue generated in the UK market in 2018.

**Figure 2.11: UK online advertising revenues by company: 2018**



Source: O&O analysis based on reported company revenues, IAB/PwC 2018 Digital Adspend Study

## The UK's online sectors in context

In this section we take a closer look at each of the eight online sectors highlighted above and their role in the UK online market. We provide a more in-depth definition of the sector, identify the growth of the UK market for the sector, and explain key drivers and how business models may be changing. Finally, we examine some of the top UK properties representative of each sector, as determined by UK adults' average share of time spent online per day<sup>86</sup> and the properties' business models and revenues.

<sup>84</sup> [IAB/PwC 2018 Digital Adspend Study](#). Note: 2017 figure adjusted for CPI prior to calculation of percentage change.

<sup>85</sup> [IAB/PwC 2018 Digital Adspend Study](#). Note: 2017 figure adjusted for CPI prior to calculation of percentage change.

<sup>86</sup> Comscore MMX Multi-Platform, Age: 18+, Sep 2018, UK

## The UK's search market increased 13% year on year to £6.7bn in 2018

Figure 2.12: UK search sector: 2013-2018

UK search market 2013-2018	2013	2014	2015	2016	2017	2018	Estimated CAGR 2013-18
Advertising revenue	100%	100%	100%	100%	100%	100%	12%
Subscription revenue	0%	0%	0%	0%	0%	0%	N/A
Transactional revenue	0%	0%	0%	0%	0%	0%	N/A
Public funding	0%	0%	0%	0%	0%	0%	N/A
Other funding	0%	0%	0%	0%	0%	0%	N/A
UK market as share of global	7%	7%	6%	7%	7%	7%	N/A

Source: O&O Analysis based on data from AA/WARC

Notes: Underlying figures adjusted for CPI (2018 prices). Definitions used may differ from other industry sources. Figures are indicative only.

Advertising is the sole business model for search, with revenue generated primarily from paid-for promoted search terms, sponsored links and pay-per-click models. For the purposes of this analysis, we defined search revenue as inclusive of all search advertising and paid-for promotion (i.e. sponsored links). We excluded activity or revenues derived from techniques or services that are offered to companies to optimise their sites for search engines to find more effectively (known as search engine optimisation).

### Mobile is driving growth in search revenue

Mobile revenue accounted for 51% of total UK search revenue in 2018, when for the first time mobile exceeded desktop in search revenue, as users searched for more information while on the go and have more tools to do this. This trend is likely to continue, although new technologies, such as the ability to search using voice-activated devices like a smart speaker, may change the revenue mix as the market adapts.

Figure 2.13: UK search market revenue generated, by device: 2013-2018

UK search market 2013-2018 device revenue	2013	2014	2015	2016	2017	2018	Estimated CAGR 2013-18
Desktop/laptop	83%	79%	70%	62%	55%	49%	1%
Mobile/tablet	17%	21%	30%	38%	45%	51%	40%
Smart speakers	0%	0%	0%	0%	0%	0%	N/A
Connected TVs	0%	0%	0%	0%	0%	0%	N/A
Other devices	0%	0%	0%	0%	0%	0%	N/A

Source: O&O analysis, based on data from AA/WARC

Notes: Underlying figures adjusted for CPI (2018 prices). Definitions used may differ from other industry sources. Figures are indicative only.

### The UK is a search leader in Europe

While the UK online search market is the largest in Europe, it is a fraction of the size of the larger US and Chinese markets on a total market size basis. The US online search market is the largest in the world, generating £36bn in 2018, or 43% of the global online search revenue total of £83bn. China is

the second-largest market, generating over £14bn (17%) in 2018.<sup>87</sup> Mobile accounted for most revenues in all three territories. On a per-capita basis, however, the UK is larger than the Chinese market, at £101 per person compared to £10 for the Chinese market and £110 for the US market.<sup>88</sup>

We look in more depth at the changing nature of the search market and key drivers of change in the *Search and Discovery* chapter.

## Advertising revenue in the social media market grew an estimated 33% annually between 2013 and 2018

Figure 2.14: UK social media sector, overall market: 2013-2018

UK social media market 2013-2018	2013	2014	2015	2016	2017	2018	Estimated CAGR 2013-18
Advertising revenue	81%	82%	85%	88%	90%	91%	33%
Subscription revenue	19%	18%	15%	12%	10%	9%	11%
Transactional revenue	0%	0%	0%	0%	0%	0%	0%
Public funding	0%	0%	0%	0%	0%	0%	0%
Other funding	0%	0%	0%	0%	0%	0%	0%
UK market as share of global	9%	8%	7%	6%	5%	6%	N/A

Source: O&O analysis and estimates

Notes: Adjusted for CPI (2018 prices). Definitions used may differ from other industry sources. Figures are indicative only.

The UK social media market,<sup>89</sup> one of the most significant and developed in the world, represented 6% of the global market in 2018. It generates 91% of its revenues from advertising, with user newsfeeds, portals and account pages monetised through display and/or in-stream video advertising; for example, Facebook collects user data across its range of online properties and monetises this across its broader ad network. In addition, the freemium/premium revenue model exists for some social networks like LinkedIn, whereby users can access a more limited-functionality 'free' version and pay a small monthly subscription fee for more functionality or access.

## Over three-quarters of social media revenues in 2018 were generated on mobile devices

Perhaps unsurprisingly, the bulk of revenues in the social media sector were generated via mobile devices in 2018, as people use social media to be constantly connected with friends and family wherever they are.

<sup>87</sup> O&O analysis and estimates based on data from PwC

<sup>88</sup> O&O analysis and estimates

<sup>89</sup> For this analysis we identified social media as all major social networks that connect users to each other, such as LinkedIn, Instagram, Facebook and Twitter. This excludes services that operate solely as user-to-user messaging apps unless offered as part of a broader offering (e.g. Facebook Messenger), and also excludes video-sharing platforms such as YouTube.

**Figure 2.15: UK social media sector revenue generated, by device: 2013-2018**

UK social media market 2013-2018 device revenue	2013	2014	2015	2016	2017	2018	Estimated CAGR 2013-18
Desktop/laptop	53%	45%	33%	25%	21%	23%	10%
Mobile/tablet	47%	55%	67%	75%	79%	77%	43%
Smart speakers	0%	0%	0%	0%	0%	0%	0%
Connected TVs	0%	0%	0%	0%	0%	0%	0%
Other devices	0%	0%	0%	0%	0%	0%	0%

Source: O&O analysis and estimates

Notes: Underlying figures adjusted for CPI (2018 prices). Definitions used may differ from other industry sources. Figures are indicative only.

### The UK social media market generates more revenue per head than comparator international markets

According to an analysis prepared for Ofcom by the consultancy O&O, the UK social media market generates more revenue per capita (£45 per year) than the market in Sweden (£26) despite Sweden having the largest social media penetration in Europe, at 72% of the online population. In the UK, Sweden and the US, Facebook is the most popular social media network, while Chinese-owned companies WeChat, Weibo, and Douban have the largest market shares in China.

### The UK ‘free’ video market continues to grow due to rising advertising revenue

**Figure 2.16: UK (free) video sector, overall market: 2013-2018**

UK (free) video market 2013-2018	2013	2014	2015	2016	2017	2018	Estimated CAGR 2013-18
Advertising revenue	100%	100%	100%	100%	100%	100%	51%
Subscription revenue	0%	0%	0%	0%	0%	0%	0%
Transactional revenue	0%	0%	0%	0%	0%	0%	0%
Public funding	0%	0%	0%	0%	0%	0%	0%
Other funding	0%	0%	0%	0%	0%	0%	0%
UK market as share of global	7%	6%	6%	7%	8%	8%	N/A

Source: O&O analysis and estimates, based on data from PwC Global Entertainment and Media Outlook

Notes: Adjusted for CPI (2018 prices). Definitions used may differ from other industry sources. Figures are indicative only.

For this analysis we identified the ‘free’ video sector as all video services carrying short-form, user-generated and/or other video content. It excludes revenues associated with ‘native’ video and out-streaming advertising, such as would be embedded in a news article, as well as revenues from broadcaster video-on-demand services (e.g. ITV Hub, All 4) and subscription video-on-demand (e.g. Netflix, Amazon Prime Video), which are captured in the entertainment sector for this analysis (see page 59). YouTube is by far the largest firm in the ‘free’ video sector; other firms include Vimeo and Amazon-owned Twitch.

The ‘free’ video sector typically generates revenue through advertising, although there are a number of different models. For example, YouTube generates revenue by selling anonymised information



about its users to advertisers to help improve targeted advertisements, but also, as a content aggregator, takes a percentage of the advertising revenues made by creators on the platform. Advertising revenues may also be supplemented by new models, such as ad-free subscription tiers for premium short-form video (e.g. YouTube Premium). Hybrid creator/video-sharing platforms, which offer tools to users to create short music videos to be uploaded (e.g. TikTok) are emerging in the market as providers look to further monetise the popularity of video with users.

### More than three-quarters of video advertising revenue comes from mobile

We observed, in *The Online Consumer* chapter, how YouTube is the leading site for time spent by UK internet users, as well as the number-one app accessed on mobile devices (smartphones and tablets), reaching 81% of the mobile online audience.<sup>90</sup> The impact of users accessing these services through mobile devices can be seen in the revenue figures: mobile now generates an estimated 76% of revenues, while the share of revenues from viewing on desktop and laptop computers has fallen significantly from 49% in 2013 to just 5% in 2018.

A significant proportion of online advertising revenues are generated from connected televisions. These revenues have grown steeply (at a compound annual growth rate of 40% a year between 2013 and 2018) as the take-up of smart TVs and other connected TVs has grown; however, the share of video advertising revenues has fallen as revenues from advertising on mobile devices have nearly doubled every year (CAGR of 91%).

**Figure 2.17: UK (free) video sector revenue generated, by device: 2013-2018**

UK (free) video market 2013-2018 device revenue	2013	2014	2015	2016	2017	2018	Estimated CAGR 2013-18
Desktop/laptop	49%	35%	28%	14%	7%	5%	-5%
Mobile/tablet	23%	39%	50%	63%	72%	76%	91%
Smart speakers	0%	0%	0%	0%	0%	0%	0%
Connected TVs	27%	26%	22%	23%	21%	19%	40%
Other devices	0%	0%	0%	0%	0%	0%	0%

Source: O&O analysis and estimates

Notes: Underlying figures adjusted for CPI (2018 prices). Definitions used may differ from other industry sources. Figures are indicative only.

### The UK is the third largest free video market in the world and generates more revenue per capita than the US

The UK market is the third biggest market globally for free video, and the largest in Europe. Overall, UK market revenues in this segment made up about 8% of the global total in 2018, an increase of two percentage points since 2015. However, according to O&O estimates, the UK generates slightly more revenue per capita than the US, at £27 compared to £25 for the US.

Globally, the 'free' video sector was worth £21bn in 2018. The largest market was the US, contributing £8bn of revenue (38%). China is the second-largest market, with a 24% market share

<sup>90</sup> Comscore Mobile Metrix, Age: 13+, Sep 2018, UK

(£5bn), despite the Chinese government having blocked YouTube (the market leaders are Chinese video services such as Youku and iQiyi). France is the fourth largest market in the world, representing £613m in revenues.<sup>91</sup>

## Online news providers are increasingly looking to subscription models

**Figure 2.18: UK news sector overall market: 2013-2018**

UK news market 2013-2018	2013	2014	2015	2016	2017	2018	Estimated CAGR 2013-18
Advertising revenue	66%	61%	58%	57%	56%	54%	1%
Subscription revenue	26%	31%	32%	35%	37%	39%	14%
Transactional revenue	0%	0%	0%	0%	0%	0%	0%
Public funding	8%	8%	10%	8%	7%	7%	1%
Other funding	0%	0%	0%	0%	0%	0%	0%
UK market as share of global	5%	5%	5%	5%	4%	4%	N/A

Source: O&O analysis and estimates

Notes: Adjusted for CPI (2018 prices). Definitions used may differ from other industry sources. Figures are indicative only.

The UK's online news market has grown more slowly than other sectors as news publishers have struggled to monetise content. Although advertising continues to account for the majority of revenue (54% in 2018), subscription services have grown in recent years as national newspapers including the FT, The Times and The Daily Telegraph have put much of their content behind paywalls. Sixteen per cent of adults say they have paid for online news in the past year.

Other models that have recently emerged include donation and donation-based membership, as used by The Guardian, whereby users make voluntary contributions, and micropayments, whereby users pay on a per-article basis or make a donation. BBC News, the service with the highest reach in the UK, has public funding from the television licence fee.

## 2017 was the first year in which most news revenue was generated by mobile devices

As people have shifted their consumption of news to smartphones, increasingly revenue from news is generated from mobile devices.

**Figure 2.19: UK news sector revenue generated, by device: 2013-2018**

UK news market 2013-2018 device revenue	2013	2014	2015	2016	2017	2018	Estimated CAGR 2013-18
Desktop/laptop	75%	66%	58%	52%	46%	41%	-7%
Mobile/tablet	25%	34%	42%	48%	54%	59%	25%
Smart speakers	0%	0%	0%	0%	0%	0%	0%
Connected TVs	0%	0%	0%	0%	0%	0%	0%
Other devices	0%	0%	0%	0%	0%	0%	0%

Source: O&O analysis and estimates

<sup>91</sup> O&O analysis based on data provided by PwC

Notes: Underlying figures adjusted for CPI (2018 prices). Definitions used may differ from other industry sources. Figures are indicative only

In 2018, the US had the largest online news market of the ones examined for this report (almost £7bn). The advertising model is key in the US, generating 90% of all online news revenue. Within Europe, Germany has the largest online news market, and the third largest globally, with estimated revenues in 2018 of £849m, largely due to a strong tradition of newspaper readership. According to an analysis for Ofcom by O&O, the UK is the second largest online news sector in Europe, and the fourth largest globally.

## Online shoppers spent £73bn in the UK in 2018

Figure 2.20: UK shopping sector, overall market: 2013-2018

UK shopping market 2013-2018	2013	2014	2015	2016	2017	2018	Estimated CAGR 2013-18
Advertising revenue	0%	0%	0%	0%	0%	0%	0%
Subscription revenue	0%	0%	0%	0%	0%	0%	0%
Transactional revenue	100%	100%	100%	100%	100%	100%	10%
Public funding	0%	0%	0%	0%	0%	0%	0%
Other funding	0%	0%	0%	0%	0%	0%	0%
UK market as share of global	6%	6%	6%	5%	5%	5%	N/A

Source: O&O analysis and estimates

Notes: Underlying figures adjusted for CPI (2018 prices). Definitions used may differ from other industry sources. Figures are indicative only

The shopping, or e-commerce, sector is the largest of all the sectors we studied, eclipsing all other sectors by revenue. In our analysis, shopping revenues consist of business-to-consumer sales revenue derived from e-commerce and e-services including revenues from marketplaces such as Amazon and eBay. Revenues from the purchase of other services that are accounted for in other sectors, such as digital music downloads, are excluded.

Online sales, as a proportion of all retailing in the UK, have increased from an average of 4.9% in 2008 to an average of 16.3% in 2017, according to ONS.<sup>92</sup> Research published in Ofcom's [Communications Market Report 2018](#) found that more than half (52%) of all internet users claim to do more of their shopping online 'these days'. In the UK the largest spend categories are fashion, electronics, and media.

Although pure transactions make up the majority of the market, there are other models including the 'crowdfunding' or donation-based model, as exemplified by Kickstarter. In this model users donate a suggested amount, or as much as they prefer, in return for the merchant's commitment to deliver a product or service in the future. There are also subscription retail models such as Pact Coffee and Go Fresh, whereby consumers pay a monthly subscription fee to get regular delivery of the product.

<sup>92</sup> [Comparing "bricks and mortar" store sales with online retail sales: August 2018](#)

## Shopping has been slower than other online services to shift to mobile devices

Unlike most other sectors, in 2018 transactions on desktops and laptops still accounted for the majority of online shopping revenues, although if current trends continue the majority of revenues will be from mobile devices in 2019. Recent uSwitch research show that more people now buy online using a mobile device (58%) than in shopping centres (56%).<sup>93</sup>

**Figure 2.21: UK shopping sector revenue generated, by device: 2013-2018**

UK shopping market 2013-2018 device revenue	2013	2014	2015	2016	2017	2018	Estimated CAGR 2013-18
Desktop/laptop	68%	65%	61%	58%	57%	51%	4%
Mobile/tablet	32%	35%	39%	42%	43%	49%	20%
Smart speakers	0%	0%	0%	0%	0%	0%	0%
Connected TVs	0%	0%	0%	0%	0%	0%	0%
Other devices	0%	0%	0%	0%	0%	0%	0%

Source: O&O analysis and estimates

Notes: Underlying figures adjusted for CPI (2018 prices). Definitions used may differ from other industry sources. Figures are indicative only

In 2018 the global online shopping sector had total revenues of £1.5tn, with almost 20% of that figure coming from the Chinese market (£513bn), the largest in the world.<sup>94</sup> The UK is the third largest online shopping market in world and the largest in Europe, 24% bigger than the next largest, Germany. On a per-capita basis, however, the UK (£1,094) comes second to the US (£1,308) and is more than twice the figure for China (£362).<sup>95</sup>

## The UK has one of the largest digital entertainment markets in Western Europe

**Figure 2.22: UK entertainment sector, overall market: 2013-2018**

UK entertainment market 2013-2018	2013	2014	2015	2016	2017	2018	Estimated CAGR 2013-18
Advertising revenue	18%	19%	18%	17%	17%	17%	15%
Subscription revenue	37%	45%	53%	58%	62%	64%	30%
Transactional revenue	45%	36%	28%	24%	21%	19%	-2%
Public funding	1%	1%	1%	1%	1%	0%	2%
Other funding	0%	0%	0%	0%	0%	0%	0%
UK market as share of global	5%	5%	5%	5%	5%	5%	N/A

Source: O&O analysis and estimates

Notes: Underlying data adjusted for CPI (2018 prices). Definitions used may differ from other industry sources. Figures are indicative only

Digital entertainment, including streaming media and video as well as digital magazine publishing, continues to grow, driven in particular by the rapidly increasing take-up of video and audio streaming services such as Netflix and Spotify.

<sup>93</sup> <https://www.uswitch.com/media-centre/2019/01/smart-shoppers-brits-set-spend-record-25-billion-phones-2019/>

<sup>94</sup> O&O analysis based on data provided by PwC

<sup>95</sup> O&O analysis and estimates

This is a complex market with multiple component parts; to accurately track UK revenues and compare with other leading countries, we have broken down the market as follows:

#### Online TV/ broadcaster video on demand

The BBC iPlayer and broadcaster catch-up services from the other public service broadcasters command the majority share of viewing. The UK has the largest sector in Europe in this market, by total market size, and the third largest globally.

#### Digital music

Music streaming services such as Spotify and Apple iTunes have grown as more consumers choose to subscribe to online music libraries. More digitally-savvy European digital music markets such as Sweden were among early adopters of the access (via streaming) rather than ownership (via purchase) model of digital music, and thus led the transition from purchasing to subscription revenue models. This sub-sector was worth over £12bn globally in 2018, with the UK market the largest in Europe.

#### (Paid) video on demand (VoD)

The UK paid-VoD market is the largest in Europe and the fourth-largest globally, behind the US, China and Japan. Subscription revenues are growing as a percentage of total UK revenues, led by the continued growth of subscription VoD services Netflix, Amazon Prime Video, and Now TV. In 2018 subscription revenues in this subset of the sector made up 69% of UK market revenues, an increase of nine percentage points since 2013.

#### Digital magazine publishing

The UK has the second largest online magazine sector in Europe, behind France, and the fourth-largest globally. This market continues to grow, as more magazines move towards 'digital first' publication and generate revenue through advertising; in the UK between 2013 and 2018 the total market CAGR for this sub-sector was 14%.<sup>96</sup> Similar to the news market, expenditure on advertising is shifting from print to digital.

As more consumers access subscription streaming services and other entertainment content on their mobile devices, the amount of revenue that can be attributed to these devices has increased. While consumers may make a transactional purchase of a subscription to a service on a desktop/laptop, they are likely to consume the content on multiple devices, including smartphones, PCs and connected televisions. Smart TVs are also an important, and growing, source of revenue as consumers access Netflix and other subscription VoD services via televisions connected to the internet.

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<sup>96</sup> O&O analysis. Underlying figures adjusted for CPI (2018 prices)

**Figure 2.23: UK entertainment sector revenue generated, by device: 2013-2018**

UK entertainment market 2013-2018 device revenue	2013	2014	2015	2016	2017	2018	Estimated CAGR 2013-18
Desktop/laptop	74%	71%	70%	66%	64%	59%	11%
Mobile/tablet	24%	27%	28%	32%	34%	39%	28%
Smart speakers	0%	0%	0%	0%	0%	0%	0%
Connected TVs	2%	2%	2%	2%	2%	2%	14%
Other devices	0%	0%	0%	0%	0%	0%	0%

Source: O&O analysis and estimates

Notes: Underlying figures adjusted for CPI (2018 prices). Definitions used may differ from other industry sources. Figures are indicative only

The UK share of the global online entertainment sector has stayed relatively consistent since 2013, indicating that the market is growing at the same pace as the broader global market. Per head, digital entertainment spend is higher in the UK than in other European countries, but significantly lower than in the US.

### **The UK is the fifth largest gaming market worldwide and is home to some of the industry's leading games developers and publishers**

**Figure 2.24: UK gaming sector, overall market: 2013-2018**

UK gaming market 2013-2018	2013	2014	2015	2016	2017	2018	Estimated CAGR 2013-18
Advertising revenue	8%	7%	7%	7%	7%	6%	11%
Subscription revenue	0%	0%	0%	0%	0%	0%	0%
Transactional revenue	92%	93%	93%	93%	93%	94%	16%
Public funding	0%	0%	0%	0%	0%	0%	0%
Other funding	0%	0%	0%	0%	0%	0%	0%
UK market as share of global	5%	5%	5%	5%	5%	5%	N/A

Source: O&O analysis and estimates, based on data from PwC Global Entertainment and Media Outlook

Notes: Underlying figures adjusted for CPI (2018 prices). Definitions may differ from other industry sources. Figures are indicative only

In this analysis we considered all online-only aspects of the PC, mobile, and console gaming sub-sectors, including download-to-own products and services but excluding physical formats (such as games on discs) or e-sports, the professional side of the sector.

The online gaming market continues to evolve as publishers test out new ownership models, in a similar way to how the market for digital music has evolved from physical ownership to paying for streaming access.

The business models in the gaming sector are divided between ownership (i.e. buying a game that is delivered via download) and access (i.e. rental or free-to-access streamed gaming content), with various direct transaction, advertising, and 'freemium' models in use to generate revenue. In 2018 the total global gaming market revenue was estimated at £83bn, an increase of 15% year on year.

Revenue generated from transactions, such as through player purchase of the game online to download to their console, makes up more than 95% of this total.

Advertising, a relatively new revenue model for this market, which to date has been employed primarily in the mobile gaming market, has been increasing annually in total revenue terms as more games become available for the mobile market. Transaction-based revenues have increased as gamers have more devices on which to download and access games and in-game purchases.

### Consoles and smartphones deliver over 75% of UK gaming market revenues

Gaming consoles ('other devices' in Figure 2.25 below) and mobile gaming have been driving growth in the sector. Online gaming has promoted the increase in players downloading or streaming games directly to their consoles, either through an ownership or rental model or through subscription services such as PlayStation Plus. Smartphones have emerged in the last ten years as major gaming devices, with games among the most popular paid-for and free(mium) categories in the Apple Store and the Google Play Store. Online revenues from desktop games continue to grow, but in 2018 represented less than a quarter of total online gaming revenues.

**Figure 2.25: UK gaming sector revenue generated, by device: 2013-2018**

UK gaming market 2013-2018 device revenue	2013	2014	2015	2016	2017	2018	Estimated CAGR 2013-18
Desktop/laptop	43%	38%	34%	30%	27%	24%	3%
Mobile/tablet	35%	40%	44%	46%	45%	45%	22%
Smart speakers	0%	0%	0%	0%	0%	0%	0%
Connected TVs	0%	0%	0%	0%	0%	0%	0%
Other devices	22%	22%	22%	24%	28%	31%	24%

Source: O&O analysis and estimates, based on data from PwC Global Entertainment and Media Outlook

Notes: Underlying figures adjusted for CPI (2018 prices). Definitions used may differ from other industry sources. Figures are indicative only

### The UK is the largest European gaming market, but lags behind global leader, South Korea

Overall, in 2018 the UK gaming market had revenues of about 5% of the global total. The UK percentage of the global market has stayed relatively steady since 2013, as the UK market tracks with growth in the wider global market. This is unsurprising, as the UK is considered a 'centre of excellence' for video games publishing and is home to some major publishers (e.g. Rockstar North, subsidiary of Rockstar Games, the publisher of the *Grand Theft Auto* franchise).

The South Korean market is considered the most advanced online gaming market in the world, facilitated by the early widespread availability of superfast internet speeds,<sup>97</sup> which enable the easy delivery of games, either for streaming or download. South Korea is also the global home of competitive video game playing leagues, or e-sports, which further drives and supports broader consumer interest in watching and playing video games. As a result, on a per-capita basis the South

<sup>97</sup> As of Q1 2017, the most recent data available, South Korea had the highest average connection speed in the world at 28.6 Mbit/s, compared to 26.0 Mbit/s for the United Kingdom. Source: Akamai Technologies [State of the Internet Report](#) Q1 2017

Korean market generates more than twice as much revenue per person (£129) compared to the UK (£63).<sup>98</sup>

## The online directories market is maturing as classified ad expenditure continues to move from print to online

Figure 2.26: UK online directories sector, overall market: 2013-2018

UK online directories market 2013-2018	2013	2014	2015	2016	2017	2018	Estimated CAGR 2013-18
Advertising revenue	100%	100%	100%	100%	100%	100%	11%
Subscription revenue	0%	0%	0%	0%	0%	0%	0%
Transactional revenue	0%	0%	0%	0%	0%	0%	0%
Public funding	0%	0%	0%	0%	0%	0%	0%
Other funding	0%	0%	0%	0%	0%	0%	0%
UK market as share of global	9%	8%	9%	10%	9%	9%	N/A

Source: O&O analysis and estimates, based on data from Enders Analysis (based on company reporting and AA/WARC)

Notes: Underlying figures adjusted for CPI (2018 prices). Definitions used may differ from other industry sources. Figures are indicative only

Since 2013 the online directory market in the UK has grown at a CAGR of over 10%, driven by a shift in classified spending by advertisers towards specialist online directories and away from newspaper sources.

One of the first markets to go online, the move of classified directories online mirrors that of the news sector, as print classified ads were traditionally found in print newspapers. Today, UK online users can use online directories covering a range of markets to find what they need, including general goods/services/housing (e.g. Gumtree), local information and phone numbers (e.g. Yell.com), and more specialist portals for specific needs such as housing (e.g. Rightmove) or cars (e.g. Autotrader).

Directory sites are primarily funded through advertising whereby consumers and businesses are charged to advertise their goods and services, or through a premium model whereby users pay a fee (sometimes based on a subscription to premium services or a membership) to access better listings or be listed more prominently. Some directories are moving into new markets to generate new revenue; for example, the UK property directory Rightmove offers a product to rental owners to pre-qualify tenants.

As in the search market, which has comparable user behaviour parallels and revenue generation models, revenue generated by online directories is moving towards mobile sources and away from desktops and laptops. Mobile devices generated the majority of revenue in 2017 and this has continued to grow.

<sup>98</sup> O&O analysis and estimates based on data from PwC



**Figure 2.27: UK online directories sector revenue generated, by device: 2013-2018**

UK online directories market 2013-2018 device revenue	2013	2014	2015	2016	2017	2018	Estimated CAGR 2013-18
Desktop/laptop	77%	68%	59%	54%	48%	42%	-2%
Mobile/tablet	23%	32%	41%	46%	52%	58%	34%
Smart speakers	0%	0%	0%	0%	0%	0%	0%
Connected TVs	0%	0%	0%	0%	0%	0%	0%
Other devices	0%	0%	0%	0%	0%	0%	0%

Source: O&O analysis

Notes: Underlying figures adjusted for CPI (2018 prices). Definitions may differ from other industry sources.

Figures are indicative only

The UK market, with its concentration of directories in certain markets (e.g. Autotrader in motors) differs from many other advanced markets which have as cross-sector directories. For example, while the Norwegian total online directory market is quite small, the FINN online directory, covering listings across multiple sectors such as property and used vehicles, is considered a trusted consumer brand, a trusted source of goods, and has little competition. As such, Norway generates 72% more revenue per capita (£31) from online directories than the more fragmented UK market (£18).<sup>99</sup>

<sup>99</sup> O&O analysis and estimates based on data from PwC



# User data

## Introduction

### Key metrics

Figure 3.1: UK users and data: key metrics

	2016	2017	2018
UK adults very or fairly confident in knowing how to manage access to their personal data online	72%	73%	74%
UK adults not happy for online companies to collect and use their personal information	n/a	41%	39%
UK adults aware of 'cookies' being used to collect personal information	n/a	69%	71%
UK adults who say they accept terms and conditions of websites/apps without reading them	n/a	n/a	69%

Source: Ofcom Adults' Media Literacy Tracker 2016, 2017, 2018. 2018 Qs IN11C, IN53, IN52, IN35E.  
 Base: adults aged 16+ who go online (2018, 1602; 2017, 1570; 2016, 1553).

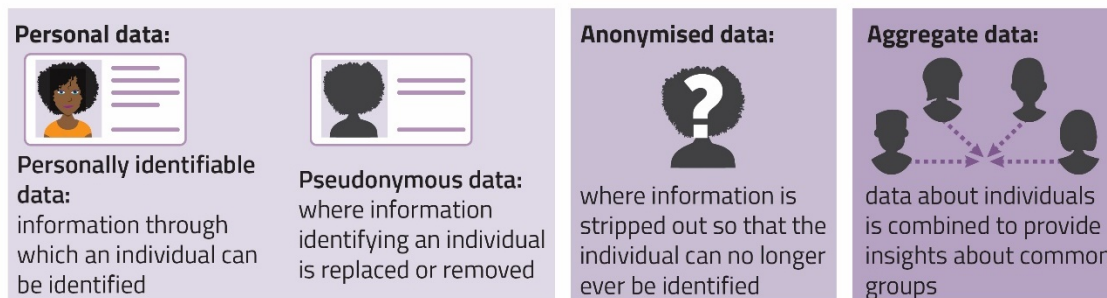
Data underpins the digital economy. The International Data Corporation estimates that the summation of all digital data globally will grow from 33 zettabytes in 2018 to 175 zettabytes by 2025 – an amount which would take 1.8 billion years to download at an average connection speed of 25Mbit/s.<sup>100</sup> Through automation, businesses can make sense of vast amounts of information ('big data') to analyse their customers and operations, drive new strategies and generate value. As these techniques become more widespread, data has become integral to businesses, both online and in other sectors, and the information gathered to derive insights and improve productivity has given rise to what has become known as the 'data economy'. In 2017, the European Commission

<sup>100</sup> IDC, November 2018, *The Digitization of the World: From Edge to Core*, p.3. [accessed March 2019]. 'The Global Datasphere' measured by the IDC refers to all *new* data created, captured or replicated in a given year. It refers to 70 categories of content creation/capture devices ranging across devices including digital TV/radio, mobile phones, surveillance cameras, PCs, automobiles and gas pumps. A zettabyte approximately equals a trillion gigabytes.

estimated that value of the data economy in Europe may increase to €739bn (£650bn) by 2020, representing 4% of EU GDP. <sup>101</sup>

The data generated by online services includes information relating to their finances and operations, as well as information about their users. This chapter will focus on user data, as it is central to many of the social media, search and video services explored in later chapters. User data includes personally-identifiable or pseudonymised information about individuals, <sup>102</sup> as well as anonymised and aggregated information, <sup>103</sup> as set out below:

**Figure 3.2: Personal and non-personal types of user data**<sup>104</sup>



User data allows online services to gain insights which inform product design, improve consumer experiences and drive operational efficiencies, as well as allowing services to be personalised. It is also integral to online advertising, to improve targeting and drive performance. This business model allows online services to be offered to consumers at a lower cost, or for free. But the way in which people’s data is collected and used by online service providers is extensive and complex, and there can be associated risks in how data is collected, shared and stored. While user data is of central importance to many online services, our research suggests that some consumers may find it difficult to understand, and are concerned about, how their data is collected and used.

## Users’ awareness of how their data is collected and used

### Seven in ten UK consumers feel confident about managing their personal data online

Our latest media literacy research shows that 74% of adults in the UK are very or fairly confident about managing who has access to their personal data online. This figure has remained broadly stable since 2016. <sup>105</sup> In 2018, internet users aged 16-24 (48%) and 25-34 (45%) were more likely than

<sup>101</sup> European Commission, [Building a European Data Economy](#). [accessed April 2019]

<sup>102</sup> Pseudonymous and personally-identifiable data are considered ‘personal data’ by the ICO under the General Data Protection Act. Personal data is information relating to a living individual, who can be identified either directly or indirectly through the dataset. Pseudonymisation is a technique which involves replacing identifying information (‘identifiers’), such as name with, for example, a reference number. With access to the relevant information, the individual may still be identified through pseudonymised datasets. See: ICO, [‘Guide to the General Data Protection Regulation: What is personal data?’](#). [accessed April 2019]

ICO, [‘Guide to General Data Protection Regulation: Key definitions’](#). [accessed April 2019]

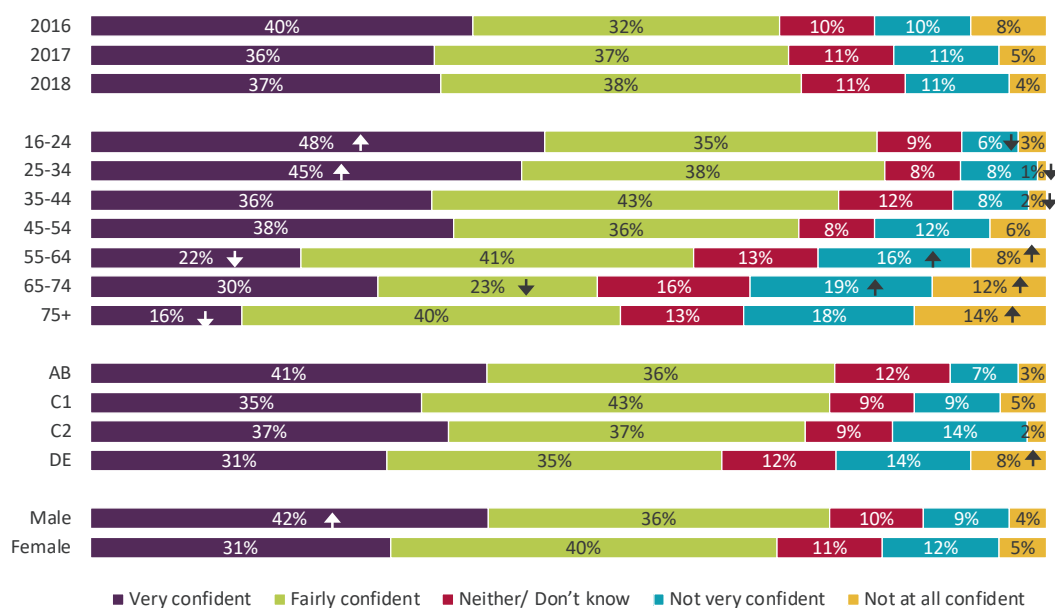
<sup>103</sup> This chapter looks at ‘user data’ to consider beyond the legal category of ‘personal data’ and explore use cases by online services which include aggregated and anonymised data.

<sup>104</sup> For more detail on personal data, please see ICO, [‘Guide to the General Data Protection Regulation: What is personal data?’](#) [accessed April 2019].

<sup>105</sup> Ofcom [Adults’ Media Use and Attitudes report](#), 2018

average to say they were very confident, although this was less likely for 55-64s (22%) and over-74s (16%). Men are more likely than women to say that they are very confident (42% vs. 31%).

**Figure 3.3: Confidence in knowing how to manage access to personal data online**



Source: Ofcom Adults' Media Literacy Tracker 2018

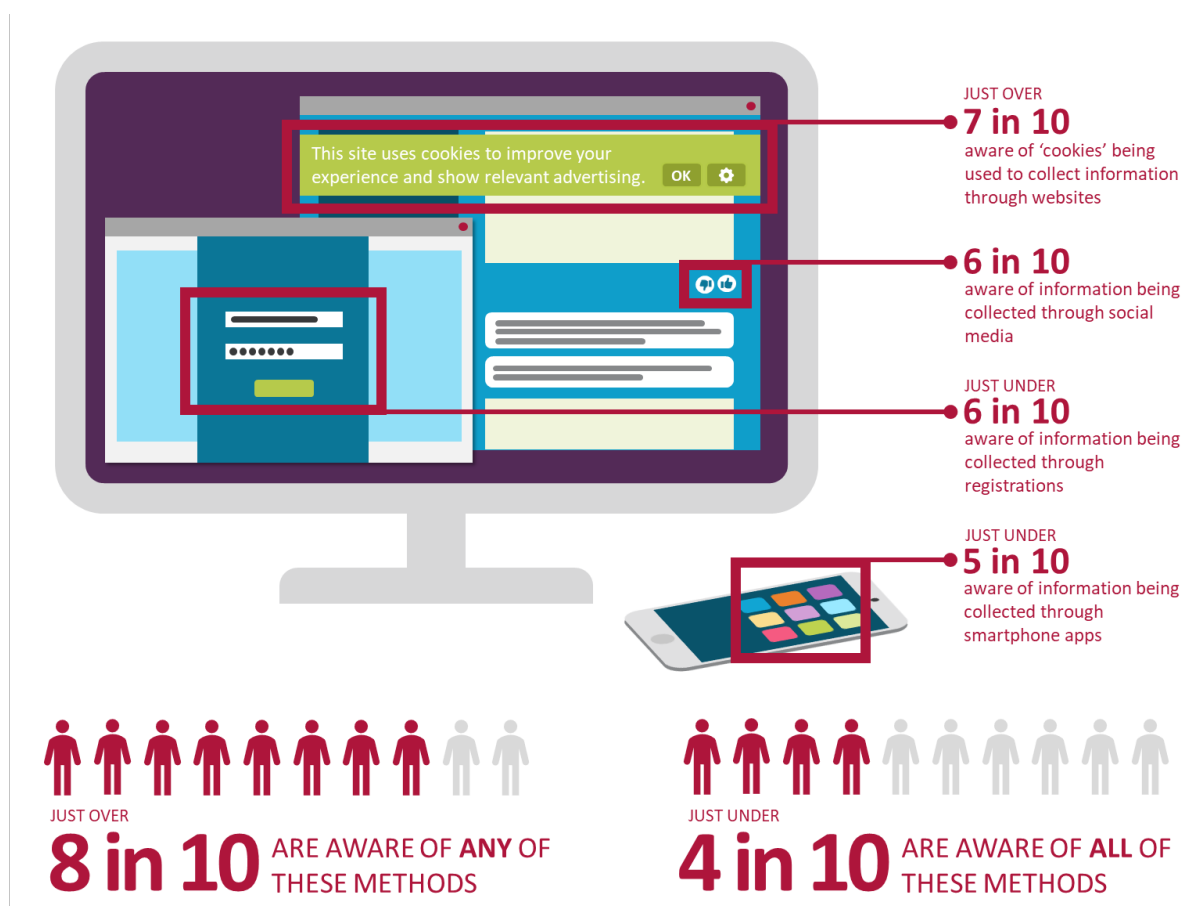
IN11C. How confident are you in knowing how to manage who has access to your personal data online? By this I mean knowing how to stop some companies from getting access to information like your personal details (like your address, phone number, date of birth etc.) or information on things like where you shop or your interests. Base: All adults aged 16+ who go online (1602).

Arrows show significant differences (95% level) by age / socio-economic group compared to all who go online and males compared to females.

### UK consumers are reasonably aware of the ways in which their data might be collected

In general, there is a reasonably high level of awareness among UK adults about how companies might collect their personal data. Our adults' media literacy research asked respondents whether they were aware of organisations (1) using 'cookies' to collect information about the websites people visit or what products and services interest them, (2) collecting information from social media accounts – i.e. about users' interests, 'likes', location, preferences and so on, (3) asking customers to 'register' with a website or app to opt in/out of receiving further information from them or their partners, or (4) using apps on smartphones to collect data on users' locations or what products and services interest them. Eighty-two per cent of internet users were aware of at least one of these methods of data collection. However, less than four in ten (37%) were aware of all the ways in which companies can collect data about users.

**Figure 3.4: Awareness of ways in which companies can collect internet users' personal information**



Source: Ofcom Adults' Media Literacy Tracker 2018

IN52. There are many ways that companies can collect information about people based on what they do online. Which, if any of the following ways are you aware of? (prompted responses, multi-coded)

Base: All adults aged 16+ who go online (1570 in 2017, 1602 in 2018)

### The majority of people agree that they do not read the full terms and conditions when using websites or apps

Despite high levels of confidence around managing access to personal data, there seems to be less awareness of what is collected and for what purposes. The terms and conditions of online services often include their privacy policy, where they set out the ways in which they collect, use and share users' data. In our 2018 adults' media literacy research, 69% of adults agreed with the statement "when I visit websites or apps I usually accept the terms and conditions without reading them". This is broadly the same across age groups, although 16-24 year-olds are more likely than average to strongly agree (45% vs. 40%), while over-74s are on average more likely to strongly disagree (20% vs. 12%).<sup>106</sup>

In our latest Online Harms quantitative research, we asked a similar question with an added qualifier: "I always agree to terms and conditions without reading them, so that I can access the service or content". Forty-seven per cent of respondents slightly or strongly agreed with the statement, compared with 29% who disagreed.<sup>107</sup> This was also reflected in our Online Harms

<sup>106</sup> Ofcom [Adults' media use and attitudes report](#), 2018

<sup>107</sup> [Ofcom-ICO research](#), 2019

qualitative research, where many of the participants said they accepted terms and conditions without reading them to access a service or content quickly. Participants said that they would prefer a more transparent way to understand how their data was being used rather than the ‘endless’ terms and conditions.

### **Our Adult Media Lives research highlighted the difficulties people face in discerning how their data is collected and used**

Many participants in our recent [Adult Media Lives](#) research demonstrated keen awareness of data issues, recalling how they had implemented new GDPR policies in their own businesses or found strategies such as using fake email addresses and names to avoid data collection. But, as above, while there was an awareness of data being collected, there was a lack of clarity around *why* it was being collected and with whom it was being shared, as the responses below demonstrate.

**Figure 3.5: Perceptions around data collection from Ofcom Adult Media Lives**



Source: Ofcom Adult Media Lives 2019

Italian communications regulator AGCOM observes that when consumers make decisions about whether to give a service provider their data in order to obtain that service, they are often subject to a structural ‘information asymmetry’. Even if they are given all the information about the transfer of their data to the service provider, the degree of technical knowledge needed to understand the scope of their decision would be “far beyond the skills widespread among the population”.<sup>108</sup>

The Information Commissioner’s Office, the UK data protection authority, has launched a campaign to explain consumers’ rights around the collection and use of their data: [Your Data Matters](#). Research recently commissioned by the ICO suggests that when people are given clear explanations of how their data is used, their attitudes become more uncertain. The study showed that people’s perceptions around their data shifted after they were given an explanation of how targeted online advertising works. At the outset of this study, 63% of participants (who visit free-to-use websites) found it acceptable for websites to display advertisements in return for them being free to use; once an explanation was shown, this fell to 36%.<sup>109</sup>

<sup>108</sup> AGCOM, June 2018, [Big Data: Interim report in the context of the joint inquiry on “Big data” launched by the AGCOM deliberation No. 217/17/CONS](#), p.4. [accessed March 2019].

<sup>109</sup> ICO, March 2019, [Adtech: Market Research Report](#). [accessed March 2019]

We explore people's attitudes towards, and concerns about, the collection of their data at the end of the chapter.

## What do online services collect about users, and how?

### In the UK, online service providers must have the user's consent or other legitimate reasons to process their personal data under GDPR

Under the General Data Protection Regulation (GDPR), online service providers must have at least one of six lawful bases for processing UK users' personal data:

- a) **Consent:** the individual has given clear consent for their personal data to be processed for a specific purpose;
- b) **Contract:** the data processing is necessary for a contract between the individual and data collector;
- c) **Legal obligation:** the data processing is necessary for the data collector to comply with the law;
- d) **Vital interests:** the data processing is necessary to protect someone's life;
- e) **Public task:** the data processing is necessary for the data collector to perform a task in the public interest or its official functions, with a clear basis in law; or
- f) **Legitimate interests:** the data processing is necessary for the data collector's legitimate interests or the legitimate interests of a third party, unless this is overridden by good reason to protect the individual's personal data.<sup>110</sup>

To comply with GDPR, services collecting data must be transparent about their purposes and the lawful basis for processing it. They must also abide by certain principles, such as ensuring that the data is accurate, kept for no longer than it is needed for and used only for the stated purpose.<sup>111</sup>

### User data can be collected directly by the service being accessed, or gathered by second and third parties

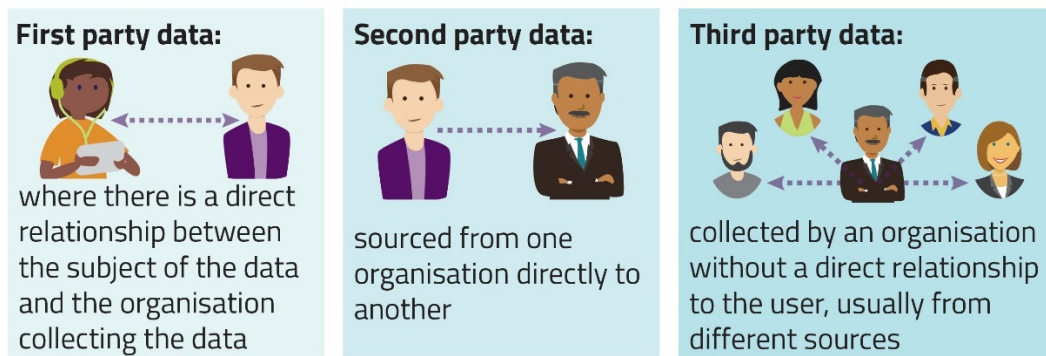
'**First-party data**' refers to information where the user and the data collector have a direct relationship, often where the user's data is collected by the service they are accessing. Some commentators have introduced the concept of '**second-party data**' to refer to organisations sharing their first-party data directly with one another. This can happen in the same market or an adjacent market; for instance, a car manufacturer sharing information with another car manufacturer, or an insurance provider exchanging information with a bank. This is not common, and the term is not widely used. More often, '**third-party data**' is used to refer to instances where there is no direct relationship between the data collector and the user. Third-party datasets are often aggregated from many different sources through purchase or partnership. Online services may use third-party data if they lack their own large first-party dataset or are seeking to enrich their existing data.

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<sup>110</sup> For more information, see: ICO, '[Guide to the General Data Protection Regulation: Lawful basis for processing](#)' [accessed March 2019].

<sup>111</sup> ICO, '[Guide to the General Data Protection Regulation: The principles](#)'. [accessed March 2019].

Figure 3.6: Types of data by collector

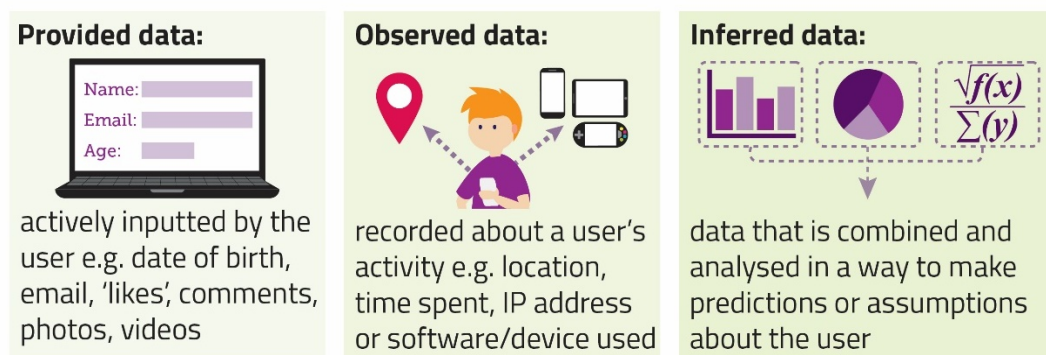


Some third parties, known as ‘data brokers’, such as Experian and LiveRamp, specialise in sourcing and combining user data, incorporating both online and offline sources (such as voter registration, court records, magazine subscriptions and property records). They combine this information to create profiles, which are used in audience ‘segments’: groups based on shared characteristics such as age, location, education level, income and interests. These segments are made available to companies for purposes including marketing, advertising and financial products.

**Data may be inputted directly by users themselves, observed or inferred about them**

User data can be inputted directly by the user, recorded as they use a service, or generated using predictive analysis:

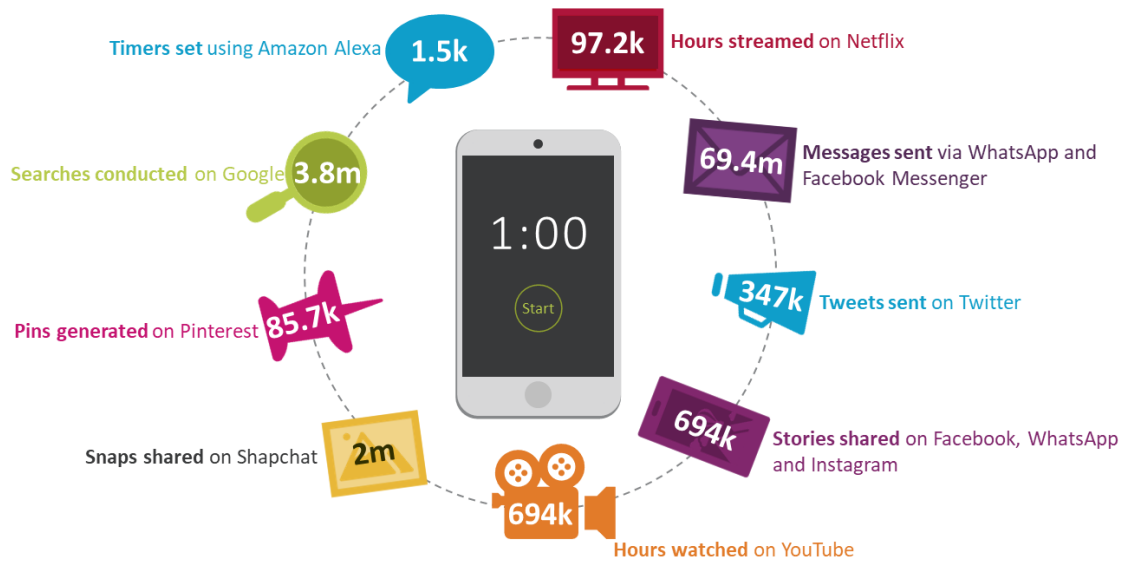
Figure 3.7: Types of data by how it is generated



**Provided data** is actively inputted by the user when they register (e.g. entering their email address) or interact (e.g. liking a post or uploading a photo) with a service. Meanwhile, **observed data** is collected automatically by the service while it is in use. Observed data usually provides insights into users’ behaviour, such as what they viewed/watched and how long for, or whom they messaged and when. It also includes information about how and where the user is accessing a service, such as their IP address, cookie ID, device ID, location and the type of software or device being used. Figure 3.8 highlights the vast amount of provided and observed data that online services constantly generate about users, by indicating the number of interactions that happen online every minute.



Figure 3.8: Global online interactions every minute



Source: Company press releases and public reporting. Daily, yearly or seasonal figures calculated to provide figures every minute, so should be considered indicative.

In every interaction, there is a data exchange; the user receives or inputs content and the service receives information back, such as the videos the user viewed, the search terms they queried or the people they messaged, along with information about the user's device and location (e.g. IP address, browser type, operating system). Many services make it possible for users to review the data held about them – for instance, users can view and delete Alexa recordings from the Amazon server,<sup>112</sup> while Google makes it possible for users to download data associated with their Google account.<sup>113</sup>

**Inferred data** makes use of provided and observed data to find patterns and make assumptions about users' preferences or attributes. A simple example might be a user who views or 'likes' a lot of pictures of cats being categorised as someone who owns cats (and is therefore a potential target for cat food advertising). More complex techniques can be used to make more elaborate inferences, such as determining a user's gender, age, race and religious or political affiliation from their interests.<sup>114</sup> These inferences are modelled using probabilities, so there is a chance of them being right or wrong.

### Online services use tracking technologies on websites to collect user data, through their own services and others'

There are many methods that allow online services to collect data on their own services and those of others. On web browsers, they include:

<sup>112</sup> Amazon Help & Customer Service, '[Alexa, Echo Devices, and Your Privacy](#)'. [accessed May 2019]

<sup>113</sup> Google Account Help, '[Download your data](#)'. [accessed May 2019]

<sup>114</sup> AGCOM, [Big data](#), p.41.

Figure 3.9: Web browser tracking technologies



### Cookies

Small text files downloaded and saved to a user's browser when they visit a website, to identify and remember things about them such as whether they are logged in or pages they have visited.



### Tracking pixels (aka web beacons)

Small, often invisible, images embedded on a website or email. When the user's browser downloads the website or email, a request for the image is made, allowing the pixel's owner to send a cookie and track the event, along with basic information like access time and IP address.



### Browser fingerprinting

Technique to identify a user based on their browser configuration, e.g. installed fonts, screen resolution, time-zone, operating system or plugins.

When a user accesses a web page, their browser makes a request to the server (which stores web pages and content), downloads the page's code and interprets it to display the content. Small buckets of information called **cookies** are filled and sent back and forth when the browser requests something from a server, allowing the server to recognise requests coming from the same user. The type of information stored by a cookie is decided by the originating website and might include a unique ID (strings of numbers and letters), along with previous activity, preferences and settings (such as their preferred volume settings and whether they are logged in). Session cookies are created temporarily and deleted when the user exits their browser, while persistent cookies remain stored until their expiration date (which may be many years), or until they are deleted by users. Cookies can be set by the site being accessed (first party) and by other sites (third party). Cookies transferred over secure connections should only be able to be retrieved and read by the site that owns them.

The content on a web page may be hosted directly by the server of the site the user is accessing (first party), or it may pull in content from another site (third party). When a web developer adds a line of code known as a 'tag' (explored further below) to their website's code, it acts as a signal for the browser to undertake a task, such as integrating third-party content (e.g. images, ads, videos, social media widgets etc.) or transferring a cookie.<sup>115</sup> **Tracking pixels** are tiny, invisible images that allow third parties (with the first party website's permission) to send and receive cookies, thereby tracking users as they go from site to site. Other types of 'tag' allow for more sophisticated monitoring of users by its owner e.g. where a user moves their mouse or clicks.

To provide some examples, many advertising providers allow advertisers to target users across multiple sites. To do this, they often use tracking cookies with unique IDs to identify the same user across multiple pages within a site, and across multiple sites. On each request to the cookie's server, the cookie returns the same unique ID, thereby allowing the ad server to know that it is the same user.<sup>116</sup> This is how ad 'retargeting' works: the ad server can serve specific ads based on the pages

<sup>115</sup> Signal, '[Tag Management 101](#)'. [accessed March 2019].

<sup>116</sup> Visual IQ, '[Cookies, Tags and Pixels: Tracking Customer Engagement](#)'. [accessed April 2019]

visited previously. For instance, Google Marketing Platform and Google Ad Manager use cookies to serve relevant ads.<sup>117</sup> Similarly, the ‘Facebook Pixel’ can be placed on an online retailer’s website to collect information about the user’s browsing session (such as pages/items viewed), which Facebook can then match to a user profile and serve a targeted advert on the social media service.<sup>118</sup>

Browsers’ default settings for allowing third-party cookies and cross-site tracking may vary and can often be adjusted by the user. **Fingerprinting** was developed to overcome instances where users delete the cookies from their browser or use other tools to disable tracking technologies.<sup>119</sup> In April 2018, Apple announced updates aimed at preventing fingerprinting for its Safari browser (which also blocks third-party cookies by default).<sup>120</sup> It also launched an update in May 2019 aimed at preventing **URL decoration** – a technique where sites include references within URLs<sup>121</sup> for purposes including cross-site tracking.<sup>122</sup> Firefox’s latest release introduced anti-tracking features to prevent websites from conducting browser fingerprinting.<sup>123</sup> Google Chrome recently announced that it would integrate a feature providing users with more transparency about how cookies are used, making it easier for them to identify which are used for remembering logins and settings, and which are used for advertising and tracking. They will limit cookies to first parties by default. It also plans to place restrictions on browser fingerprinting.<sup>124</sup>

### **On mobile, online services can collect user data by asking permission to access certain features**

The technologies outlined above are less prominent on mobile, where activity is often app- rather than browser-based. On mobile, depending on the handset or app being used, apps may track a user’s device ID. While cookies can be deleted from the browser, or may expire, certain types of device ID are linked forever with one handset.<sup>125</sup>

On Android and iOS, apps may also ask for certain permissions for features which may involve the collection or use of users’ data. They must ask explicit permission for certain functionalities such as accessing the camera roll, location or contact list on users’ phones. Typically, mobile apps ask

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<sup>117</sup> Google Ad Manager Help, ‘[How Google Marketing Platform advertising products and Google Ad Manager use cookies](#)’. [accessed May 2019]

<sup>118</sup> DotEcon/Analysys Mason, June 2015, [The Commercial Use of Consumer Data: A research report for the CMA](#), p.99. [accessed March 2019]

<sup>119</sup> Analysys Mason, [The Use of Data by Online Services](#). This report was commissioned by Ofcom and is released alongside *Online Nation*.

<sup>120</sup> Gizmodo, 6 April 2018, ‘[Apple Declares War on “Browser Fingerprinting”, the Sneaky Tactic That Tracks You in Incognito Mode](#)’. [accessed May 2019]

<sup>121</sup> Uniform resource locators (URLs) are used to specify addresses on the World Wide Web (e.g. [www.ofcom.org.uk](http://www.ofcom.org.uk)).

<sup>122</sup> WebKit Blog (Apple), 24 April 2019, ‘[Intelligent Tracking Prevention 2.2](#)’. [accessed May 2019]

<sup>123</sup> Mozilla Press Center, 21 May 2019, ‘[Latest Firefox Release is Faster than Ever](#)’ [accessed May 2019]

<sup>124</sup> Chromium Blog, 7 May 2019, ‘[Improving privacy and security on the web](#)’. [accessed May 2019]

Google Chrome Developers on YouTube, 7 May 2019, ‘[What’s New with Chrome and the Web \(Google I/O ’19\)](#)’. [accessed May 2019]

<sup>125</sup> For example, Google’s Android operating system enables app developers to collect hardware identifiers such as SSAID (Android ID) and the International Mobile Equipment Identity (IMEI). As these cannot be reset by the user, Google encourages app developers to use Advertising IDs, which are unique and resettable by the user, or instance IDs, which are only generated when an app comes online. Analysys Mason, [The Use of Data by Online Services](#).

permission on launch or when a user accesses relevant features for the first time (e.g. when they sync their contacts on a messaging service) or when apps are updated, but the permissions generally persist unless explicitly revoked. While they often serve a specific purpose, they can also be used to analyse users' behaviour.<sup>126</sup>

In 2018, cybersecurity company Symantec analysed the top 100 apps on the Google Play and Apple App Store, finding that 45% of Android and 25% of iOS apps requested location data. On Android, 15% asked for the ability to read SMS messages and 10% asked to read the phone's call log.<sup>127</sup> Last year, AGCOM's analysis of permissions requested by 1,135,700 free and paid apps on the Google Play store found that, on average, free apps (usually funded by advertising) asked for around twice as many permissions as paid ones (6.4 versus 3.8).<sup>128</sup>

Android classifies permissions as 'dangerous' if they can access a user's private information, affect their stored data or the operation of their other apps.<sup>129</sup> The table below highlights some of the 'dangerous' permissions requested on Android by the top ten apps in the UK in 2018.<sup>130</sup> These permissions will differ between Android and iOS – for instance, the 'read SMS' and 'read call log' permissions are not available on iOS.<sup>131</sup> These permissions were restricted by Android late last year, following reports that some apps were asking for these permissions unnecessarily in order to harvest user data.<sup>132</sup> Now, usually only a phone's default call or SMS app can request these permissions, and they are prohibited from using the data for improving other apps or services, advertising or marketing.<sup>133</sup>

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<sup>126</sup> Analysys Mason, *The Use of Data by Online Services*.

<sup>127</sup> Symantec, 16 August 2018, '[Mobile Privacy: What Do Your Apps Know About You?](#)'. [accessed March 2019].

<sup>128</sup> AGCOM, *Big data*, p.62.

<sup>129</sup> Android, '[Permissions Overview](#)'. [accessed March 2019]

<sup>130</sup> UK Top Ten (non-game apps, iPhone and Android MAUs combined) from App Annie, [The State of Mobile 2019](#)

<sup>131</sup> Analysys Mason, *The Use of Data by Online Services*.

<sup>132</sup> ZDNet, 9 October 2018, '[Google restricts which Android apps can request Call Log and SMS permissions](#).' [accessed April 2019].

<sup>133</sup> Play Console Help, '[Use of SMS or Call log permission groups](#)'. [accessed April 2019]

Android Developer Policy Center, '[Privacy, Security and Deception: Permissions](#)'. [accessed April 2019]

**Figure 3.10: Selected permissions requested on Android by UK 2018 top ten apps, as of April 2019**

	Read calendar events (incl. confidential info)	Add / modify calendar events & email guests (w/o user's knowledge)	Read phone status and identity	Find accounts on device	Read contacts	Approximate location	Precise location	Read text messages (SMS or MMS)	Read call log
WhatsApp			•	•	•	•	•		
Facebook	•	•	•	•	•	•	•	•	•
Facebook Messenger	•		•	•	•	•	•	•	•
Instagram			•	•	•		•		
Amazon Shopping			•	•	•	•	•		
eBay							•		
Snapchat			•	•	•		•		
Twitter			•	•	•	•	•		
Spotify			•	•					
BBC News				•		•			

Source: *Top ten apps in the UK in 2018 from App Annie, The State of Mobile 2019 (non-game apps, iPhone and Android MAUs combined). Permissions from Google Play Store (as of 24 April 2019).*

Almost all top ten apps asked to find accounts on the device, which allows them to check the list of accounts in the Account Manager (if the app has authentication and a related permission, it can also choose which account to use),<sup>134</sup> and seven in ten requested permission to read contacts (often to sync the user's contacts to the app). Reading a phone's status and identity is a broad permission asked by eight of the top ten apps, encompassing both the ability to know when a call is coming in (in order to cede control of the app in the foreground) and the ability to read a device's IMEI number.<sup>135</sup> All top ten apps, excluding Spotify, wanted to know the user's location.<sup>136</sup> AGCOM found that increasing importance is placed on knowing users' locations, allowing services to target their needs more effectively (e.g. local places for lunch or overnight stays).<sup>137</sup>

There are methods that first and third parties can use to match one user's activity across mobile and desktop, or across services and sites. Most simply, first parties can identify one individual across devices when they log in to the same profile. Login data is very valuable to service providers, as it is often long-lasting and cross-device, potentially ranging across several services and large numbers of users. There are also deterministic (comparing unique identifiers such as name or email address) and

<sup>134</sup> Hongkiat, 19 November 2017, '[A Guide to Understanding Android App Permissions \(& How To Manage Them\)](#).' [accessed April 2019].

<sup>135</sup> *Android Central*, 26 January 2017, '[What those scary app permissions mean](#)'. [accessed April 2019]. IMEI is the International Mobile Equipment Identify number, usually unique to each phone.

<sup>136</sup> Approximate location is derived using the network, such as nearby mobile masts, Bluetooth and Wi-Fi connections. Precise location will make use of the network, as well as a phone's GPS.

<sup>137</sup> AGCOM, [Big data](#), p.52.

probabilistic (iteratively reducing the dataset by adding qualifiers and finding associations) techniques to match datasets.

### **The kind of information collected by individual online services varies**

The type and quantity of information collected by online services may vary substantially according to their business models and/or company strategy and/or product offered. Services which rely on advertising for their income have some incentive to build a more comprehensive understanding of users' demographics, interests and behaviour in order to make advertising on their platform more targeted, effective and valuable (explored in more detail below). As *The Online Industry* chapter demonstrates, much of the growth in the online sector is generated through advertising. Facebook and Google's advanced data collection and targeting techniques are often cited as a key reason behind their relative 22% and 40% estimated shares of the UK online advertising market (see p.52).

*The Online Industry* chapter also detailed online subscription models. Subscription services generally use users' data to drive product design and operational efficiencies. Netflix, for instance, has found that provided demographic data does not serve the personalisation of its service as well as observed data on users' viewing history (explored in further detail below).<sup>138</sup> Other companies have built a USP around minimising the amount of user data they collect and store. In search, privacy-oriented engine DuckDuckGo emphasises that it does not store information about users' computers or search history, and does not use cookies by default.<sup>139</sup> In social media, Snapchat has built its core product around 'ephemerality' (it automatically deletes most messages from its servers once they have been opened by the recipient, though Stories are available for 24 hours), while end-to-end encryption on WhatsApp means that it collects message metadata (e.g. when, where or from whom a message was received) rather than message content. Apple has designed many of its products so that personal data is anonymised or stored on the device (rather than being sent back to its, or a service's, servers).<sup>140</sup>

### **How is user data used online?**

#### **User data is integral to online advertising**

User data is highly valuable in the online advertising market because it allows adverts to be targeted to users according to their demographics, location, interests, browsing and purchasing history. Personalised advertising aims to be relevant to the user, who may see different adverts within the same service for different products, depending on when they are viewed. A lot of online advertising is 'direct response' or performance advertising (measured on the user's immediate response to the advert, for instance by clicking through to the advertiser's site or by buying a product or service), making data collection central to the process and making targeting more valuable than in brand advertising, which aims to build general awareness.

Figure 3.11 shows a simplified version of what might happen when someone uses their computer to visit a publisher's website (the process may vary on mobile according to operating system and in-app tracking methods). In this example, information about the user is connected (anonymously or

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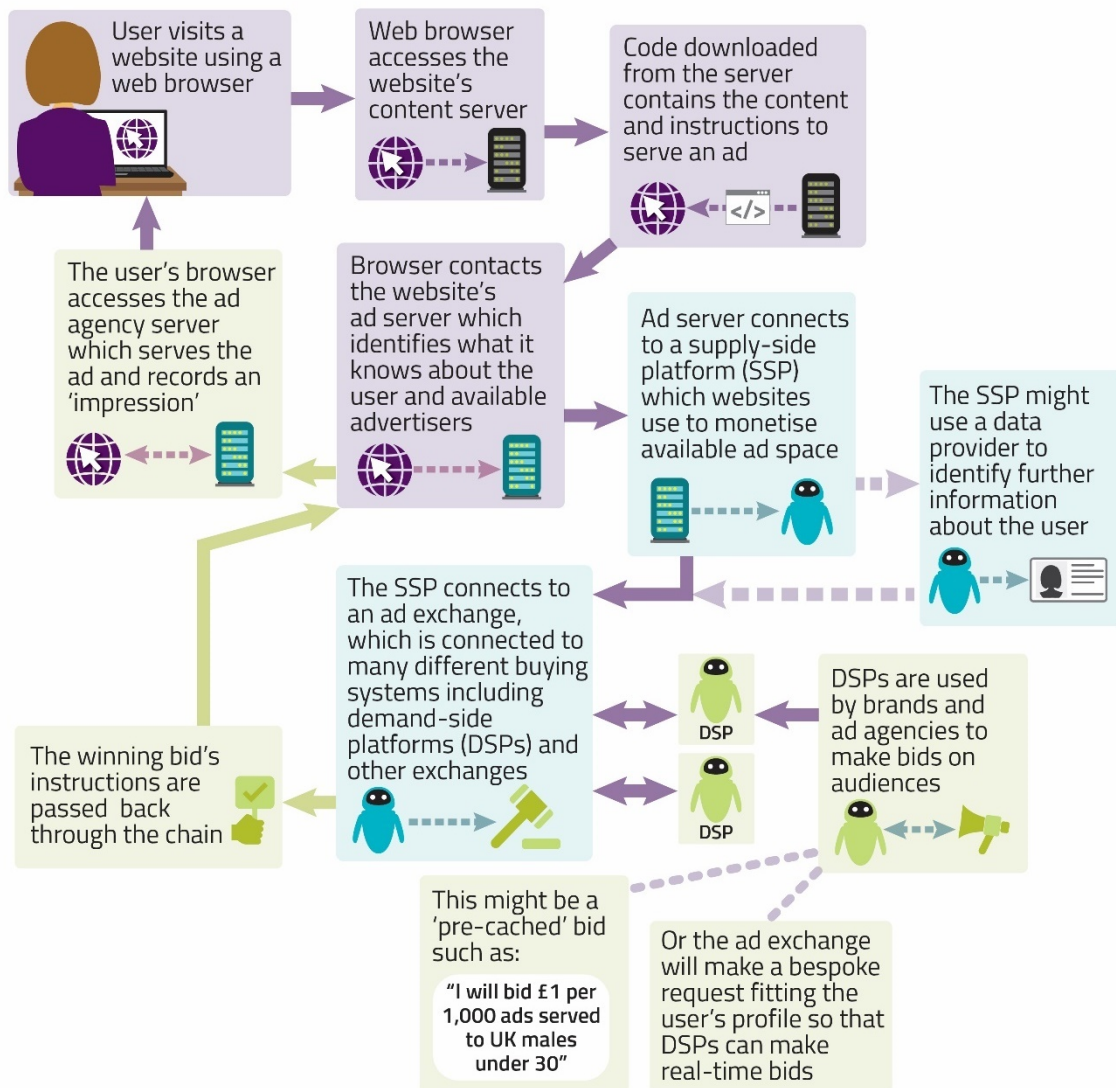
<sup>138</sup> Analysys Mason, [The Use of Data by Online Services](#)

<sup>139</sup> DuckDuckGo, [Privacy policy](#). [accessed April 2019]

<sup>140</sup> Analysys Mason, [The Use of Data by Online Services](#)

pseudonymously) between several different servers in less than a second. Supply-side platforms (SSPs, e.g. PubMatic) are used by content publishers to manage and monetise their advertising space. Demand-side platforms (DSPs, e.g. those operated by DataXu, AppNexus and MediaMath) are meanwhile used by brands and agencies to sell their advertising across multiple services. In this example, the ad exchange (e.g. the Google DoubleClick ad exchange) facilitates the trade of the publisher's advertising space for the advertiser's ads by connecting to multiple DSPs and SSPs and taking bids.

**Figure 3.11: Simplified programmatic advertising chain on desktop**



Source: based on IAB, 'How an Ad is Served with Real Time Bidding (RTB) – IAB Digital Simplified'

### News sites host the greatest number of advertising and other tags

The connections made via a site can be analysed by looking at a website's tags (outlined above). It should be reiterated here that tags can be used for a variety of reasons, not just for data collection – for example, the code in tags may provide key functionality such as allowing a user to navigate within a website. We analysed the web tags present on the top ten news, entertainment, search,

social media and e-commerce sites in the UK,<sup>141</sup> using the ‘Trackermap’ from Crownpeak, which offers data and content management solutions to businesses. The Trackermap tool scans URLs and identifies the tags present in a website’s HTML code (including pixels and other tags). It simulates a user accessing a page for the first time on a desktop computer, hence the analysis below does not necessarily reflect a returning, logged-in or mobile user’s experiences. These scans also only represent one snapshot in time – the connections made through tags can vary regularly according to the networks, exchanges and SSPs/DSPs that sites partner with. All sites were scanned on 6 and 7 May 2019.

The results show that news sites host more tags on average than any other type of site, averaging 77 unique tags. On search and social media, the number of tags is much lower – 12 on average for social media and three for search. This low number of tags on these sites may point to the ability of some search and social media sites to access user data directly through their own services, rather than relying on third-party data, advertising or analytics providers. It should be noted that the number of tags could potentially differ on search and social media once a user accesses a page after searching or logging in. Looking at the largest search provider, Google, scanning a URL after a product search returns a slightly higher number of tags than when on the landing page, as the engine links to Google’s advertising services. The averages can also obscure pronounced differences between the sites – for example, in news, the number of unique tags ranged from two to 147; in entertainment, the range was ten to 91; in social media, four to 44; in e-commerce, two to 52; and in search, two to eight. It should be noted that the averages could be understated for methodological reasons.<sup>142</sup>

In all genres of sites, the majority of tags were ‘piggybacked’ – this refers to where tags are ‘chained together’ as a redirect leads to a second tag, from a separate company, being included. In turn the second tag may also redirect, calling for more tags to be added from other vendors – and so on. These are commonly used for advertising and remarketing. Piggybacking can make data journeys opaque because of the multitude of layers.

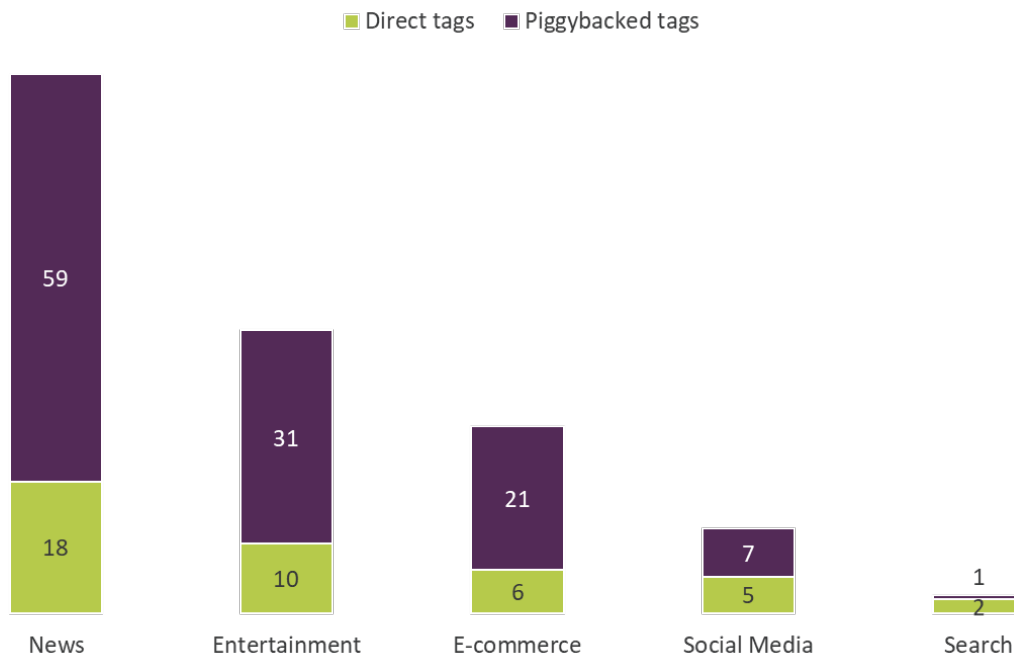
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<sup>141</sup> These top ten sites are taken from September 2018, as in our ‘The Online Consumer’ chapter, though there are slight variations under social media and entertainment. For instance, the Trackermap scans URLs and as Snapchat is made available through an iOS and Android app, Blogger was scanned instead; Google+ was discontinued before the scans took place, so Tumblr was included in its place. Under entertainment, sites were amended to better reflect a variety of sites within the category.

<sup>142</sup> For instance, some search sites (iZito, ZapMeta, Search Encrypt) returned no results/tags at all, nor did the web version of WhatsApp, while some sites redirected to cookie consent notices rather than loading the URL directly.



**Figure 3.12: Average numbers of tags on popular sites in the UK**



Source: Crownpeak. Scans conducted 06/05/2019 and 07/05/2019. Average of top ten sites in each genre.

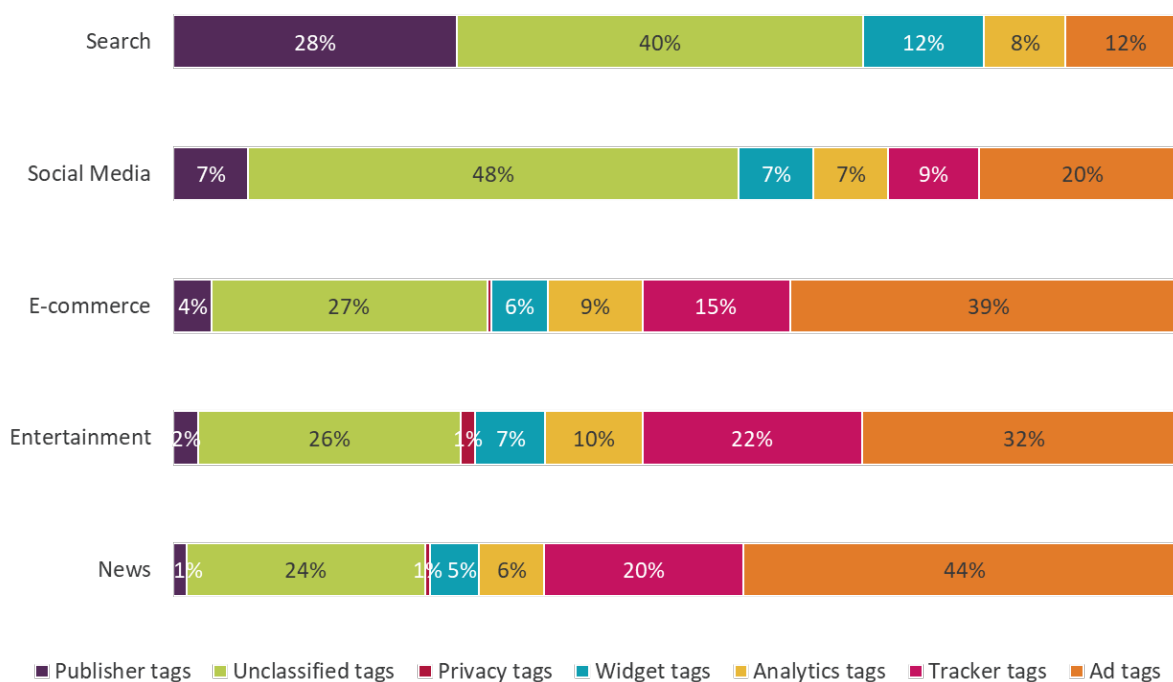
### Advertising tags are the most prevalent type of tag on popular UK sites

Advertising accounts for the largest subset of tags on news, entertainment and e-commerce sites, while on social media and search, unclassified tags are the most prevalent. Ad tags are those involved in the ad serving process – often, the code involved in fetching an advertisement from the ad server, connecting to the exchange or monitoring whether an ad has been served. Tags which are unclassified by Crownpeak are typically first-party tags (tags owned by the proprietary publisher), with unique script and functions. Tracker tags communicate to their owner that a web page has been loaded by a user for analytics, performance and tracking purposes, while privacy tags generally relate to data governance and consent management tools, provided by specialist companies, such as Crownpeak and Cookiebot, as well as some ad agencies. Again, the prevalence of ad and tracker tags on news, entertainment and e-commerce sites, particularly when compared with social media and search, may highlight their reliance on third-party ad solutions.

As [Plum Consulting](#) wrote in 2019, major US internet companies, including Google, Facebook, and to a lesser extent Amazon, benefit from users logging in on many of their services, allowing them to identify users across devices and browsers. For other sites, data collection is more fragmented, taking place across different publishers and intermediaries. Many publishers use third-party companies to collect and leverage (anonymous or pseudonymous) user data from their sites and apps, in order to achieve the best price for their advertising inventory,<sup>143</sup> as demonstrated in the advertising chain graphic above.

<sup>143</sup> Plum Consulting, January 2019, [Online advertising in the UK: A report commissioned by the Department for Digital, Culture, Media & Sport](#), pp.11-14.

**Figure 3.13: Types of tags on popular sites**



Source: Crownpeak. Scans conducted 06/05/2019 and 07/05/2019. Averages in each genre.

### Google-owned tags appear most prominently on popular UK sites

Among these tags, several parties can be identified, although for others it is more difficult to trace the tag to its owner. Where possible, tags have been grouped by their owner in the word cloud below, excluding 482 tags which were not identified by owner by Crownpeak’s Trackermap. The tags in this word cloud encompass direct and piggybacked tags, and all the types of tags outlined above.

Google-owned tags appear most prominently in the word cloud. Google offers a range of products, including widgets such as Google Fonts (a tool for using typefaces on the web and Android, appearing ten times), website analytics through Google Analytics (a marketing tool to track web traffic, appearing 25 times) and advertising exchange and targeting products through DoubleClick, a legacy product now under the Google Marketing Platform brand (DoubleClick appearing 28 times, DoubleClick Digital Marketing eight times and DoubleClick Floodlight eight times).<sup>144</sup> Identifiable Facebook-owned tags also appear prominently (e.g. the Facebook Connect login widget 18 times, Facebook Custom Audiences 16 times and the Facebook Pixel 16 times). It should be noted that these tags might be present on the same site, so the counts in aggregate should not be equated to overall presence. Comparatively, the number of tags on the Google and Facebook site URLs are low (at the time of scanning, eight unique tags on <https://www.google.com/>, ten unique tags on <https://www.facebook.com/facebook>, all, or the majority of which, are affiliated with their own platforms).

<sup>144</sup> Google merged its DoubleClick advertising products and Google Analytics suite under the Google Marketing Platform brand in July 2018. Google Marketing Platform Help, ‘[Introducing Google Marketing Platform](#)’. [accessed May 2019]

Verizon subsidiaries also appear prominently – the Yahoo Ad Exchange (an ad network) appears 11 times, while Advertising.com (now part of AOL’s ONE ad products) appears 12 times. Twitter Analytics appears 13 times and Twitter Advertising seven times. Adobe-branded products are also prevalent; for instance, the Adobe Audience Manager, a data management platform (DMP) which allows companies to order their data into marketing segments, appears 17 times. LiveRamp, which offers products which can match data between platforms, appears 14 times, while advertising technology companies likes AppNexus (19 times), The Rubicon Project (16 times), and OpenX (12 times) are also prevalent. The ScorecardResearch Beacon appears 18 times.<sup>145</sup> The Beacon uses cookies which include anonymous unique IDs to help count users who have seen a web page, allowing companies, advertisers and researchers to analyse web traffic.<sup>146</sup>

Figure 3.14: Identifiable tag owners on the UK’s most popular sites



Source: Crownpeak. Scans conducted 06/05/2019 and 07/05/2019. Results across all sites scanned.

### User data is also used by online services to improve their products and launch new products, and optimise users’ experiences

First- and third-party data about users’ preferences and behaviour can help online services **design and launch new products**. Online companies often experiment with their services, testing changes with a select number of users first, gathering and analysing the results and determining whether to roll them out more widely. If services have an international presence, this can involve testing new strategies at a market level in individual countries. For instance, the Facebook ‘like’ button is a central feature of its platform (see the *Social Media* chapter for more information), allowing users to

<sup>145</sup> ScorecardResearch is owned by market research company Comscore

<sup>146</sup> ScorecardResearch, [Home/About](#). [accessed May 2019]

express their approval for certain content (as well as allowing Facebook to glean information around their interests). Responding to feedback from users who wanted more than just a simple 'like', Facebook conducted testing in Spain and Ireland from October 2015 allowing users to access a range of 'reactions'.<sup>147</sup> It used its findings on how people interacted with the new features in these markets to release its final set of 'like', 'love', 'haha', 'wow', 'sad' and 'angry' reactions globally in February 2016.<sup>148</sup>

Data on users' behaviours (e.g. time spent, page interactions) can also drive **product improvements**. For example, app developers may use behavioural data to inform game design and improve user experience. By identifying, for example, when users leave a game (indicating that they have become frustrated), its developers can optimise difficulty levels.<sup>149</sup>

Data can also drive **operational improvements** by reducing costs and improving service quality and efficiency. For example, Netflix analyses what its audiences are viewing to identify and predict popular content, which is then cached on servers near its users. This minimises the cost of transporting the content repeatedly from its core data centres, as well as delivering a smoother streaming experience.<sup>150</sup>

### **User data is integral to the personalisation of services**

Many online companies use data to tailor their service to individual users. Content recommendations are a key use case, which is reliant on first-party observed data. For example, Netflix uses user data in its recommendation algorithms, assessing what to present to a user based on factors such as what they have previously watched, when and for how long;<sup>151</sup> similarly, YouTube uses a recommendations system influenced by users' activity on YouTube, Google and Chrome.<sup>152</sup> By serving relevant recommendations, the services can improve viewer engagement and retention – in fact, 70% of viewing to YouTube is reportedly driven by recommendations.<sup>153</sup> The *Search and Discovery* and *Social Media* chapters contain further detail on personalisation.

Retail is another online market where personalisation is prevalent – for instance, fashion retailer ASOS collects data about purchasing behaviour, favourite brands, spend patterns, payment methods and basic demographic information to inform personalised product recommendations in the 'Your Edit' feature of the ASOS app.<sup>154</sup> Other forms of personalisation include targeted email campaigns,<sup>155</sup> geographic personalisation (e.g. seeing local search results based on the location of the user's IP address) and pricing.<sup>156</sup>

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<sup>147</sup> Facebook News Room, 8 October 2015, '[How the Reactions Test Will Impact Ranking](#)'. [accessed May 2019]

<sup>148</sup> Facebook News Room, 24 February 2016, '[Reactions Now Available Globally](#)'. [accessed May 2019]

<sup>149</sup> DotEcon/Analysys Mason, *The Commercial Use of Consumer Data*, p.16.

<sup>150</sup> Analysys Mason, *The Use of Data by Online Services*

<sup>151</sup> [Netflix Research site](#). [accessed April 2019]

<sup>152</sup> YouTube Help, '[Manage your recommendations and search results](#)'. [accessed April 2019]

<sup>153</sup> Quote from Neal Mohan, YouTube Chief Product Officer, at CES 2018. *CNET*, 10 January 2018, '[YouTube's AI is the puppet master over most of what you watch](#)' [accessed March 2019].

<sup>154</sup> DotEcon/Analysys Mason, *The Commercial Use of Consumer Data*, p.92.

<sup>155</sup> Deloitte, *The Deloitte Consumer Review. Made-to-order: The rise of mass personalisation*, pp.4-5. [accessed March 2019]

<sup>156</sup> AGCOM, *Big data*, p.39.

Some services actively avoid personalisation. Google’s news aggregator, Google News, for example, uses an algorithm to give prominence to authoritative sources and frequently-read items, but does not integrate users’ search history or preferences to avoid encouraging ‘filter bubbles’.<sup>157</sup>

### **User data can also be used to train smart devices**

Virtual assistants such as the Amazon Alexa, Google Assistant, Apple’s Siri and Microsoft’s Cortana demonstrate the self-reinforcing nature of data collection. The assistants are themselves trained using vast amounts of data to make correlations and solve problems, such as identifying and answering user queries around the weather or time of day. When performing these functions, they also gather data. For instance, users interacting with Amazon Alexa on Echo devices provide data about the times of day when they are at home, the people in their household and their music, TV and news preferences, from which Amazon can infer demographics, interests and tastes. This data has the potential to inform product recommendations as well as improvements to Alexa itself, as it iteratively becomes better at understanding and answering queries.<sup>158</sup>

### **User attitudes to and concerns about the use of their data**

#### **Six in ten adults say they are happy for companies to collect their information under certain conditions**

Our [Adults’ Media Literacy](#) research found that the proportion of people saying they are happy for companies to collect and use their personal information has remained broadly stable since 2017. In both 2017 and 2018, around six in ten people said they were happy for companies to collect this information under certain conditions. ‘Receiving a free or personalised service’ was the condition under which respondents were least happy to have their personal information collected, though this figure has increased since 2017.

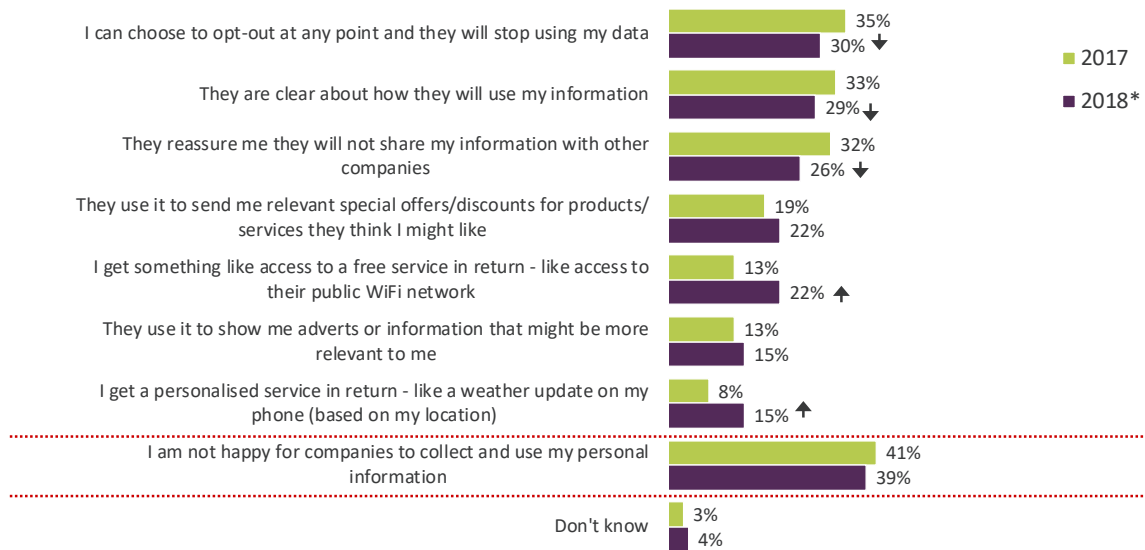
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<sup>157</sup> Analysys Mason, [The Use of Data by Online Services](#)

<sup>158</sup> *Enders Analysis*, 4 Feb 2019, ‘Why Does Amazon sell the Echo?’, p.4.

**Figure 3.15: Attitudes towards online companies collecting users' personal information online: 2017-2018**

I am happy for companies to collect and use my personal information if.....



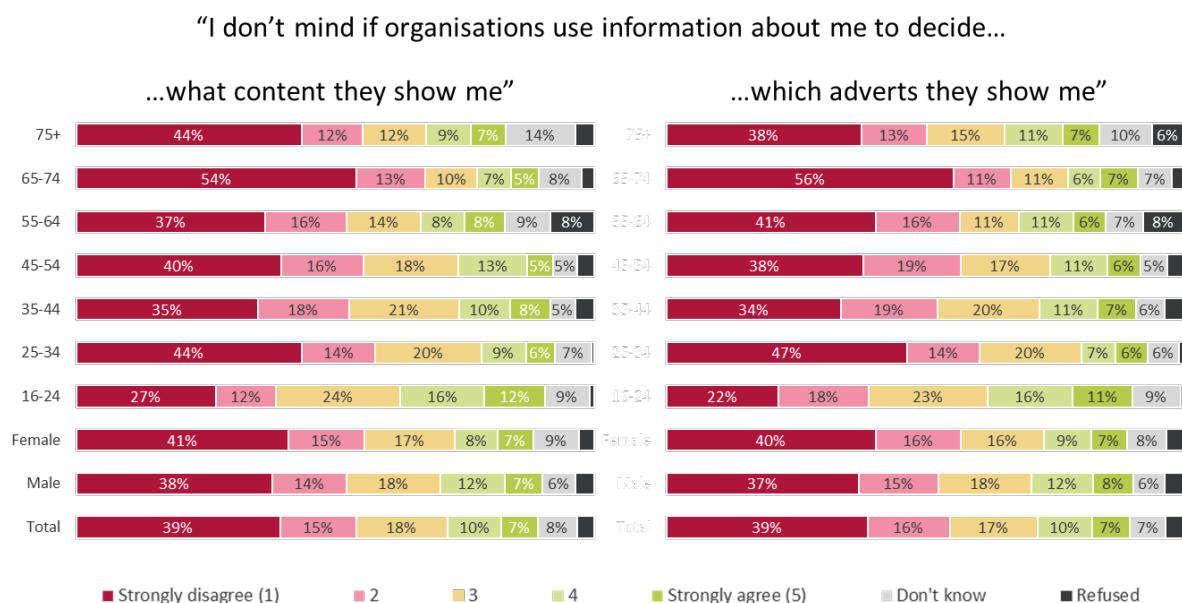
Source: Ofcom Adults' Media Literacy Tracker 2018

IN53. Please read the full list of statements on this card about how people feel about online companies collecting and using their personal information. If you agree with any of these statements please just tell me the number that corresponds with each (prompted responses, multi-coded) \* The order of the responses was amended on the showcard in 2018 which could account for some of the differences shown  
 Base: All adults aged 16+ who go online (1570 in 2017, 1602 in 2018). Arrows show significant changes (95% level) between 2017 and 2018

**Our latest Online Harms research suggests that the majority of internet users do mind companies using their data to personalise online content or advertisements**

Our [Adults' Media Literacy](#) research suggests that the ability to control data can be reassuring, while the benefits that follow from the collection and use of user data (such as accessing free or personalised services) may attract some users. However, the Ofcom-ICO [Online Harms quantitative](#) research asked specifically about use of personal data for targeting advertising and targeted content and found that that 54% of all adult internet users *do* mind if organisations use information about them to decide the content they are shown, and that 55% mind information being used to determine the adverts they are shown. Younger age groups are more likely to agree that they *don't* mind their information being used to show personalised content (28% vs. between 12-18% for all other age groups) or adverts (27% for 16-24s vs. 13-19% for all other age groups).

**Figure 3.16: Agreement with the statements: “I don’t mind if organisations use information about me to decide what content they show me / which adverts they show me”**



Source: Ofcom-ICO research 2019

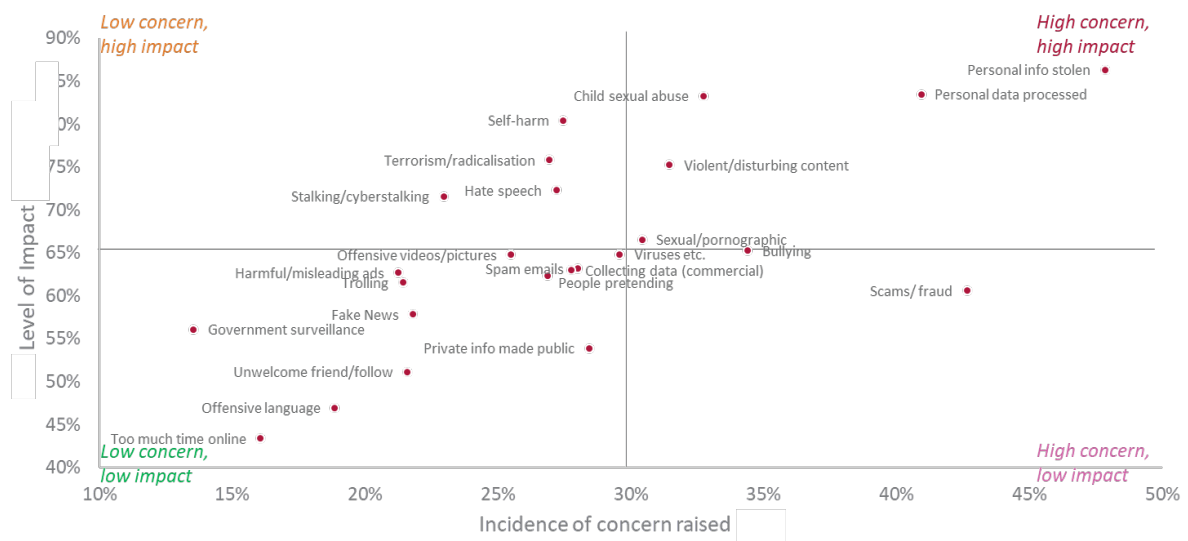
Base: all respondents (2057)

### The research highlighted internet users’ concerns about their data being inappropriately accessed or shared

The latest Ofcom-ICO [Online Harms quantitative](#) research suggests that data-related harms are some of the most worrying for adult internet users (regarding their own data). After prompting, 48% of adult internet users were concerned about their personal information being stolen/hacked and 41% were concerned about their personal data being processed without their knowledge or consent – the first and third most concerning harms among adult users. Adults were less concerned about data-related harms in regard to children, instead emphasising bullying or abusive behaviour, and violent or pornographic content, although 44% of 12-15s in our children’s survey were also concerned about their personal details or information being stolen/hacked (the third most pressing concern).<sup>159</sup> As the chart below shows, personal data being processed without knowledge/consent and personal information being stolen/hacked were some of the greatest concerns and highest-impact harms among adults. Among all respondents, 48% identified personal information being stolen as a concern, and among those with experience of the potential harm, 86% rated the impact as 4 or 5, where 5 meant very annoying, upsetting or frustrating.

<sup>159</sup> [Ofcom-ICO research](#) 2019

**Figure 3.17: Incidence of concern about vs. impact of experience of online harms**



Source: Ofcom-ICO research 2019

Question: C2b) Which, if any, of the following aspects of the internet concern you more generally?

Base: All adult internet users (2057)

Question: C6) Thinking about all of the times that you have experienced [INSERT CODE FROM C4] in the last 12 months, what impact has this had on you? Please use a scale of 1 to 5, where 1 means mildly annoying or upsetting or frustrating and 5 means very annoying or upsetting or frustrating.

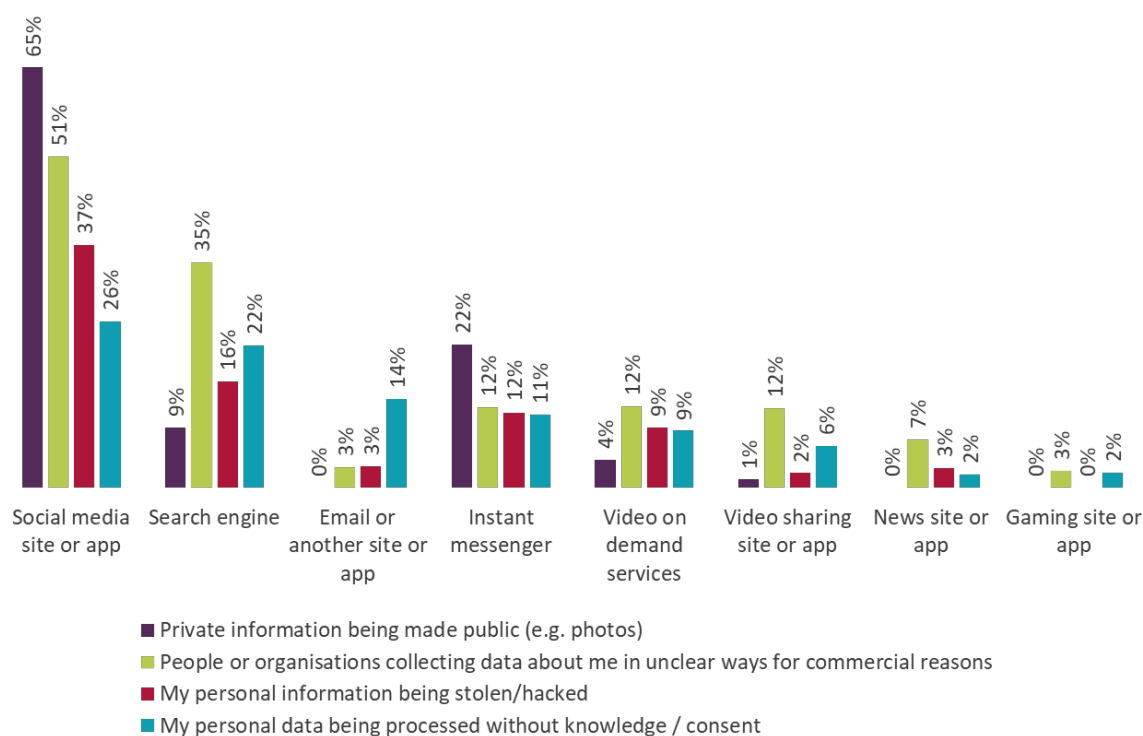
Base: All adult internet users who have experienced and are concerned about X (bases vary)

### Social media is the most prominent source of reported data-related harms

Social media is the most commonly-reported source of personal data being processed without knowledge/consent, being stolen/hacked, being collected in unclear ways for commercial reasons and of private information being made public. Thirty-seven cent of respondents who had experienced, and were concerned about, their personal information being stolen or hacked reported that this had occurred on a social media service, followed by 16% who said it had happened on a search engine. Twenty-six per cent of respondents who had experienced and were concerned about their private information being processed without their knowledge or consent reported that this had occurred on a social media service, followed by 22% who said it had happened on a search engine. (Note that these findings were reported from a low base, with only a minority of respondents reporting they had experienced these harms; results for personal information being stolen or hacked and private information being made public should be treated as indicative only.)



**Figure 3.18: Reported sources of data-related harms**



Source: Ofcom-ICO research 2019

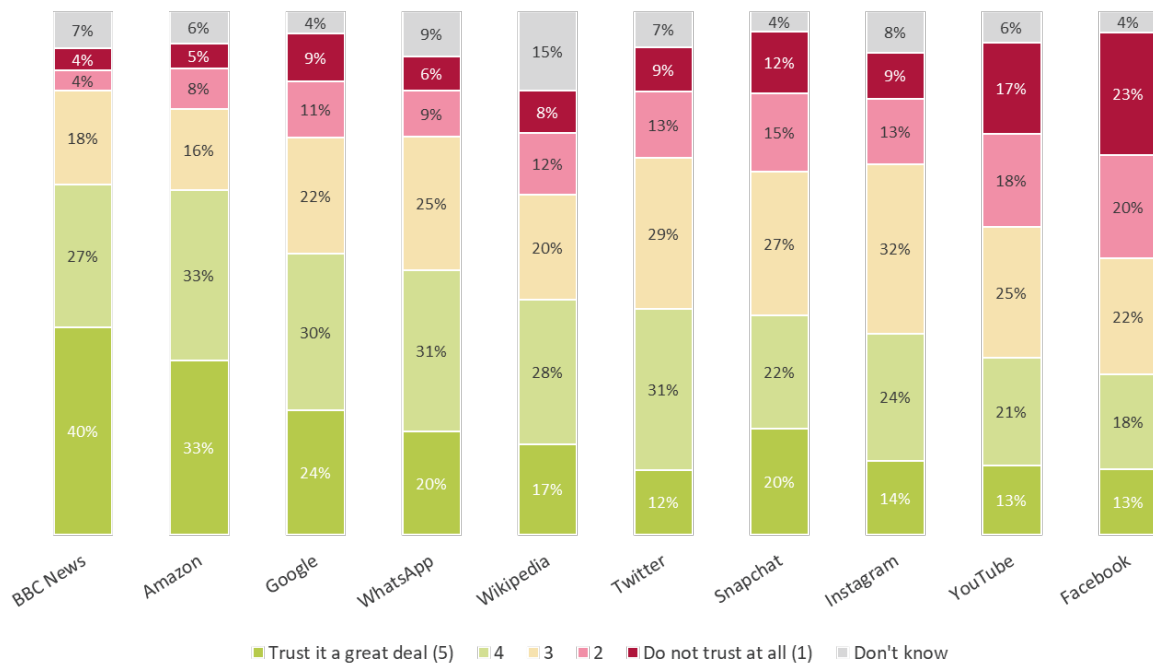
Base: all respondents concerned about and with experience of (personal data being processed without knowledge/consent, 85; people or organisations collecting data in unclear ways for commercial reasons, 97; personal information being stolen/hacked, 46; private information being made public, 36)

NB. Apply caution to results from sample sizes of less than 100 and treat results from sample sizes of less than 50 as indicative only.

### The level of trust in online services to protect user data varies significantly, with social media generally being considered less trustworthy

The Ofcom-ICO [Online Harms quantitative](#) research shows that, among the users of each service, people generally trust social media services the least to protect their data and use it responsibly. This is in line with reported experience of data-related harms above. BBC News is the most trusted service. Among major tech companies, Amazon is considered the most trustworthy regarding data protection and responsibility (66% trust vs. 13% distrust), followed by Google (54% trust vs. 20% distrust). While Google is the third most trusted company among the ten companies below, Google-owned property YouTube is the second least trusted service, after Facebook. More respondents who use Facebook do not trust the service to use their data responsibly than those that do trust it (43% vs. 31%), although this trend is not replicated among Facebook-owned properties Instagram (38% trust vs. 22% distrust) and WhatsApp (51% trust vs. 15% distrust). This may relate to the media attention around privacy on Facebook in recent years.

**Figure 3.19: Level of trust in selected companies to protect users' data/use their data responsibly**



Source: Ofcom-ICO research 2019

Base: all respondents who use the service (BBC News, 253; Amazon, 420; Google, 607; WhatsApp, 506; Wikipedia, 214; Twitter, 158; Snapchat, 198; Instagram, 234; YouTube, 433; Facebook, 557)



# Search and discovery

## Introduction

A vast amount of content and information exists online and it continues to expand rapidly. There are now approximately 1.6 billion websites, 25% of which are considered active.<sup>160</sup> Users of services and applications such as YouTube, Snapchat and Twitter are constantly generating new content; on average, during every minute of 2018 YouTube users watched over 4.5 million videos, Snapchat users posted more than 2 million snaps,<sup>161</sup> approximately 3.8 million search queries were run on Google,<sup>162</sup> and almost 350,000 tweets were sent.<sup>163</sup> Meanwhile, Amazon listed more than 3 billion products across 11 national marketplaces worldwide in January 2018.<sup>164</sup>

The continuous generation of content and the changing landscape of the internet raises an important question: how do internet users find information, products and content? This chapter looks at how users navigate the ever-growing online world and how it has changed over time. It examines how people:

- **search** for online information and content they know they want to find; and
- **discover** information and content they were not looking for, but which is nonetheless relevant and appealing to them.

The chapter then sets out how the tools that are employed by internet users and internet services to search and discover content work, and how devices shape online search and discovery experiences. This is followed by a top-level overview of how search engine companies make money. Finally, we consider how, in deriving benefits from search, service users may (perhaps unknowingly) leave themselves open to harm.

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<sup>160</sup> <http://www.internetlivestats.com/total-number-of-websites/>; as of 5 April 2019. Active sites are defined as those which have page structures that are unique and are not placeholders with no activity.

<sup>161</sup> [https://investor.snap.com/~/\\_media/Files/S/Snap-IR/reports-and-presentations/snap-inc-q3-2018-earnings-transcript.pdf](https://investor.snap.com/~/_media/Files/S/Snap-IR/reports-and-presentations/snap-inc-q3-2018-earnings-transcript.pdf)

<sup>162</sup> <https://seotribunal.com/blog/google-stats-and-facts/>

<sup>163</sup> <https://business.twitter.com/>

<sup>164</sup> <https://www.scrapehero.com/how-many-products-amazon-sell-worldwide-january-2018/>. Note that as of January 2019 Amazon now has 12 national marketplaces.

## Key metrics

Figure 4.1: UK search engine use, key metrics

	2017	2018
Total UK digital advertising expenditure, paid search <sup>1</sup>	£5.9bn	£6.7bn
Time spent by UK online adults searching for something, per day <sup>2</sup>	5 min 7 sec	5 min 23 sec
% UK adult internet users using a search engine to search for things on the internet <sup>3</sup>	N/A	85%
% UK adult internet users using YouTube to search for how-to tutorials <sup>4</sup>	N/A	50%
% UK adult internet users using family or friend recommendations to discover new things on the internet <sup>5</sup>	N/A	45%

**Sources:** <sup>1</sup>IAB/PwC 2018 Digital Adspend Study. Adjusted for CPI (2018 prices), <sup>2</sup>Comscore, September 2018, all UK adults aged 18+, <sup>3</sup>Ofcom Search questionnaire 2019, <sup>4</sup>Ofcom Search questionnaire 2019, <sup>5</sup>Ofcom Search questionnaire 2019

## Searching for specific content

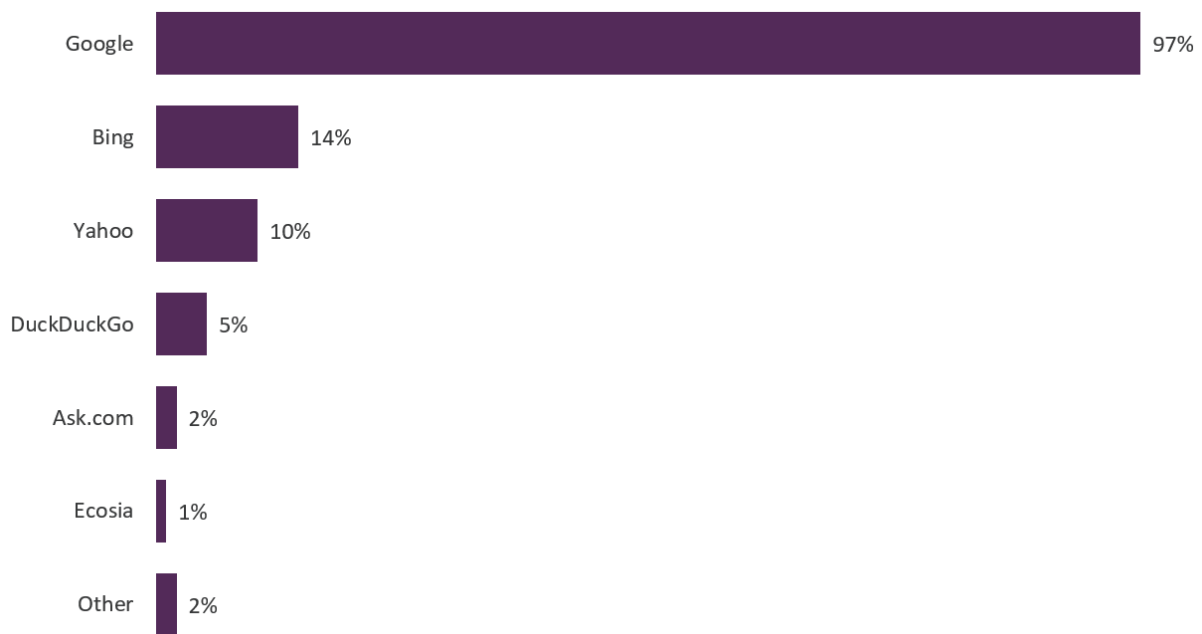
### People use a range of tools and sources to find what they are seeking online

Internet users employ various tools and sources to find information and content that interests them. Web-based search engines such as Yahoo!, Altavista, and Google emerged in the mid-1990s to help organise, rank, and present information to users. Search engines remain consumers' preferred method for finding what they are looking for online: 97% of UK adults reported using a search engine in the past year to look for information online.<sup>165</sup> For 50% of UK adults the first place they usually go online is a search engine.<sup>166</sup> The search engines that people in the UK most commonly report using are set out in Figure 4.2.

<sup>165</sup> Ofcom [Adults' Media Use and Attitudes report](#), 2019

<sup>166</sup> Ofcom Search questionnaire 2019. Base: UK adults aged 16+ (2131)

**Figure 4.2: Search engine use, by proportion of all adult respondents (%)**



Source: Ofcom Search questionnaire 2019

Q3. You said you used search engines to search for things on the internet. Which of the following search engines do you use?

Base: All who use a search engine: unweighted (1387) weighted (1390)

Most UK internet users use Google as their primary search engine, either on desktop or mobile. According to Comscore, the UKOM-accredited online audience measurement currency, Google Search had an 83% digital population reach in September 2018, compared to 47% for Microsoft's Bing search engine and 17% for the Yahoo search engine.<sup>167</sup> Ofcom research showed similarly high levels of use of Google Search, with a long tail of alternative search engines such as DuckDuckGo and Ecosia.

Several factors explain Google's status at the search engine most used by UK consumers, including its incumbent status and brand recognition: 'googling' has become almost synonymous with searching the internet. The Google homepage has few ads compared to other search engines, allowing it to load quickly. Google also seeks a competitive advantage from its search algorithm. This algorithm ranks websites by their relevance to users and values sites that link to other pages with similar information.

Bing's digital reach is helped by it being pre-installed on devices that run Microsoft Windows, the dominant operating system on laptops. The Bing search bar also displays on the default Windows start-up home page. This ready access may drive some users to use Bing rather than another search engine.

Some of the smaller search engines focus on niche capabilities or use different algorithms to present searches in innovative ways. DuckDuckGo positions itself as the 'anti-Google' by emphasising user

<sup>167</sup> Comscore MMX Multi-Platform, Age: 13+, Sep 2018, UK

privacy and search equality (returning the same search results to all users for a given search), and by generating results from a wider-range of sources. The company employs the same business model as other search engines (keyword advertising) but does not alter results based on underlying user data. The Ecosia search engine uses the income generated from ads placed in search results to plant trees around the world, thereby appealing to environmentally-focused consumers. Ecosia search results and search ads are delivered primarily by Microsoft's Bing search, and are enhanced with Ecosia algorithms to highlight to users which websites share the same sustainable mission as Ecosia.

Although search engines remain the most-used tool for finding information, consumers may also use other sources, either to search for information directly or to augment their search results. This can depend on the type of content users are seeking. When looking for news content, users may search websites, apps and articles from sites such as the Guardian, the Daily Mail, the BBC, BuzzFeed, the Huffington Post and Vice News for news content alongside content on travel, entertainment, new products and technology. Users searching for information on weather, traffic or news may exhibit different search behaviour, perhaps using search engine results and a mapping application or website. Users looking for product information may augment their search engine results with searches on a shopping website or app like Amazon or eBay to research products before buying them.

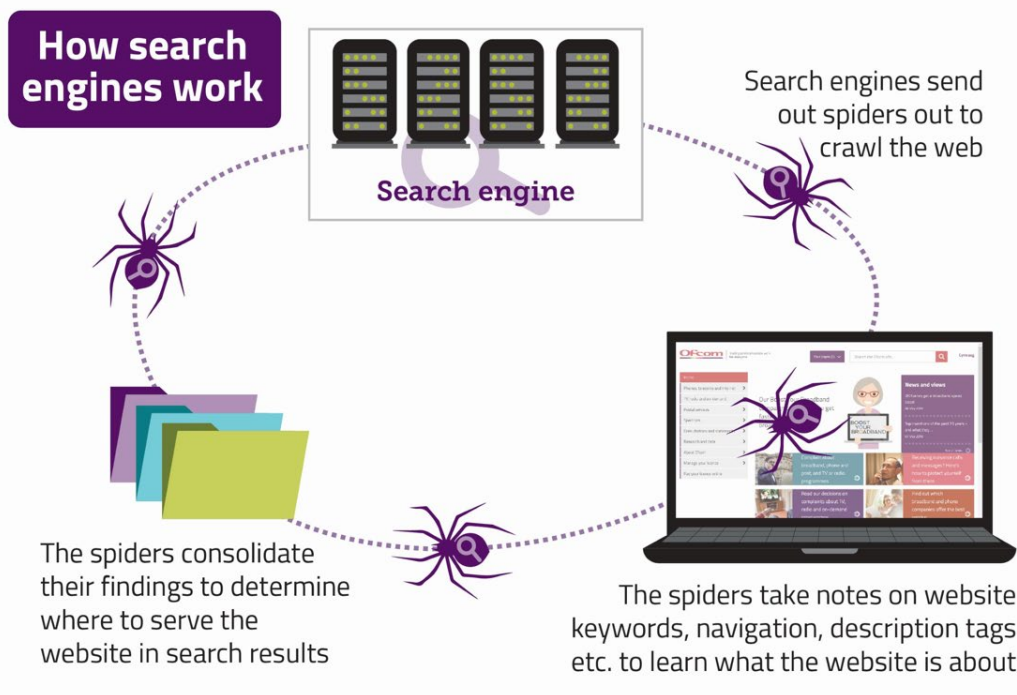
When seeking information on a service or experience, users may consider review websites or apps to read reviews left by other users; in 2018, 46% of adult internet users said they had ever used review sites such as TripAdvisor, Amazon and OpenTable.<sup>168</sup> Users can also source review information on social media websites or apps such as Facebook, Twitter and Instagram.

## How do search engines work?

Search engines are software programmes or scripts, delivered online through a web interface like a simple home page with a search window (e.g. Google). When a user enters a search term or terms as a query in the search bar, the search engine 'crawls' through the available web pages in the search engine's index. This index can run to hundreds of millions of pages yet is still not a complete index of the entire internet, which would be much too large to index and store. A search engine's index is continually refreshed as 'spiders' (automated software robots sent from the search engine) crawl the internet, finding information on web pages and building lists of words found on web sites.

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<sup>168</sup> Ofcom [Adults' Media Use and Attitudes](#), 2019



Source: Infographic based on image published by JEMSU in 2011

As the search engine searches through its index, it looks to match keywords in relevant pages in the index with the keywords entered in the search query. The search engine returns relevant answers based on the presence of these keywords, how often they appear on a page, and their order and context. Once the search engine has identified the relevant pages it ranks and surfaces them to the user based on parameters such as when the website was published, its trustworthiness (e.g. how many other sites link to the web page) and its relevance to the user (e.g. same language as query, same location, or targeted advertising based on past user searches and personal attributes).

A **search algorithm** is a piece of software code that combines all these parameters. The nature of these parameters, and how they are combined, is why different engines may display different web pages in a different order. They are also what differentiate search engines from each other in competitive terms.

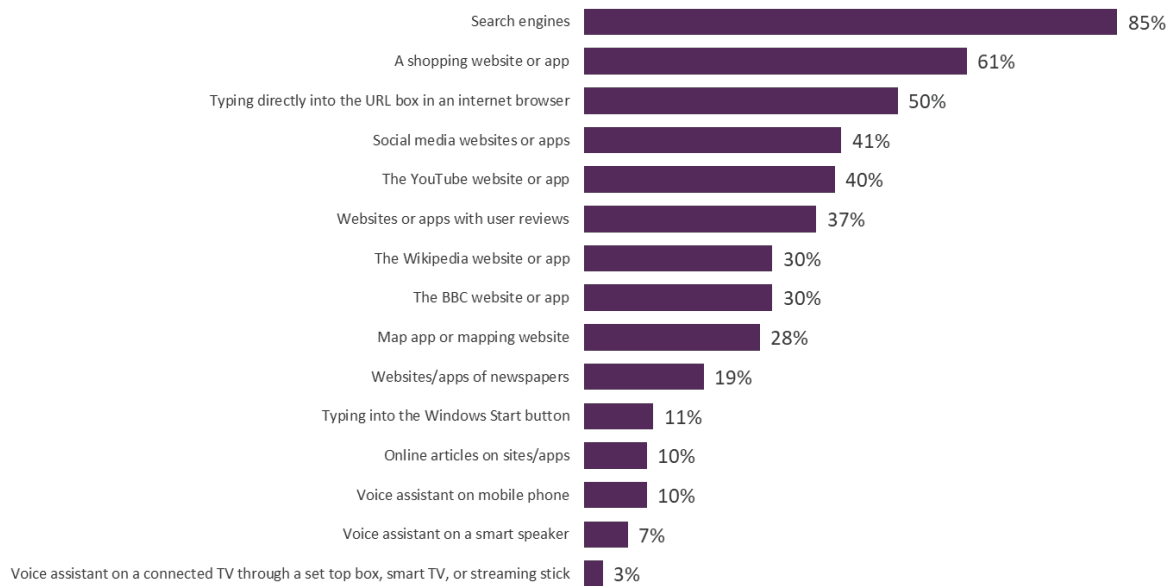
### Search engines are the top source for finding information on the internet

Among UK internet users there is a clear choice for using search engines to find content, information and products online. As shown in Figure 4.3, 85% of people use search engines to search for things on the internet, which highly outstrips the next source of information, shopping websites or apps (61%).<sup>169</sup> Websites and apps that relate to users' lives, such as news and social media sites, are also popular for finding specific information. Some respondents are also using new voice-search

<sup>169</sup> This figure is based on research completed for the Ofcom Search questionnaire 2019 and therefore may differ slightly from the figure presented earlier in the document (94% of UK internet users use search engines to look for information online) due to sample size and methodology differences. It is presented here in order to be comparable to other Search and dDiscovery findings presented later in the document.

technologies such as voice assistants on smartphones and smart speakers to find information verbally; in 2019, about 20% of UK households owned a smart speaker.<sup>170</sup>

**Figure 4.3: Sources used to search for things on the internet, proportion of all respondents (%)**



Source: Ofcom Search questionnaire 2019

Question: Q2. Which of the following do you use to search for things on the internet? (THIS INCLUDES ANY TYPE OF SEARCH FOR ANY TYPE OF INFORMATION OR CONTENT)

Base: UK adults aged 16+ (2131)

### People rely less on search engines when searching for visual content

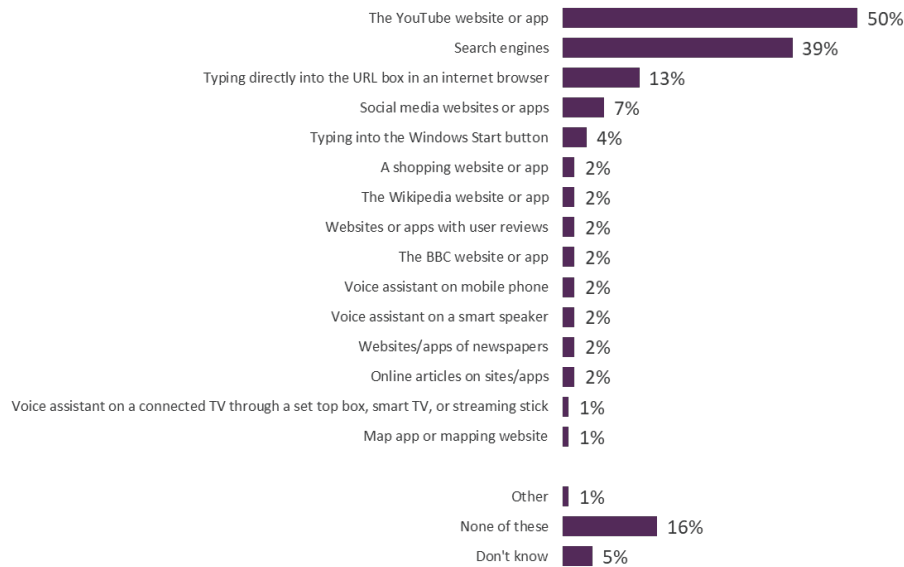
However, if search is broken down by category of information, the preference for search engines is less evident. Internet users rely less on search engines to find information that is more visual, or where they may benefit from watching video content. For learning new skills such as a language, or cooking skills, 45% of consumers would normally use a search engine to find this information, while 27% would use the YouTube website or app. A similar proportion would use a search engine to find information on entertainment (e.g. music, TV, games), while 37% would use the YouTube website or app.

Half of internet users go straight to the YouTube website or app to look for how-to tutorials, such as for DIY or make-up application, compared to 37% who use search engines. Seven per cent use social media sites or apps to learn how to do something.

<sup>170</sup> Ofcom [Technology Tracker](#), 2019



**Figure 4.4: Sources used to search for how-to tutorials, proportion of all respondents (%)**



Source: Ofcom Search questionnaire 2019

Question: Q4. Which of the following do you normally use to search for the following things via the internet?

Base: UK adults aged 16+ (2131)

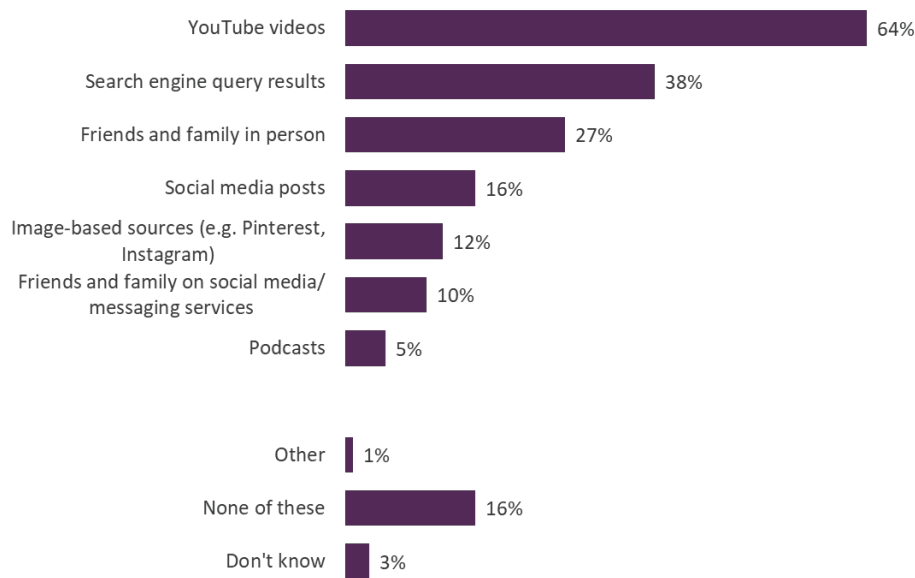
Similarly, when consumers want to learn about a product or skill, more of them use the YouTube website or app to find a video tutorial (64%) than use a search engine (38%). How-to tutorials are extremely popular on YouTube; in October 2018 the channel ‘5-Minute Crafts’ was one of the top ten most-subscribed YouTube channels, with 35.9 million subscribers.<sup>171</sup> Unboxing videos, which are videos that consumers make of themselves unwrapping a new product such as a toy, are also extremely popular. In 2017 in the US alone the total amount of time people spent watching unboxing videos on their phones was the equivalent of watching the holiday classic *Love Actually* more than 20 million times.<sup>172</sup>

<sup>171</sup> <https://www.digitaltrends.com/web/biggest-youtube-channels/2/>

<sup>172</sup> YouTube data, US., Classification as unboxing video was based on public data such as headlines, tags, etc. and may not account for every video available on YouTube, Jan-Jun 2017.

<https://www.thinkwithgoogle.com/data/youtube-unboxing-videos-watch-time/>

**Figure 4.5: Sources used in the past year to learn something new (e.g. unboxing videos, make-up tutorials, how-to, new skills), proportion of all respondents (%)**



Source: Ofcom Search questionnaire 2019

Question: Q6. What sources have you used in the last year to learn something new (e.g. unboxing videos, makeup tutorials, how-to, new skills)?

Base: UK adults aged 16+ (2131)

## Discovering something new

### Recommendations engines play an important role in helping people discover information, content and products

In addition to active search methods, internet users draw on unprompted recommendations, both online and offline, to help them discover new content and products. We define this process as **discovery**. It is based on aligning known consumer preferences with similar products and services. In an offline context, you might hear friends or family talking about a new TV programme and watch it yourself. Online, this process could be replicated by seeing someone you follow on social media recommend a service, product or piece of content. These examples are both instances of discovery.

In the online landscape, industries such as retail and entertainment are increasingly using artificial intelligence (AI) technologies to simulate interpersonal exchanges and generate recommendations. Digital services such as recommendation engines and algorithms smooth and extend the customer experience by suggesting other potential products or content contained within the same large database that users might enjoy. By providing this personalised experience, broadcasters, audio providers, and platforms can better attract and retain viewers to their platform.

Examples of such recommendation systems on popular entertainment and retail services are Spotify playlists, Amazon 'also-bought' product and book recommendations, and Netflix recommendations for TV shows and films. These services generate recommendations for their customers based on consumer data parameters such as user-specific purchase or viewing history, what consumers with similar purchase or content profiles also purchased or viewed, or what their peer circle interacted

with. A recommendation engine or algorithm interprets this data to display personalised, curated recommendations of other products and content that users are likely to enjoy but may not have thought to search for.

### **When users want to discover new content and information, they prefer sources which already know their preferences**

When users want to discover content that they were not specifically searching for, they rely on sources they consider as knowing their interests and preferences. Friends and family who know the user's interest and preferences are the most likely source users will turn to for recommendations (45%).<sup>173</sup> Social media sites are another primary source (40%), and there are indications that they are becoming more important: 18% of internet users say that they use them more than they did a year ago to discover new things on the internet that they weren't otherwise searching for.

People also consider search engines a key resource (40%), on a par with social media sites. This could be due to users accessing a search engine to look up information on a recommendation provided by another source, or they might click on links served up within a search result that relate to a generic search term. For example, if a trusted source suggests Jamaica as a holiday destination, a user might think to type Jamaica into the search browser and then use the suggested web pages, images, or videos to discover more about Jamaica and potential holidays there.

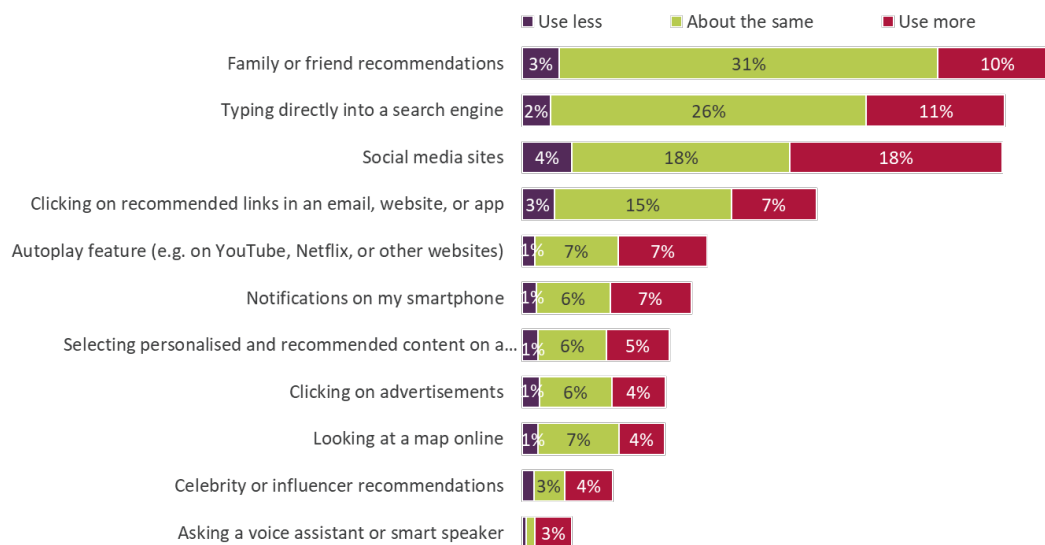
For video and audio content, the autoplay feature,<sup>174</sup> prevalent on services such as YouTube and Netflix, is a popular way of discovering new content: 16% of internet users report using these and nearly half of them say that they use this more than a year ago.

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<sup>173</sup> Ofcom Search questionnaire 2019

<sup>174</sup> Autoplay is a functionality that causes a video, audio file, etc to play automatically, without action from the user.

**Figure 4.6: Discovery of new things on the internet that users weren't otherwise searching for and year-on-year change, proportion of all respondents (%)**



Source: Ofcom Search questionnaire 2019

Question: Q11. How do you discover new things that you weren't otherwise specifically searching for on the internet?

Base: UK adults aged 16+ (2131)

Question: Q13. You said you used [the below] to discover new things that you weren't otherwise specifically searching for on the internet. Do you use [the below] more/less/about the same compared to a year ago?

Notes: 'Use less' consists of 'much less than a year ago' and 'a little less than a year ago'. 'Use more' consists of 'much more than a year ago' and 'a little more than a year ago'. Don't know responses are excluded. 'Other' was asked but is not charted.

Base: UK adults aged 16+ (2131)

### Recommendations from family and friends are an important source of discovery for children watching video content

Recommendations play a particularly important role in determining what children view online. Many children are watching content from OTT TV<sup>175</sup> services such as Netflix and Amazon Prime; 32% of 3-4 year-olds and half of 5-15 year-olds say they use these services.<sup>176</sup> Ofcom's recent qualitative research with children aged 4-16 showed that some children choose to watch certain series or shows on Netflix because a friend said a series was good, or having watched one episode or a series with friends, they want to watch more.<sup>177</sup> Netflix was felt to offer instant availability and maximum choice, enabling them to find interesting and relevant content easily through the platform's recommendations.

YouTube is increasingly perceived as the viewing platform of choice, particularly among 8-11 year olds, who have a clear preference for watching YouTube content rather than TV programmes on a

<sup>175</sup> OTT (or 'over the top') refers to audio-visual content delivered on the 'open' internet rather than over a managed IPTV architecture

<sup>176</sup> Ofcom *Children and parents: media use and attitudes report*, 2018, p. 5

<sup>177</sup> Children's Content Review January 2019, [Life on the Small Screen: What Children are Watching and Why](#)

TV set (49% vs. 40% in 2017).<sup>178</sup> The ability to access and watch whatever they want, whenever they want, is a key draw of YouTube.<sup>179</sup> Our research found that children’s approach to YouTube was distinctly different to how they found programmes on VoD and live TV services. On YouTube, they usually watched multiple videos consecutively, and some flicked between different types of content or accessed new videos through their recommended ‘up next’ and autoplay features. They also found new content by using the platform’s search bar and subscribed to channels to receive notifications when new content was available.<sup>180</sup>

### **A broad range of search tools, services, and functionality helps integrate search and discovery into everyday life**

According to Comscore, the UKOM-accredited online audience measurement currency, search activities make up approximately 3% of the total time spent online by all UK adult internet users. In September 2018 the average UK online adult spent 5 minutes 23 seconds per day searching or navigating for content online. While the total amount of time UK users spent online increased by 6% between 2017 and 2018 (3 hours 4 minutes to 3 hours 15 minutes per day in September), the time spent on search remained in proportion at 3% of total time spent online.<sup>181</sup> This suggests that although people may be consuming more content and information online, and the choices available to them are growing as the internet expands, they are able to find what they are looking for using a range of search approaches such as search engines or other trusted sources such as news sites.

In Ofcom’s research into user search behaviour, highlighted in Figure 4.7, users indicated that while the majority (62%) are using search engines to find things online about the same amount as a year ago, 27% of those surveyed noted that they were using search engines more, while only 8% indicated that they were using them less.<sup>182</sup> A similar pattern was noted in the use of a site/app, such as the BBC website/app or the Amazon website/app; 60% used these sites about the same amount as a year ago while 23% used them more and 10% used them less.<sup>183</sup>

Of users who indicated lower search engine use than in the previous year, their search activity had shifted primarily to using specific sites, such as news sites for news stories or a video site for videos, rather than using a search engine to find these sources. This suggests that some users may have selected preferred providers of this content that meet their needs and now go directly to those locations, particularly as more of their use shifts to the smartphone. Likewise, 36% of users indicated using apps more often to find things, and around 30% of the users using search engines less were now using recommendations from trusted sources such as websites/apps and friends/family to find new things on the internet.<sup>184</sup> For some consumers, trust in known entities helps them navigate the internet.

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<sup>178</sup> Ofcom *Children’s and parents’ media use and attitudes report* 2018, p. 5

<sup>179</sup> Children’s Content Review January 2019, [Life on the Small Screen: What Children are Watching and Why](#)

<sup>180</sup> Children’s Content Review January 2019, [Life on the Small Screen: What Children are Watching and Why](#)

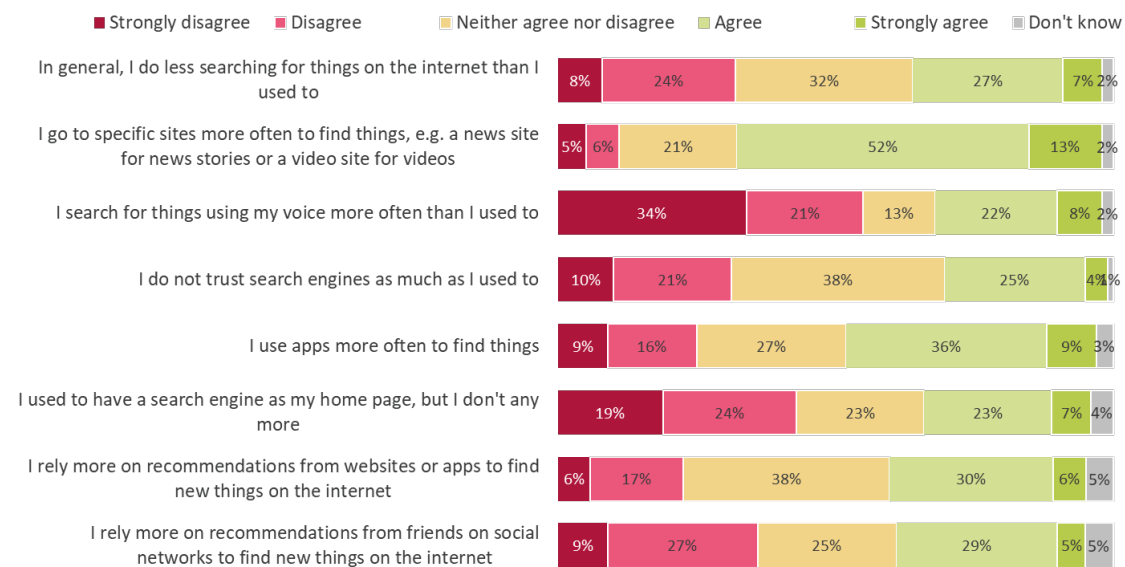
<sup>181</sup> Comscore MMX Multi-Platform, , Search and Navigation and Top Line Category, Age: 18+, Sep 2017 and 2018, UK Sep

<sup>182</sup> Ofcom search questionnaire 2019

<sup>183</sup> Ofcom search questionnaire 2019

<sup>184</sup> Ofcom search questionnaire 2019

**Figure 4.7: All respondents who use search engines less now (%), to what extent do you agree / disagree?**



Source: Ofcom Search questionnaire 2019

Question: Q10. You said that you use search engines less than you did a year ago. To what extent do you agree or disagree with the following?

Base: UK adults aged 16+ (2131)

These patterns indicate that the search engine remains a strong, consistent part of consumers' tools as they search ever-increasing amounts of content and information online. For some consumers, the search engine may have been a key tool that they have always used to find information and they are therefore using it more. Other consumers, such as younger users, may prefer to use other options in addition to the search engine.

## Searching and discovering on the move

### Consumers are navigating the internet in increasingly mobile ways

More than ever before, consumers have devices that deliver search and discovery capabilities wherever they are and whatever they are doing. Since 2016 there has been a surge in the amount of time users claim to spend online in a location other than home or work; this more than quadrupled between 2007 and 2017, to an average of two and a half hours a week.<sup>185</sup> Smartphones, tablets, smart speakers, connected TVs and gaming consoles form a constellation of devices that have built-in search and discovery capabilities. These capabilities allow users to search for content directly either through voice or text, or by manoeuvring through a menu using a controller.

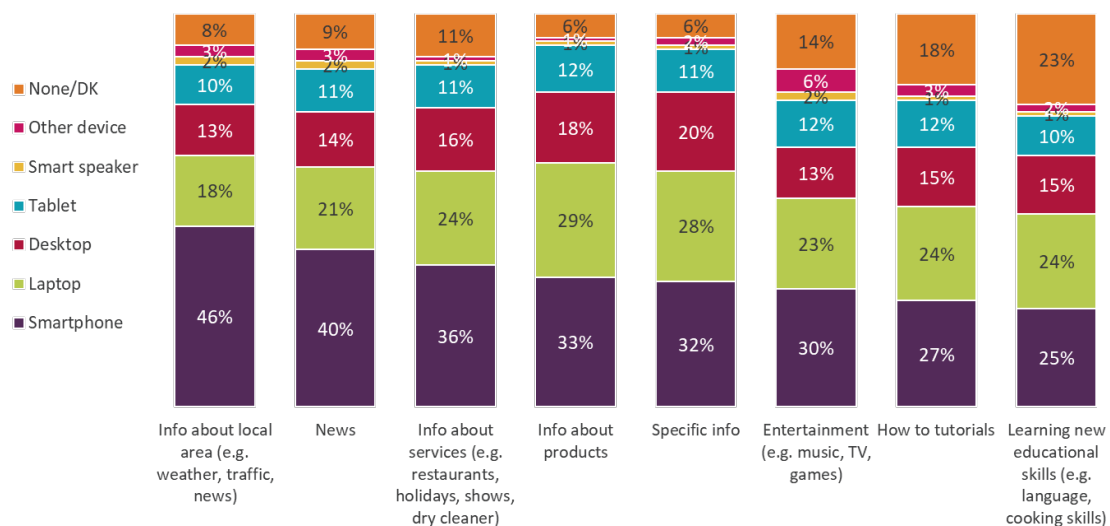
Technological capabilities that support mobility enable consumers to use their mobile devices to search a broad range of sources. The GPS capabilities on phones enable mapping functions. This allows users to use new apps, such as mapping apps showing reviews of restaurants in the area, to find new services or products. Wi-fi and 4G enablement allow shoppers to search for product reviews/price comparisons while on the go.

<sup>185</sup> Ofcom [Communications Market Report](#), 2018, p. 15

The prevalence of the smartphone makes it the dominant device used to search for all types of content online. In 2019, 51% of internet users aged 16+ indicated that the mobile phone was their most important device for connecting to the internet and it has overtaken the likes of laptops and tablets in importance (see *The Online Consumer* chapter).<sup>186</sup>

The importance of the smartphone can be seen in how consumers use it as a key search device. According to Ofcom research (Figure 4.8), the smartphone was chosen by users as the device used most often to search for information or content across all information types, compared to other devices such as laptops, desktops, tablets, smart speakers, or connected TVs. Adult users more widely use the smartphone for accessing in-the-moment information about their local area (46% compared to 18% for a laptop/netbook), news (40% vs. 21% for a laptop/netbook), and information about local services (36% vs. 24% for a laptop/netbook).

**Figure 4.8: Device used most often to find different types of information, all adults 16+ (%)**



Source: Ofcom Search questionnaire 2019

Question: Q8. You said you used the following devices to search for different types of information/content.

Which device do you use most often?

Base: UK adults aged 16+ (2131)

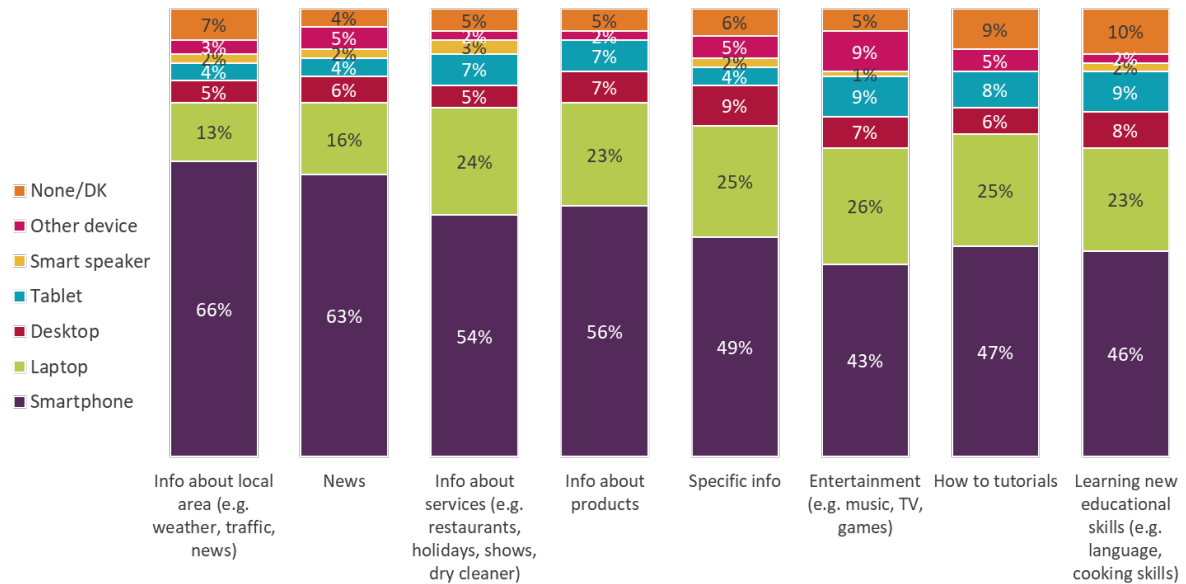
For some content types the smartphone is not as dominant. Twenty-seven per cent of users chose the smartphone as their preferred device to access how-to tutorials, compared to 24% preferring to use a laptop. Similarly, 25% of users preferred the smartphone to learn a new educational skill, such as a language, almost equal to the preference for a laptop or desktop computer (24%). Both categories also had the largest preference for “none of these” or “don’t know” (15% and 23% respectively), further supporting the conclusion that some users prefer to do learning activities face to face.

As in previous years, younger online users aged 16-24 use smartphones more often than the total adult population to search for different types of information and content, at the expense of desktop and tablet use. They also have lower rates of ‘no search’ (or not knowing what tool they use to find

<sup>186</sup> Ofcom [Technology Tracker](#), 2019

certain information). The use of other devices in many categories is also greater than for the broader adult population, indicating a greater range of tools to find different types of information.

**Figure 4.9: Device used most often to find different types of information, adults 16-24 (%)**

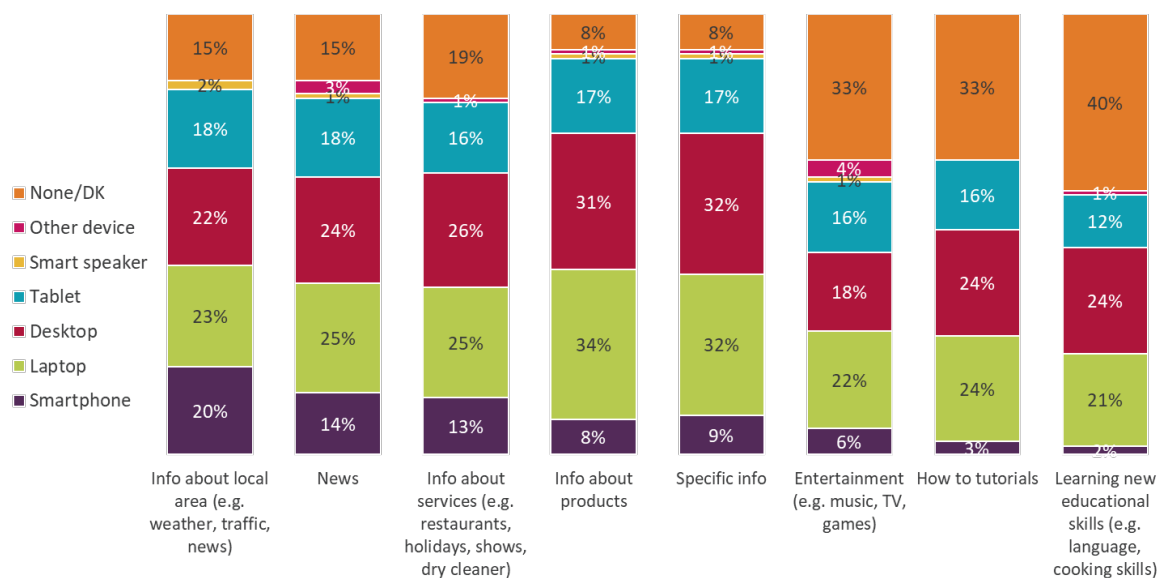


Source: Ofcom Search questionnaire, 2019

Conversely, internet users aged 65+ use more fixed-location technology devices to find the information they need. Desktop and laptop computers were used more often than smartphones, across all information types. Tablets were also used more by this age group than across the whole adult online user population. Older adults also did not use, or did not know about, devices to learn new educational skills or to consume entertainment such as TV shows.



**Figure 4.10: Device used most often to find different types of information, adults 65+ (%)**



Source: Ofcom Search questionnaire, 2019

### Searching for content using voice is still small but growing

Improved voice recognition technology has led to the development of online virtual assistants that respond to consumer voice-activated queries for information and directions. Siri, initially developed as a spin-off project from research at the Stanford Research Institute and introduced in 2011 as a feature to the iPhone 4S, was the first modern digital virtual assistant deployed on a mobile phone. Microsoft followed by integrating its personal assistant Cortana with its products such as Windows phones in 2013. Amazon Alexa and Google Voice Assistant, two other popular voice assistants, were released in November 2014 and May 2016 respectively.

Smart speaker technologies, whereby a freestanding device provides voice search capabilities first emerged in 2014. These devices connect to the internet and an integrated AI voice assistant replies to commands and questions from the user. A user can use their smart speaker for a wide variety of tasks. Most households that own a smart speaker use them regularly; 96% of households use them weekly to perform activities such as listening to music via a streaming device (62%), listening to a live radio station (45%), or searching for online information or asking general questions (31%).<sup>187</sup>

### Smart speaker adoption continues to increase

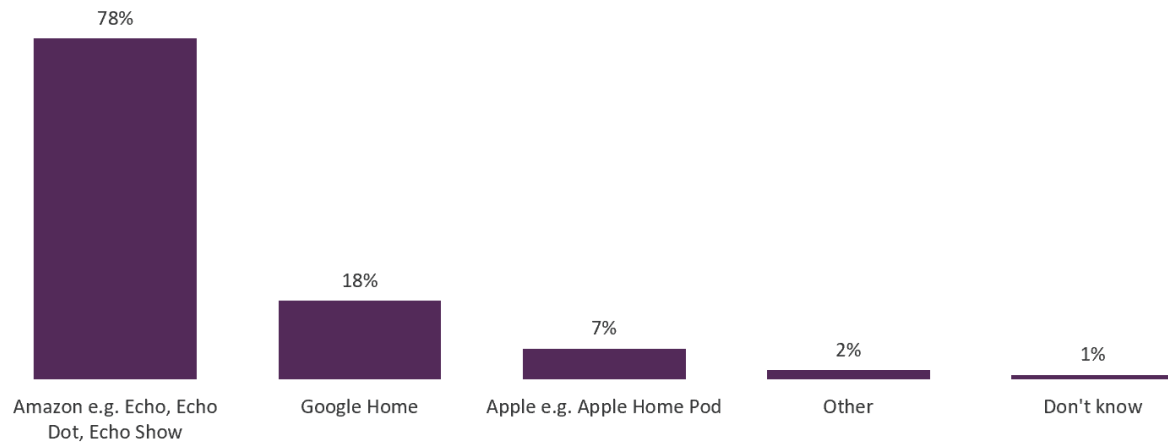
UK households are increasingly adopting smart speakers; in 2019, 20% of UK households have a smart speaker, an increase of seven percentage points since 2018.<sup>188</sup> Two smart speaker brands are heavily preferred in the UK market. The Amazon Echo and Echo Dot speakers, underpinned by the Alexa voice-controlled virtual assistant, are the most-used smart speakers, compared to the next closest competitor, the Google Home, powered by the Google Assistant. When Ofcom surveyed

<sup>187</sup> Ofcom [Technology Tracker](#), 2019

<sup>188</sup> Ofcom [Technology Tracker](#), 2019

users, 24% of people said they used a smart speaker, with most of them using Amazon smart speaker products.<sup>189</sup>

**Figure 4.11: Type of smart speaker used, all respondents who use a smart speaker (%)**



Source: Ofcom Search questionnaire, 2019

Question: Q15. You said you used a smart speaker. Which type of smart speaker do you use?

Base: UK adults aged 16+ (478)

Those who have used a smart speaker in the last year are using them to discover new things online. Of those who, in the past year, had asked a voice assistant or smart speaker to discover new things that they hadn't otherwise been searching for, 73% of users surveyed indicated that they used it more than a year previously.<sup>190</sup>

Voice search devices are already evolving to include video display, like the technology already existing on smartphones. Amazon introduced its Echo Show device, comprising a 7-inch video screen with built-in Alexa voice assistant technology, in mid-2017. This latest version voice and video search assistant allows users to do similar tasks to those they can perform with a smart speaker, including making hands-free video calls, displaying TV shows from the Amazon platform, displaying home surveillance camera outputs, or showing the weather. The added ability to display visuals and video with a voice search may be more appealing to consumers than a voice-only smart speaker device. These devices also allow retailers, such as Amazon, to show consumers the product they may want to purchase, rather than relying on the consumer to recall a specific brand or product for their needs.

<sup>189</sup> Ofcom Search questionnaire, 2019

<sup>190</sup> Ofcom Search questionnaire, 2019. Note that the data do not indicate when users acquired a smart speaker.

## Smart TVs let consumers search for or discover new video content

Smart TVs can be connected directly to the internet<sup>191</sup>, providing another platform for consumers to search for or discover content. According to Ofcom's [Technology Tracker](#), in 2019, 47% of UK households have a smart TV, an increase of five percentage points since 2018.<sup>192</sup> These are an especially popular way for younger consumers to access the internet. A fifth of adults (20%) aged 16+ said they were more likely to go online through a smart TV than a computer.<sup>193</sup> This was more likely among those aged 16-24 (33%), followed by 25-34 year olds (28%).

Although many UK households have smart TVs with search capabilities, our survey did not indicate that this was a popular search method. When we asked users which device they used most to access entertainment, the area where a smart TV would be expected to be used extensively, only 4% of users indicated they used a smart TV most often.<sup>194</sup> This function remains relatively niche and is not widely used by the UK population.

## Search and discovery are important revenue generators

### Search engines generate most of their revenue from advertising

Search engines generate revenue by providing advertising space, both within their search results and along the edges of the search results page. Advertisers bid on popular keywords, or words related to search terms users might enter, to have their ads show up in search results containing those keywords. Each time a user clicks on one of those ads, advertisers pay a cost-per-click to the search engine. For sectors where there is a high probability that a user clicking on one of these ads will purchase the product or service, insurance or legal services for example, the keyword bid prices and the cost-per-click will be quite high. The most expensive keyword in Google Adwords Advertising in the UK, 'casino', costs approximately £50 or more per click, on average. The word 'insurance', which a person might use in a search term such as 'car insurance price quotes', costs about £11 for each user click.<sup>195</sup>

Consumer data is an important currency in this transaction. For example, Google, whose search engine is used by many UK consumers, collects user data such as personal identifier information (e.g. address, telephone number), activity-related information from across all Google services (e.g. usage data, photos, Gmail messages), device type use, and location information. These data are combined to provide a singular, anonymised user profile, which is used both to serve up accurate search results and to make the data available through its ad services to advertisers looking to target certain potential consumer groups.

According to advertising industry body IAB, total UK digital advertising expenditure was £13.4bn in 2018, an increase of £1.8bn (13% increase) over 2017.<sup>196</sup> Paid-for search made up the largest

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<sup>191</sup> Ofcom [Technology Tracker](#), 2019 data shows that 84% of smart TV households have connected the TV to their broadband

<sup>192</sup> Ofcom [Technology Tracker](#), 2019

<sup>193</sup> Ofcom [Adults' Media Literacy Tracker](#), 2018

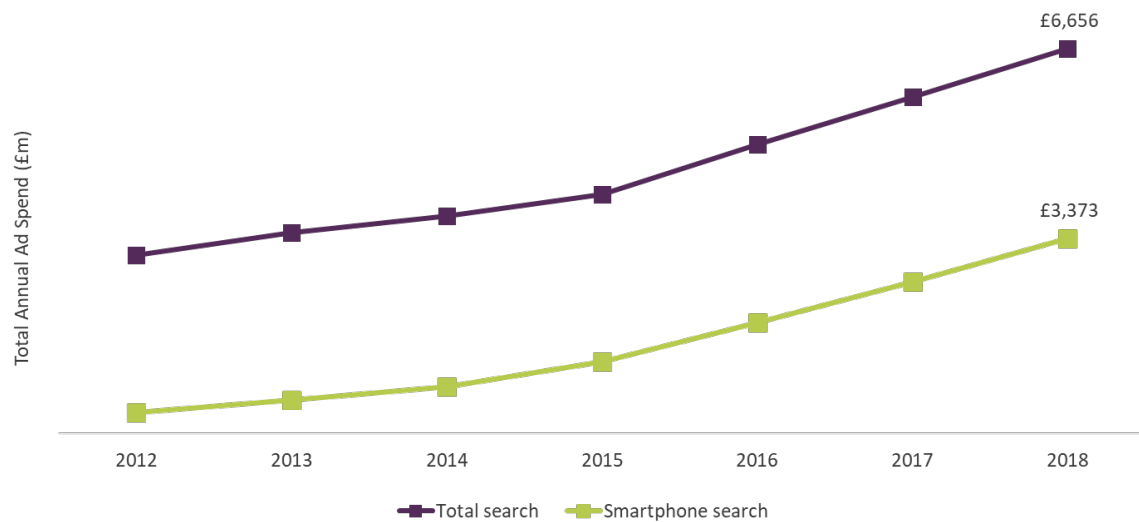
<sup>194</sup> Ofcom [Search questionnaire](#), 2019

<sup>195</sup> As of November 2018. <https://www.wordstream.com/blog/ws/2017/06/28/most-expensive-keywords-uk-edition>

<sup>196</sup> [IAB/PwC 2018 Digital Adspend Study](#). Adjusted for CPI (2018 prices).

category of online advertising, as it has for every year since measurement of internet advertising began, representing 50% of total UK digital advertising expenditure. This compares to 39% for display (e.g. banner ads on websites or video adverts embedded in content), 11% for classifieds (e.g. paid listings on Autotrader.com), and <1% for other formats or advertising on lesser-used formats such as virtual reality or augmented reality).

**Figure 4.12: Summary of UK online advertising expenditure: 2012-2018**








Source: IAB /PwC 2018 Digital Adspend study. Figures are nominal.

### **Other popular search and discovery sources also generate revenue using ad-funded models in addition to subscription revenue for premium services and transaction revenues**

Advertising is a key revenue model for many online properties, and this is true for some popular search and discovery sources. The ability to finely target user interests, and groups of users, on global platforms is extremely valuable for both large and small, local and global, advertisers. Figure 4.13 provides an overview of the key revenue streams generated by common search and discovery platforms.

Figure 4.13: Business model overview of popular search and discovery tools

	Subscription	E-commerce/ transactions	Advertising/ sponsorship
			X
	X	X	X
	X	X	X
	X	X	X
		X	X

Source: Ofcom analysis

All five sources use advertising, primarily display advertising; the company is paid to show ads on the site and uses click-based advertising. For TripAdvisor, a user might use the site to search for information, read user reviews about a certain location and might then click through to the website of a hotel or resort they found appealing (or ‘discovered’ in their internet journey). TripAdvisor gets revenue from the user clicking through the TripAdvisor site to book on the hotel website and, if the hotel has advertised on TripAdvisor, revenue from displaying that advertisement. TripAdvisor also earns revenue through booking fees, earning commission from hotels booked through its platform.

Advertising revenue in Amazon’s business comes from charging companies to promote their products on Amazon properties; more than two-thirds of product clicks happen on the first page of Amazon’s search results of its e-commerce site.<sup>197</sup> In addition, Amazon has outlets outside e-commerce to sell advertising. These are attractive to companies looking to connect with consumers in a holistic manner. For example, in the US, telecoms provider Verizon, which doesn’t sell its services over Amazon, advertises via Amazon both through digital ads on the Amazon home page and via advertising on the outside of Amazon-branded shipping boxes.<sup>198</sup> Amazon does not break out its advertising sales, although the category where these sales are booked, ‘Other’, has increased from \$3bn (£2.3bn) in 2016 to \$10bn (£7.7bn) in 2018.<sup>199</sup>

<sup>197</sup> <https://www.emarketer.com/content/more-product-searches-start-on-amazon>

<sup>198</sup> <https://www.nytimes.com/2018/09/03/business/media/amazon-digital-ads.html>

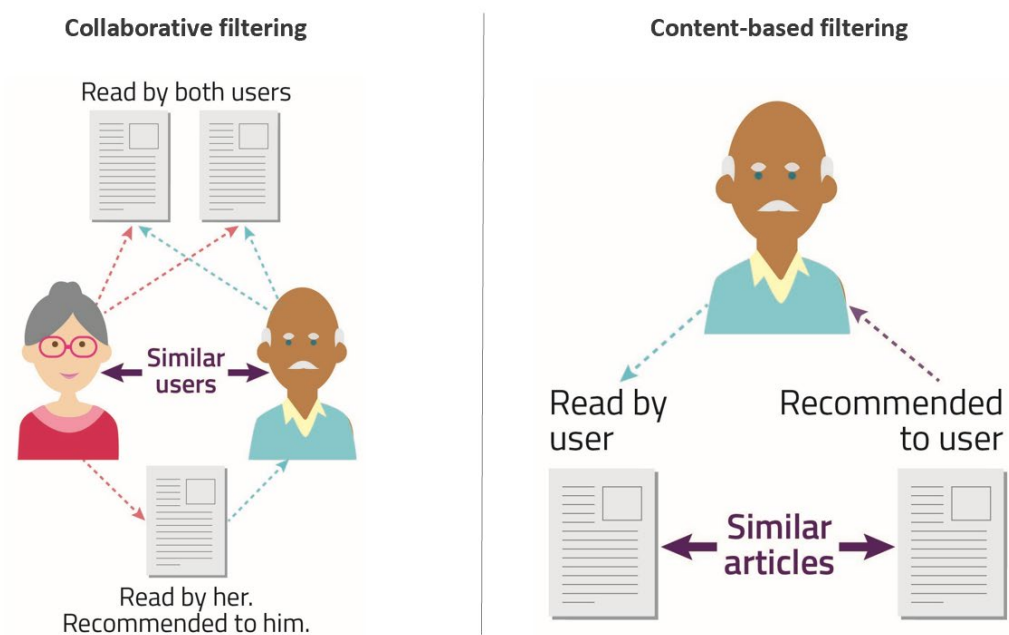
<sup>199</sup> Source: [Amazon 10K filing 1 February 2019](#) for fiscal year ended 31 December 2018. Other category primarily includes sales of advertising services as well as sales related to other services offerings. Exchange rate: Bank of England Yearly Average 2018, £1 = \$1.33. Figures presented are nominal.

## Recommendation engines drive revenue and customer retention

There are several key 'artificial intelligence' (AI) technologies that underpin common recommendation engines currently commercially deployed to support automatic content curation and personalisation.

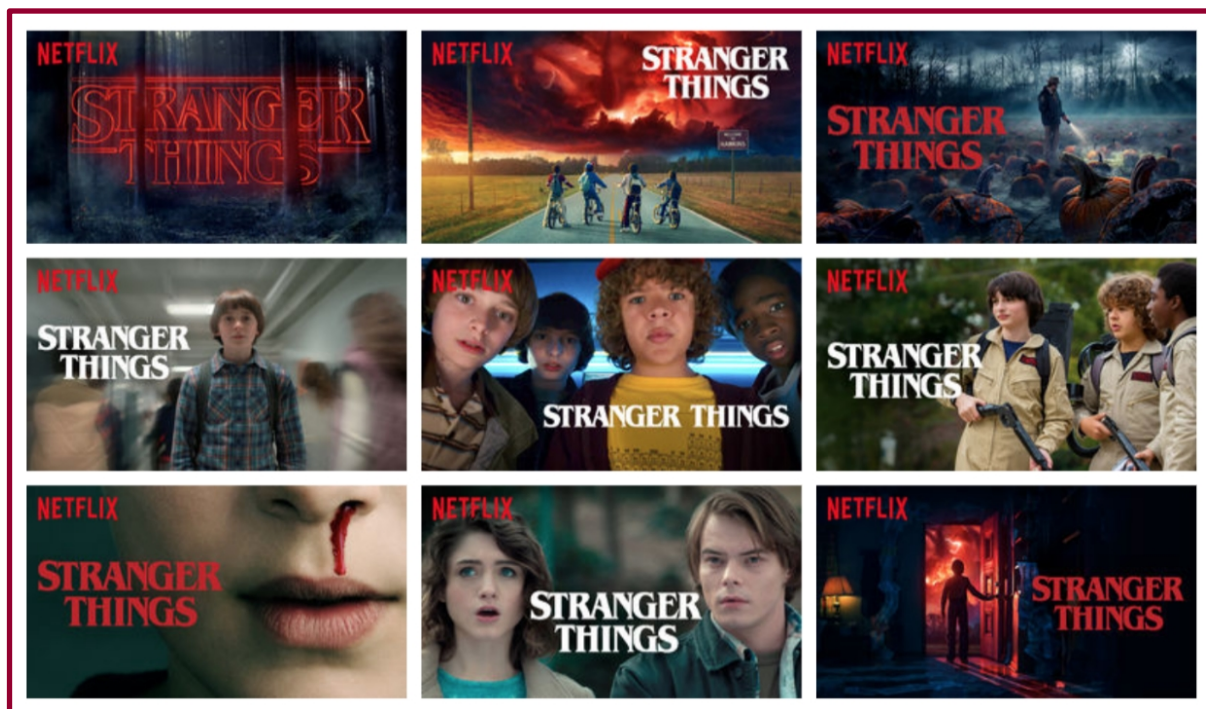
Collaborative filtering compares pairs of products in a catalogue, such as products or TV shows, and analyses the set of people who have bought, rated, or even just looked at the item, to understand the correlation between them. Products/content and users that are highly correlated are then presented to the user in a list as a recommended product or content. Netflix uses this system to recommend TV programmes and films while Amazon uses it to recommend additional products to customers for purchase on its e-commerce site.

Figure 4.14: Collaborative filtering vs. content-based filtering



Images play an important part on platforms as viewers flick through databases to find something that catches their eye. Image discovery is a customisation of the thumbnail images that represent each programme on the platform. AI methods are used to automate and tailor the selection of the image displayed for each show, from video frames of the content itself. These are customised to viewers' preferences, tastes, and past behaviour, increasing the likelihood that users will find content to select. Netflix employs this method to improve viewers' attraction to content across its portfolio, by personalising the artwork shown to viewers, based on past search, selection, and viewing behaviour. Figure 4.15 gives an example of the different options Netflix presents to viewers of the popular show *Stranger Things*.

Figure 4.15: Netflix artwork options for *Stranger Things*



The bottom right-hand corner image would probably be served to a viewer who had previously watched horror films, while viewers with an interest in ‘coming-of-age’ dramas with a young cast would be more likely to see an image from the middle row. Personalisation extends further into creating different trailers for films/programmes depending on the viewer, using a more advanced version of the image discovery model outlined above.

Raw audio analysis (RAA) is another technique, primarily used with audio-driven platforms and music services such as Spotify or Apple Music. This AI technique allows computers to ‘listen’ to music and sound to identify attributes such as genre, tempo, rhythm, pitch, etc. By combining this technology with recommendation engines, new songs, playlists and content can be suggested that are in line with a user’s listening habits and preferences. RAA complements collaborative filtering, which may infer a user’s likelihood to enjoy a similar track, by drawing comparisons between new music with similar attributes to music currently enjoyed by the user. Potential new choices are then presented to the user in a customised playlist.

These technologies are used to drive additional sales on a retail platform or to encourage consumers to watch more content on a preferred video platform, thereby improving customer retention. One commonly cited example of the power of recommendation engines is how the Google search algorithm, by ranking and recommending to users the best sites related to their search, was able to beat the search engine competitor Altavista and win consumer preference in the early years of the internet. Another example is how recommendations support Amazon and Netflix; Netflix claims that 80% of its subscribers trust and follow the recommendations of the algorithm,<sup>200</sup> while 35% of what consumers purchase on Amazon comes from recommendations.<sup>201</sup>

The value of recommendation engines can also extend to maximising the potential for an additional sale, especially on e-commerce platforms, by reducing overwhelming customer choice to options

<sup>200</sup> <https://mobilesyrup.com/2017/08/22/80-percent-netflix-shows-discovered-recommendation/>

<sup>201</sup> McKinsey 2013, [How retailers can keep up with consumers](#)

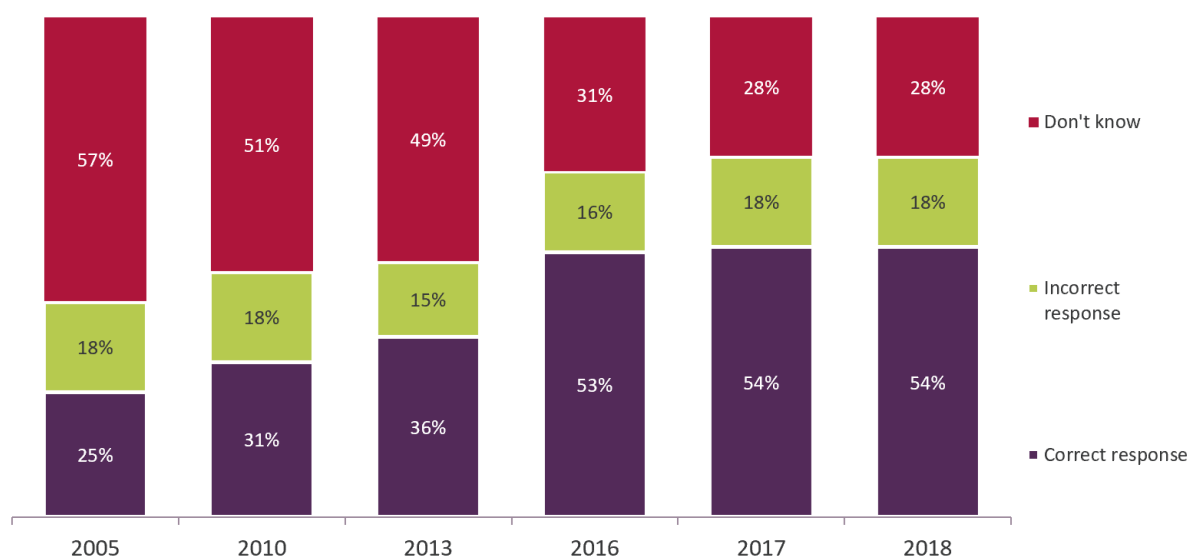
known to be similar to existing preferences. In a potential product universe of millions of products, such as the Amazon website, this is important to help consumers sift through the products on offer and optimise their shopping experience. Similarly, for Netflix, the extensive range of content can be overwhelming to consumers, who would probably choose not to use the service if there was no way to easily find or discover new content amongst the ‘noise’ of content they would prefer not to watch.

## People can face potential harm from search and discovery activities

### Almost half of UK adults have limited or no knowledge of how search engines are funded

According to Ofcom’s *Adults’ Media Use and Attitudes research*, in 2018 more than half (54%) of adults were aware of how search engine websites are mainly funded, close to three in ten (28%) were unsure<sup>202</sup>, and nearly one in five (18%) gave an incorrect response. Each of these measures was unchanged since 2017.<sup>203</sup> Compared to the average, adults aged 65-74 (40%) or aged 75+ (61%), and those in C2 (37%) or DE households (43%) were more likely to say they were unsure how search engine websites are mainly funded.<sup>204</sup>

Figure 4.16: Awareness of how search engines are funded, all UK adults: 2005-2018



Source: Ofcom Adults’ Media Literacy Tracker 2018

IN32. How do you think search engine websites such as Google or Bing are mainly funded? (unprompted responses, single coded)

Base: All adults aged 16+ (1875 in 2017, 1882 in 2018)

A majority of adult internet users (85%) also say they are either fairly or very confident that they know what is or is not advertising online, with just under half (45%) stating that they are very

<sup>202</sup> Either responding ‘don’t know’ (26%) or stating they had never heard of search engine websites (2%).

<sup>203</sup> Ofcom *Adults’ media use and attitudes report*, 2019

<sup>204</sup> Ofcom *Adults’ media use and attitudes report*, 2019



confident.<sup>205</sup> However, when shown an image of links on Google, distinguished by a box with the word 'Ad' in it, 48% of adult search engine users correctly understood that these were only there because they were paid-for advertising, and not because they were the best or most relevant results. This measure is unchanged since 2016 and 2017.<sup>206</sup>

Six in ten adult search engine users also understand that some of the websites returned by search engine results will be accurate and unbiased, while some will not be.<sup>207</sup> This figure is unchanged from previous years, suggesting that user awareness has not increased about bias and accuracy in content on the internet.

The ability to distinguish paid-for search results from other search results has implications for the ability of internet users to make rational and informed decisions that may affect their personal and professional well-being. An inability to make a distinction may limit internet users' ability to think critically about the information they encounter when browsing. There may also be implications for purchasing decisions: a user may decide to buy the first product returned by a search engine in the belief that its prominence is a result of it being the most popular or most trusted, when that product owes its prominence to a commercial agreement.

### **Children are less able than adults to correctly identify sponsored links in search results**

According to Ofcom's *Children's and Parents' Media Use and Attitudes* research, children aged 8-15 have varying abilities in the critical assessment of websites and search results. Seven in ten 12-15s (69%) who go online and who visit websites or apps they have not used before, say they 'ever' think about whether they trust the information on these sites or apps to be true or accurate. However, children appear to think less critically of search engine results; at least half of 8-11s (50%) and 12-15s (55%) who use search engines are aware that some of the results returned by these sites can be trusted and some can't; although awareness is lower for 12-15s than in 2017 (62%).<sup>208</sup>

When considering advertising and sponsorship, only a minority of 8-15s who use search engines (23% for 8-11s and 33% for 12-15s) correctly identified sponsored links on Google as advertising and understood that advertising was the reason the results were displayed.<sup>209</sup> This is despite the search results being enclosed in a green box with the word 'Ad' in it. These figures are unchanged since 2017, suggesting that children in these age groups may not consider the potential inaccuracies and biases of search engine results.

### **There is less awareness of how YouTube and other video-sharing sites make money**

Over half (56%) of adult YouTube users are unaware of how YouTube is funded. Just over four in ten (44%) are aware that advertising is the main source of funding for YouTube, a figure unchanged since 2016 and 2017.<sup>210</sup>

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<sup>205</sup> Ofcom *Adults' media use and attitudes report*, 2019

<sup>206</sup> Ofcom *Adults' media use and attitudes report*, 2019

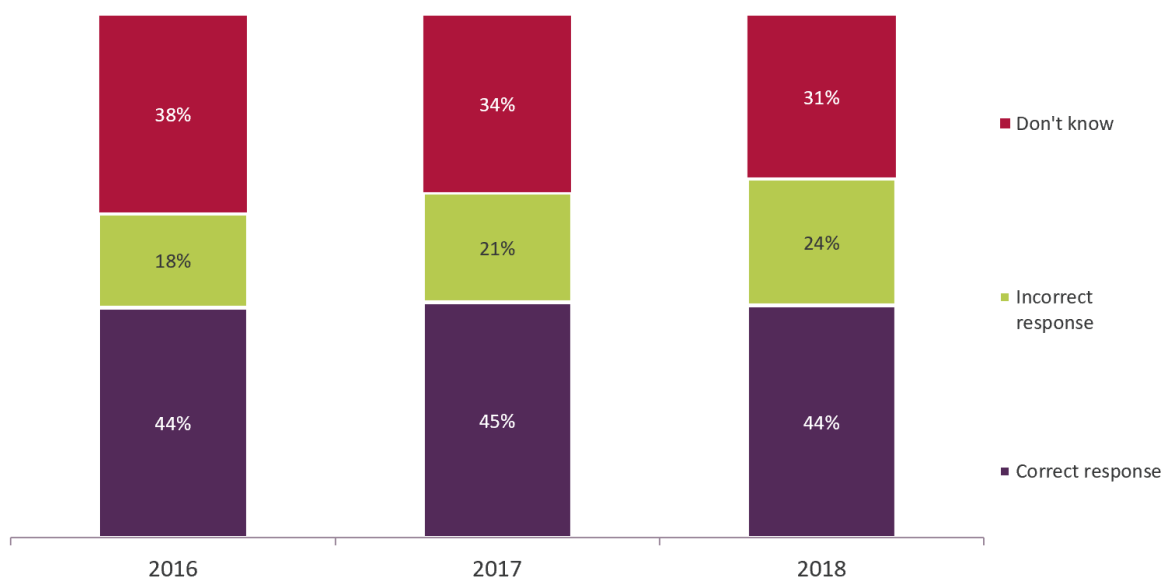
<sup>207</sup> Ofcom *Adults' media use and attitudes report*, 2019

<sup>208</sup> Ofcom *Children's and parents' media use and attitudes report*, 2018, p. 11

<sup>209</sup> Ofcom *Children's and parents' media use and attitudes report*, 2018, p. 11

<sup>210</sup> Ofcom *Adults' media use and attitudes report*, 2019

**Figure 4.17: Awareness of how YouTube is mainly funded, adults aged 16+: 2016-2018**



Source: Ofcom Adults' Media Literacy Tracker 2018

IN34. How do you think YouTube is mainly funded? (unprompted responses, single coded)

Base: All adults aged 16+ (1875 in 2017, 1882 in 2018)

Around half of children aged 12-15 (51%) are aware that YouTube is funded primarily by companies paying to advertise on YouTube, unchanged since 2017.<sup>211</sup> The percentage who indicated 'don't know' dropped five percentage points, from 26% to 21%, suggesting that users are thinking about how YouTube is funded. As with the adult population, there was an increase in 2018 of the percentage of users giving an incorrect response to questions on how YouTube is funded. A quarter of children (26%) said that YouTube was mainly funded by YouTube users; up since 2017 (18%).<sup>212</sup>

Adult users of video-content sharing sites (e.g. YouTube, Facebook, Vimeo, Snapchat) are aware of the potential for product placement by 'vloggers', people who regularly post short videos to these platforms. Three in four users of video-sharing sites (74%) are aware that the vloggers/ influencers might be being paid by the company to say favourable things, and this incidence is unchanged since 2016 and 2017.<sup>213</sup> For children aged 12-15 who are online, 65% are aware that vloggers may be paid to endorse a product, a similar response rate to the previous year.<sup>214</sup> This is important as vloggers are becoming an increasingly important source of creativity and content, and potentially role models, for children in all age groups, as noted in Figure 4.18.

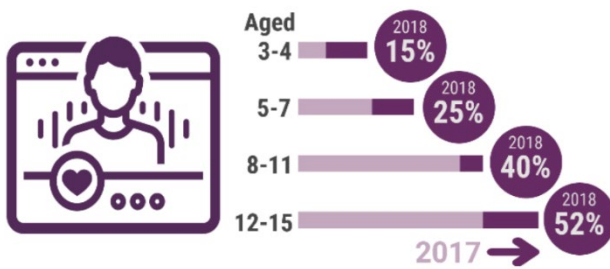
<sup>211</sup> It should be noted for this research that children were prompted with options, but adults were asked to respond unprompted, therefore resulting in children's awareness being higher than adults.

<sup>212</sup> Ofcom [Children's and parents' media use and attitudes report](#), 2018, annex 1, p. 107

<sup>213</sup> Ofcom [Adults' media use and attitudes report](#), 2019

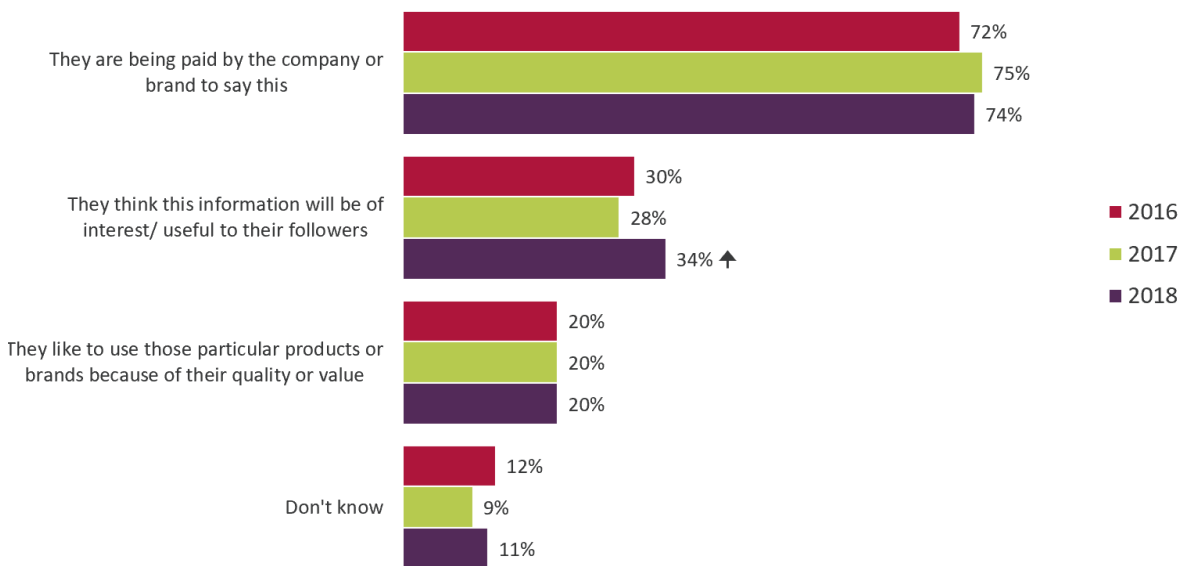
<sup>214</sup> Ofcom [Children's and parents' media use and attitudes report](#), 2018, p. 11

Figure 4.18: Viewing of vloggers or YouTube personalities, among YouTube users aged 3-15



Source: Ofcom [Children's and parents' media use and attitudes report](#), 2018, p. 6

Figure 4.19: Understanding of potential product endorsement by vloggers among adult users of video-sharing services: 2016-2018



Source: Ofcom *Adults' Media Literacy Tracker 2018*

IN51. On sites like YouTube, Snapchat or Vimeo some vloggers or influencers with lots of followers like Zoella or Thatcher Joe might say good things about a particular company or product or brand, such as Nike clothing, a new game, or clothes from TopShop. Which, if any of these, are reasons why they might say good things about these products or brands? (prompted responses, multi-coded)

Base: Adults who ever watch videos on video-sharing sites (1161 in 2017, 1179 in 2018). Arrows show significant changes (95% level) between 2017 and 2018

The ability of users to identify the difference between advertising and vlogger videos is especially critical as lines continue to blur between the two spheres. 'Unboxing videos', whereby a vlogger films themselves unboxing a new product, such as a toy or make-up, and then using the product and giving their thoughts, are one example of where lines may not be as obvious to users. *Ryan ToysReview*, one of the most popular toy unboxing channels on YouTube, has more than 19 million subscribers<sup>215</sup> and earned the seven-year old star more than \$22m in 2018, making him the top

<sup>215</sup> As of 21 April 2019

earner on YouTube.<sup>216</sup> Young children are particularly avid consumers of unboxing videos, with 25% of children aged 5-15 having watched these videos on YouTube in 2018, up since 2017.<sup>217</sup>

### **The shift towards personalised recommendations and recommendation algorithms could create an echo-chamber effect for users**

While internet users are exposed to new content that they may not previously have considered, through recommendation engines, this functionality can limit the visibility of other options, ideas, genres, or opinions that may lie outside the consumer's current field of consideration. This could create an echo-chamber effect, where a user's choices are reinforced by their existing preferences and choices, or those of their friends, or people with similar likes and preferences. The echo-chamber effect is dictated by the algorithm and the sources on which it draws to recommend content and products to the user; the exact sources and structure of commercially-applied algorithms are typically never revealed and can therefore be difficult to modify or regulate. These algorithms and their applications, particularly in social media, to help consumers navigate large amounts of content, and their potential harmful impacts, are covered further in the *Social Media* chapter.

### **Search engines are frequently cited as the source of some harms, although they remain less prominent than social media in almost all categories of potential harm**

The Ofcom Online Harms quantitative research<sup>218</sup> found that search engines had frequently been identified as the source of a potential harmful experience in the last 12 months. For content and contact with others, 25% of adults who had experienced and were concerned about sexual or pornographic content said that they were using a search engine when they came across this material, 18% identified search engines as the source of their experience of offensive language, 20% as a source of fake news and 23% as a source of harmful or misleading advertising. When looking at potential harms related to data use, 20% identified search engines as a source of spam emails, 22% as a source of their personal data being processed without their consent, and 35% as a source of 'people or organisations collecting data about me in unclear ways for commercial reasons'.

The incidence of harm arising from search engines was much lower for 12-15 year olds across all the categories of harm: sexual or pornographic content, spam email, and 'people or organisations collecting data about users in unclear ways for commercial reasons' were the only potential harms where this group identified search engines as the source more than 10% of the time. This could reflect the fact that children's online use centres less on search and more on other sources of content such as social media and video.

In almost all categories of harm, search engines are less likely than social media to be identified as the source by people experiencing, or concerned about, online harm, and in many cases less likely than video services. However, as more people use a plethora of methods to search for content, including video and social media, and more platforms personalise the content served to consumers, the data may understate the harms associated with search engines.

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<sup>216</sup> Forbes, 3 December 2018. Calculated estimates pre-tax revenue between 1 June 2017 and 1 June 2018

<sup>217</sup> Ofcom [Children's and parents' media use and attitudes report](#), 2018, Annex 1, p. 58

<sup>218</sup> [Ofcom-ICO research](#) 2019

Among those who stated that search engines were a source of a potentially harmful experiences, spam emails (14%), scams/ fraud (13%), fake news (11%), and 'people or organisations collecting data about me in unclear ways for commercial reasons' (9%) were the harms most commonly attributed to search engines.



# Social media

## Introduction

### Key metrics

Figure 5.1: UK social media use: key metrics

		2016	2017	2018
UK adults with a social media account <sup>1</sup>		65%	68%	70%
UK 12-15s with a social media account <sup>2</sup>		72%	74%	69%
UK 8-11s with a social media account <sup>2</sup>		23%	23%	18%
Average time spent on social media by adults <sup>3</sup>		34 mins/day	42 mins/day	39 mins/day
Digital reach of social media sites among adults <sup>3</sup>	Total digital population	96%	98%	98%
	On mobile	94%	96%	97%
	On computer	92%	91%	88%
Social media market global revenue <sup>4</sup>		£28.07bn	£42.42bn	£49.55bn
% UK revenue <sup>4</sup>		6%	5%	6%

Sources: <sup>1</sup>Ofcom Adults' Media Use and Attitudes reports 2017-2019. <sup>2</sup>Ofcom Children and Parents: media use and attitudes reports 2016-2019. <sup>3</sup>Comscore MMX Multi-Platform, Social Media, Age: 18+, Sep 2016, 2017 & 2018, UK <sup>4</sup>Nominal figures. O&O analysis.

### Social media is an important pastime in the UK

Social media is one of the most popular online activities in the UK. Seventy per cent of UK adults have a social media account,<sup>219</sup> and one in every five minutes spent online is on social media. On average, UK internet users spend up to 39 minutes each day on services including Facebook, Snapchat, WhatsApp, Instagram, Tumblr, Twitter, LinkedIn, Reddit and Pinterest.<sup>220</sup> The social media market is diverse and constantly evolving, with each platform offering something unique to users, who can access a range of features, from staying in touch with friends and family to watching new

<sup>219</sup> Ofcom *Adults' media use and attitudes report*, 2019.

<sup>220</sup> Comscore MMX Multi-Platform, Social Media, Age:18+, Sep 2018, UK

and original content. Meanwhile, many UK businesses and advertisers use social media platforms to connect with customers. In 2018, the UK social media sector generated an estimated 6% of global sector revenues.<sup>221</sup>

### **Defining ‘social media’ is difficult because of the broad range of functions it encompasses, many of which intersect with other online services**

‘Social media’ is often used generally to refer to a set of popular online services, encompassing a range including Facebook, Twitter, Snapchat, Instagram, YouTube, Reddit, Tumblr, Pinterest and WhatsApp. Attempting to map the exact boundaries of the social media sector, however, is more difficult.

Communicating with others through user-generated text, photos and videos might be considered the central function of ‘social media’ in its most basic terms – but, many online platforms facilitate these kinds of interactions. Further, whether a service is considered ‘social media’ can often depend on the individual using it – for instance, Reddit or YouTube could have primarily ‘social’ functions for some users but not others. Some companies even reject the ‘social media’ label – Snapchat, for instance, refers to itself as a camera company,<sup>222</sup> while Pinterest’s recent IPO filing emphasised its uniqueness as a ‘media-rich utility’.<sup>223</sup>

Consequently, the concept of ‘social media’ has blurred boundaries that intersect with video-sharing services, blogging sites, messaging apps and forums. Figure 5.2 below demonstrates some of the shared functionality of popular social media, blogging, messaging and video-sharing platforms which will appear in this chapter.














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<sup>221</sup> O&O analysis and estimates

<sup>222</sup> [Snap Inc.](#) [accessed March 2019]

<sup>223</sup> Pinterest Inc. [Registration Statement Under The Securities Act of 1933](#). Filed with the Securities and Exchange Commission on April 8, 2019. See: summary. [accessed May 2019]

Figure 5.2: Functions of selected social media, messaging and associated services

													
	PROFILE/ ACCOUNT	CURATED/ PERSONALISED FEED	FRIENDS/ CONTACTS/ CONNECTIONS	FOLLOWERS/ SUBSCRIBERS	PHOTO SHARING	VIDEO SHARING	COMMENTS	DIRECT / PRIVATE MESSAGING	GROUP MESSAGING	HASHTAGS <sup>224</sup>	LIKES	DISLIKES <sup>225</sup>	ADVERTISING
FACEBOOK	●	NEWS FEED	●	●	●	●	●	●	●	●	●		●
INSTAGRAM	●	EXPLORE	○ <sup>226</sup>	●	●	●	●	●	●	●	●		●
TWITTER	●	TIMELINE		●	●	●	REPLIES	●	●	●	●	○	●
SNAPCHAT	●	DISCOVER	●	●	●	●		●	●				●
LINKEDIN	●	●	●	●	●	●	●	●	●	●	●		●
PINTEREST	●	●		●	●	○ <sup>227</sup>	●	●	●	●	○ <sup>228</sup>		●
REDDIT	●	FRONT PAGE	○	○ <sup>229</sup>	●	●	●	●			UPVOTES	DOWNVOTES	●
IMGUR	●	●		●	●		●	●		○	UPVOTES	DOWNVOTES	●
BLOGGER	●			●	●	●	●						●
WORDPRESS.COM	●	READER		●	●	●	○ <sup>230</sup>			○	○		●
TUMBLR	●	DASHBOARD		●	●	●	●	●	○ <sup>231</sup>	●	●		●
YOUTUBE	●	RECOMMENDED	●	●	●	●	●	●	●	●	●	●	●
TWITCH	●		●	●	●	●	CHAT	WHISPERS	○ <sup>232</sup>	○			●
TIKTOK	●	FOR YOU	●	●	●	●	●	●		●	●	○	TESTING
WHATSAPP	●		●		●	●		●	●				

<sup>224</sup> On **Imgur**, **WordPress.com** and **Twitch**, ‘tags’ group posts and streams together.

<sup>225</sup> On **Twitter** and **TikTok**, ‘dislikes’ do not appear publicly, but users are given an option to ‘dislike’ to prevent similar content from being shown in their feed.

<sup>226</sup> Instagram introduced a ‘close friends’ list in November 2018, allowing users to share certain posts with this list only. See: [Instagram Help](#).

<sup>227</sup> Only on iOS. See: [Pinterest Help Center](#).

<sup>228</sup> Pinterest removed its like button in 2017, in favour of its ‘save’ button. See: [Pinterest Newsroom](#).

<sup>229</sup> On **Reddit**, following a user will show their posts in your Front Page (when logged-in). Adding a user as a ‘friend’ will show their posts in an aggregated feed showing all friends’ posts (r/friends). The user added as a friend will not be notified of this. See: [r/NoStupidQuestions](#).

<sup>230</sup> The entries for Blogger and WordPress.com reflect basic functionality, though users can add other functions to their blog (e.g. using widgets). Comments and Likes are included on every WordPress.com blog, but users can control whether they are displayed. See: [WordPress.com Support](#).

<sup>231</sup> Twitch ended support for video chat and group messaging in its desktop app from February 2019. See: [Twitch Help](#).

<sup>232</sup> Tumblr was testing group chats for some users in early 2019. See: [Tumblr Help Center](#).





All the services listed require users to have a profile or account before posting or sending content, although these may vary considerably from a fully-populated Facebook profile to registration on WhatsApp using first name, date of birth and phone number. Almost all services include some way of connecting to others, whether as ‘friends’, connections or contacts, or the more distant association of ‘followers’. For instance, both Facebook and Reddit allow users to ‘friend’ each other, but on Facebook this denotes a personal, individual relationship between two users, while on Reddit, a user may ‘friend’ another (in order to be notified of their posts, similar to the follow function on Twitter) without the user in question ever being aware.

This draws out some of the essential differences between the services. While Facebook’s core product is around creating a network of real-life acquaintances or affiliated groups online based on real-life identity,<sup>233</sup> Reddit functions more as a forum, with many users otherwise unknown to each other, and posting under a username. Like many other services, Facebook gives users ‘likes’ to demonstrate approval, but Reddit is one of the few services to allow ‘dislikes’ or downvotes – often a choice for platforms when deciding the type of interactions between users they want to facilitate. Mark Zuckerberg has indicated that a ‘dislike’ button is unlikely to feature on Facebook; the main platform has instead implemented ‘reactions’ since 2016, allowing users to express love, laughter, awe, sadness or anger.<sup>234</sup> LinkedIn this year added ‘celebrate’, ‘love’, ‘insightful’ and ‘curious’ reactions.<sup>235</sup>

Many social media platforms facilitate both one-to-one and one-to-many communications. Twitter is perhaps most notable for encouraging public discussion and giving users the opportunity to broadcast to many people at once. While messaging apps might once have been distinguished from social networks by focusing primarily on one-to-one communications, they have now taken on an increasingly public face by facilitating chats between large groups (with official limits of up to 256 users on WhatsApp and 200,000 on Telegram), as well as integrating features that resemble those on social media. For example, WhatsApp statuses serve a similar purpose to the Stories functions (collections of images or videos available for a limited time) on Snapchat, Facebook and Instagram.

Many social media and other services have adopted curated or personalised content feeds (e.g. the Facebook News Feed or Twitter timeline, explored further below), aimed at selecting the most relevant and engaging posts and media for users, often based on what the platform knows about their browsing activity or preferences (see the *Data* chapter). The way content is ranked varies between platforms – and even within one platform, the algorithms determining content rankings are often subject to change. To provide some examples, for logged-in users, the image-sharing community Imgur feed is based on tags and users followed, as well as displaying recommended tags,<sup>236</sup> while the Reddit home feed surfaces posts from communities users have previously shown an interest in, and filters out posts they have already seen.<sup>237</sup> Meanwhile, Snapchat Discover is curated by a human team, alongside a personalisation algorithm.<sup>238</sup>

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<sup>233</sup> Facebook Help Centre, ‘[What names are allowed on Facebook?](#)’. [accessed March 2019]

<sup>234</sup> Facebook News Room, 24 February 2016, ‘[Reactions Now Available Globally](#)’. [accessed May 2019]

<sup>235</sup> LinkedIn Official Blog, 11 April 2019, ‘[Introducing LinkedIn Reactions: More Ways to Express Yourself](#)’. [accessed May 2019]

<sup>236</sup> Imgur Inc, ‘[Discover the Magic of the Internet on Imgur](#)’. [accessed April 2019]

<sup>237</sup> Reddit r/ChangeLog, 24 January 2018, ‘[Best is the new hotness](#)’. [accessed April 2019]

<sup>238</sup> Snap Inc, 29 November 2017, ‘[Introducing the new Snapchat](#)’. [accessed April 2019]

The growth of online video, particularly via YouTube, has encouraged many social media services to integrate native video-sharing within their platform. Reciprocally, video-sharing platforms like YouTube and Twitch have integrated social features, such as hashtags, live chats and likes, within their platforms. The YouTube ‘Recommended’ section on its homepage somewhat resembles a personalised feed, while TikTok’s ‘For You’ feed generates a stream of videos for each user algorithmically. Twitch introduced a ‘social feed’, Pulse, in March 2017,<sup>239</sup> but has since discontinued the product. We review this market further in the *Video* chapter.

Finally, almost all services in the table (excluding messaging service WhatsApp) act as a platform for users on one side to generate content and, on the other, for businesses to reach potential customers, employing advertising as their primary business model.

## Setting out the social media market

### In 2018, 89% of global social media revenues were generated by advertising

As outlined in *The Online Industry* chapter, the social media market is driven primarily by advertising. In 2018, 89% of revenues in the global social media sector were generated by advertising. Social media is attractive to advertisers because it provides targeting capabilities as well as mass reach online. Social media sites primarily serve display adverts, which include both static images (e.g. banner ads) and, increasingly, video and interactive ads, as well as branded content. Often social media platforms host native ads, meaning that the format of the ads resembles the rest of the content on the site (although marked as ‘sponsored’ or ‘promoted’). For instance, among other ad products, LinkedIn allows advertisers to send personalised messages to users’ inboxes, Reddit sells ‘promoted posts’ to advertisers, Twitter ‘promoted tweets’, and Pinterest ‘promoted pins’, while Snapchat allows advertisers to create branded AR lenses. Many Facebook ads are found within the Facebook News Feed as promoted pages, videos or images, but the company is placing increasing focus on ads within the Messenger app and Stories format.<sup>240</sup>

As well as generating ad revenue through display advertising on their own proprietary services, some social media companies sell advertising on third-party sites or apps. For example, Facebook’s Audience Network makes use of Facebook’s ad system (including user data and targeting) to extend ad campaigns beyond the Facebook social network into other mobile apps. In April 2019, Snapchat announced that it would launch an ad network for app developers later this year.<sup>241</sup>

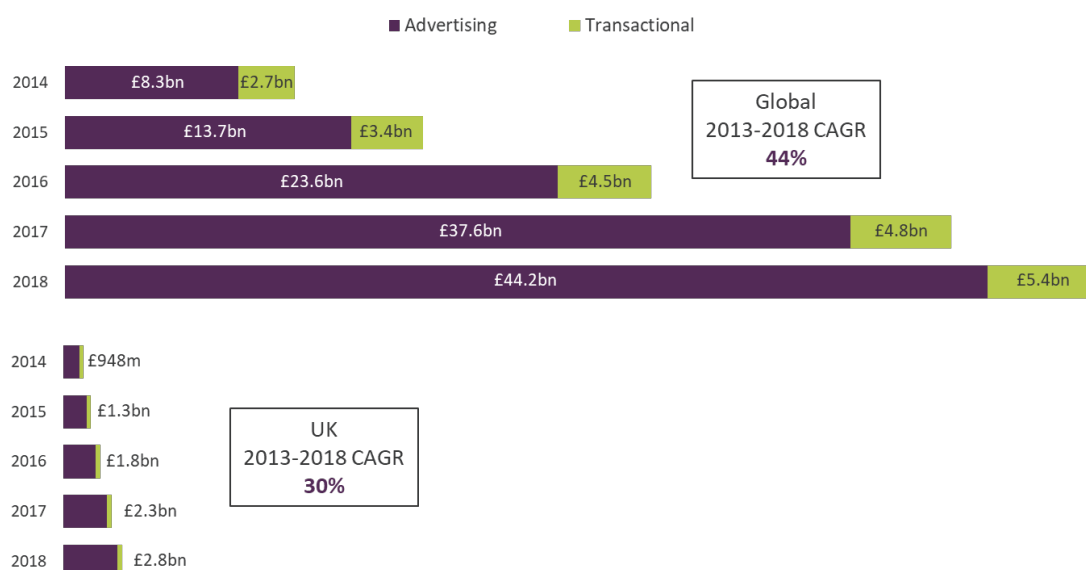
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<sup>239</sup> Twitch Blog, 6 March 2017, ‘[Pulse: Let’s share, emote, and discover more together](#)’. [accessed April 2019]

<sup>240</sup> See relevant companies’ ad format pages: [LinkedIn](#); [Reddit](#); [Twitter](#); [Pinterest](#); [Snapchat](#); [Facebook](#).

<sup>241</sup> Recode, 4 April 2019, ‘[Snap is building an ad network to run ads inside other apps](#)’. [accessed April 2019].

**Figure 5.3: Global and UK revenues for the social media sector: 2014-2018**



Source: O&O analysis and estimate, based on data from AA/WARC. UK figures adjusted for CPI (2018 prices) Definitions used may differ from other industry sources. Figures are indicative only

### Facebook leads the market and generated 99% of its revenues through advertising in 2018

In 2018, Facebook reported global revenues of almost \$56bn (£42bn), including those generated by its subsidiaries, WhatsApp and Instagram. The vast majority of Facebook’s revenues are generated through advertising (99% in 2018),<sup>242</sup> the company having used the data generated by its users to build a strong, targeted advertising business (see *Data* chapter). Ads on Instagram, particularly in the feed and Stories, are increasingly important to the growth of Facebook’s ad business,<sup>243</sup> although WhatsApp does not currently serve ads.<sup>244</sup> In the same year, Snapchat reported global revenues of \$1.2bn (£885m),<sup>245</sup> Twitter \$3bn (£2.3bn),<sup>246</sup> and LinkedIn \$5.3bn (£4bn).<sup>247</sup>

LinkedIn, owned by Microsoft, stands apart from other social media services in that the majority of its revenues are generated by premium services. In 2018, its revenues were generated primarily by ‘Talent Solutions’ (services enabling recruiters to attract potential employees and for enterprises to provide learning content),<sup>248</sup> and while an ad-supported version of the service is free to access for all users, 39% of global LinkedIn users pay for a premium account.<sup>249</sup> Other services have integrated transactional models within their business, although these are secondary to advertising for the most part. For instance, Reddit offers a premium subscription service offering an ad-free experience, as well as Reddit coins, which users buy with cash to reward each other with premium Reddit features.

<sup>242</sup> [Facebook Fourth Quarter and Full Year 2018 Results](#). [accessed April 2019]

<sup>243</sup> [Facebook Q3 2018 Earnings Call Transcript](#). [accessed April 2019]

<sup>244</sup> Businesses can still reach users on WhatsApp through other means – for instance, some Facebook ads when clicked link to WhatsApp chats allowing businesses to communicate with users directly.

<sup>245</sup> Snapchat [10-K Filing](#), fiscal year ended December 31, 2018. [accessed April 2019]

All conversions in this paragraph using Bank of England yearly average, 2018 \$1 = £0.75

<sup>246</sup> Twitter [Annual Report 2018](#). [accessed April 2019]

<sup>247</sup> Microsoft [Annual Report 2018](#). [accessed April 2019]

<sup>248</sup> Microsoft [Annual Report 2018](#). [accessed April 2019]

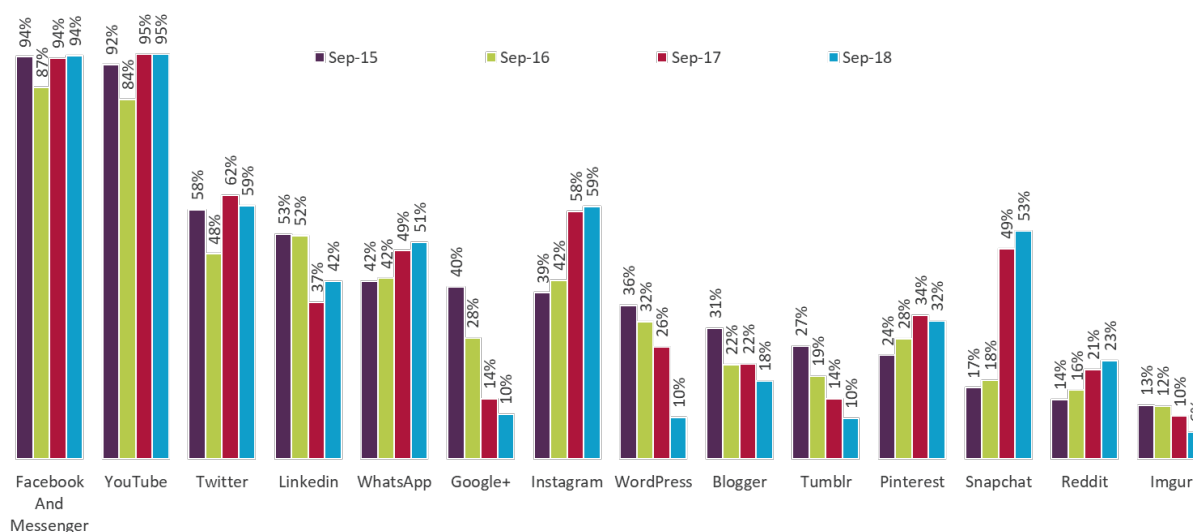
<sup>249</sup> Hubspot.com, [‘The Ultimate List of Marketing Statistics for 2018’](#). [accessed April 2019]

Outside of advertising, other sources of revenue for Facebook include Facebook Portal and Oculus virtual reality headsets.<sup>250</sup>

## Facebook, alongside YouTube, has the highest reach of any social media service among UK adults

According to Comscore, Facebook has over 90% reach among adult internet users in the UK (including any internet users who have visited a Facebook page at least once but might not have a Facebook account). With the exception of YouTube, this is more than 30pp higher than the next furthest-reaching social media platforms, Twitter and Instagram (both reaching 59% of UK adult internet users). Facebook and Twitter’s overall reach have both remained broadly stable since 2015, signalling their strong legacy positions, despite any potential fluctuations in active accounts.

**Figure 5.4: Reach of selected social media, messaging, blogging and video-sharing sites: September 2015-2018**



Source: Comscore MMX Multi-Platform, Age: 18+, Sep 2015-2018, UK

Note: In September 2017 Comscore updated its enumeration source which may result in shifts in the data in 2017

The number of people in the UK who check Facebook every day is also much higher than other social media platforms. According to TouchPoints, 74% of Facebook users in England, Scotland and Wales check the social network at least once a day, compared to 51% of users on Instagram, 47% on Snapchat, 34% on Twitter and 24% on YouTube. Users of Facebook aged 25 to 34 are the most likely to check the social network daily – 81% of them do so, followed by 77% of 15-24s and 77% of 35-44s. More widely, among all social media users, 15-24 year-olds are the group most likely to check social networks daily (84%).<sup>251</sup>

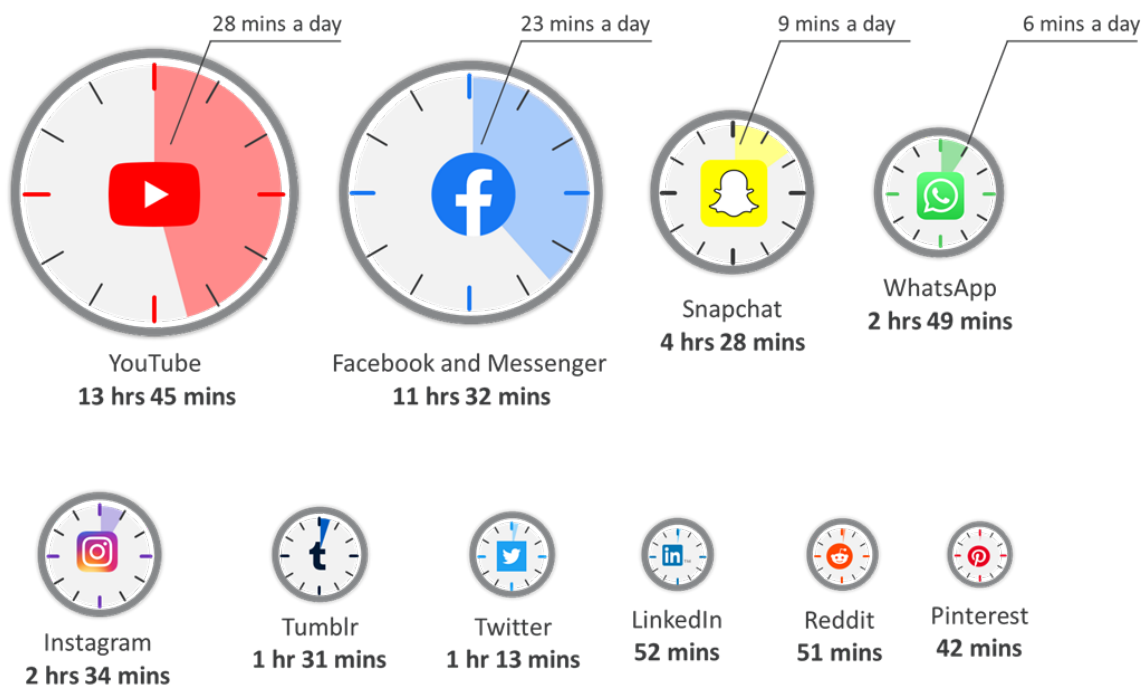
<sup>250</sup> [Facebook Q4 2018 Earnings Call Transcript](#). [accessed April 2019].

<sup>251</sup> TouchPoints 2018, GB, Users of Facebook, Instagram, Snapchat, Twitter, YouTube, Age 15+

**On average, social media users spend more time on Facebook than any other social media service, excluding YouTube**

Facebook (incl. Messenger) users spend an average of 23 minutes on the service each day. This is more than twice as long than is spent on the next most time-consuming social media service, Snapchat (9 minutes a day). It is worth noting, however, that in 2015, users of Facebook and Messenger spent an average of 39 minutes on the service each day.<sup>252</sup> In 2018, YouTube users spent an average of 28 minutes on the service each day, an increase from 19 minutes in 2015.<sup>253</sup> This highlights the importance of video in online media and the level of engagement it generates, explaining why many social media sites have integrated video sharing within their platforms.

**Figure 5.5: Average time spent per user each month/day on social media in the UK: September 2018**



Source: Comscore MMX Multi-Platform, Age: 18+, Sep 2018, UK. Size of clock represents relative time spent, while segment represents minutes spent each day.

**While Facebook is still the most far-reaching social media service in the UK, preferences among UK internet users appear to be shifting**

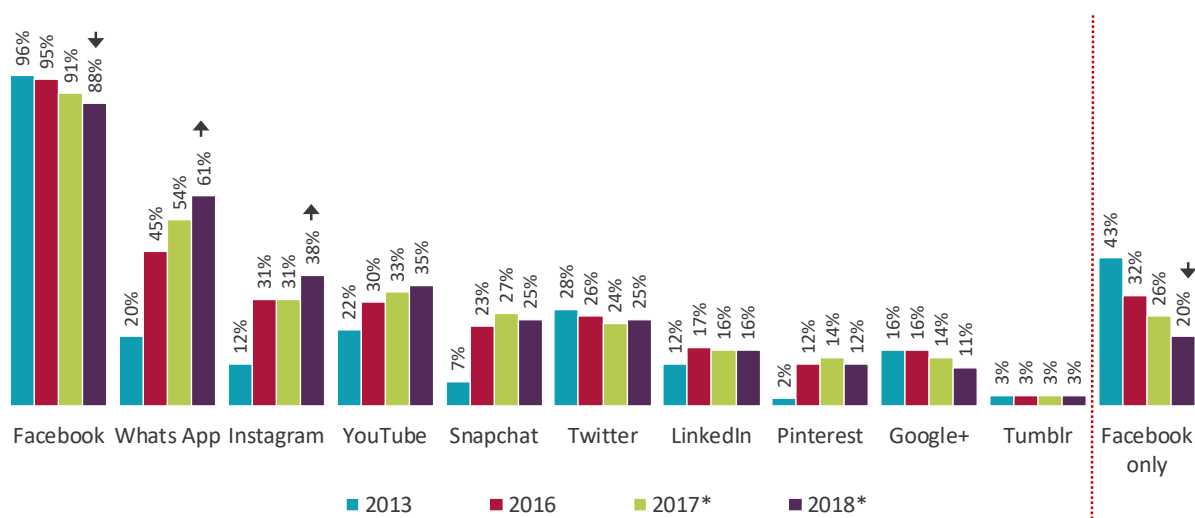
Although Facebook still has the furthest reach, the proportion of adults in the UK who say they have an account on the social network has fallen steadily since 2016. In 2018, one in five (20%) people say they *only* have a Facebook account, compared to two-thirds in 2016 (32%).<sup>254</sup> Reported use of WhatsApp and Instagram have increased over the same period. Our Media Literacy trackers follow certain services over time, so services which have quickly grown in popularity in recent years (such as TikTok) may not be included.

<sup>252</sup> Comscore MMX Multi-Platform, Age: 18+, Sep 2015 & 2018, UK

<sup>253</sup> Comscore MMX Multi-Platform, Age: 18+, Sep 2015, UK

<sup>254</sup> Ofcom [Adults' media use and attitudes report](#), 2019.

Figure 5.6: Social media sites used: 2013-2018



Source: Ofcom Adult Media Literacy Tracker 2018

IN22. Which social media or messaging sites or apps do you have a profile or account on, that you still use? (prompted responses, multi-coded) – showing responses of 3% or more of adults in 2018 aged 16+ with a social media profile / account \* NB – definition expanded since 2017 to also include messaging sites or apps, previously just asked about social media \*\* NB Showcard amended from 2016 reducing the prompted responses to the top ten most popular social media sites.

Base: All adults aged 16+ with a profile or account on a social media or messaging site/app (1182 in 2017, 1247 in 2018).

Arrows show significant changes (95% level) between 2017 and 2018

These trends are more pronounced among younger people. Our children’s media literacy research found that, although Facebook remains the most popular social media site or messaging app, use of the social network among 12-15 year olds with a social media profile fell from 82% to 72% between 2016 and 2018.<sup>255</sup> Between 2017 and 2018, 12-15 year olds became more likely to use Instagram (57% in 2017 vs. 65% in 2018) and WhatsApp (32% vs. 43%).<sup>256</sup>

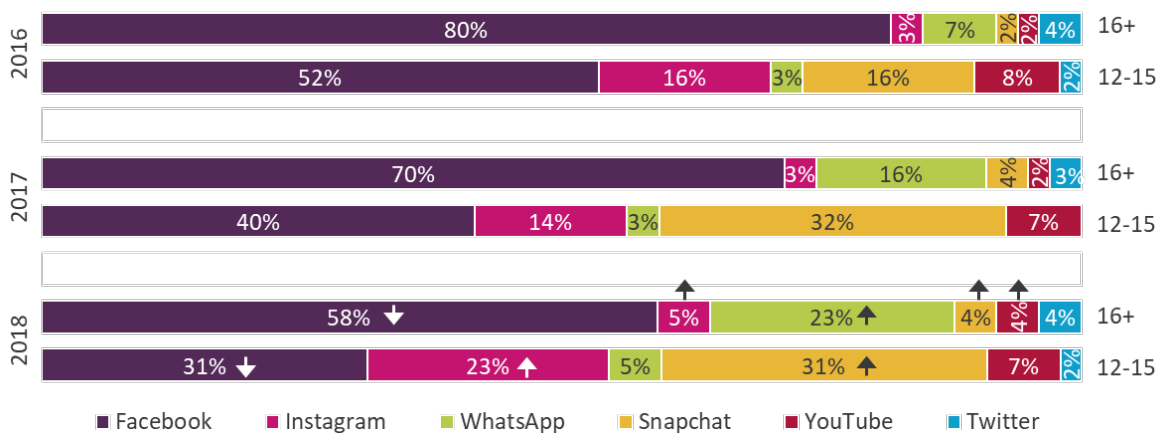
### Snapchat is equally likely as Facebook to be used by 12-15 year olds as their main social media account

The proportion of both adult users (aged 16+) and users aged 12-15 who nominate Facebook as their main social media profile has fallen since 2016. Compared to 2016, adults are more likely to nominate WhatsApp as their main profile, while children are more likely to nominate Snapchat or Instagram. Notably, though Facebook’s share has fallen, the share of Facebook-owned properties (WhatsApp and Instagram) has remained fairly constant among both children and adults.

<sup>255</sup> Ofcom [Children’s and parents’ media use and attitudes report](#), 2017, p.105. [accessed March 2019]

<sup>256</sup> Ofcom [Children’s and parents’ media use and attitudes report](#), 2018: Annex 1, p.68.

**Figure 5.7: Service considered as main social media profile/account, by year and age: 2016-2018**



Source 16+: Ofcom Adults’ Media Literacy Tracker

IN23. And which one would you say is your main social media or messaging site or app – the one you use most often? (prompted responses, single coded)

Base: All adults aged 16+ with a profile or account on a social media or messaging site/app (1136, 2016; 1182, 2017; 1247, 2018).

Source 12-15: Ofcom Children’s Media Literacy Tracker

QP45/ QC21 – And which is your main social media or messaging site or app, so the one you use most often? (unprompted responses, multi coded). Responses from children aged 12-15.

Base: Children aged 12-15 who have a social media or messaging site app profile (2016, 335; 2017, 343; 2018, 322).

\*Before 2017 these questions in both Trackers asked only about use of social media sites or apps; the definition was expanded in 2017 to include messaging sites or apps.

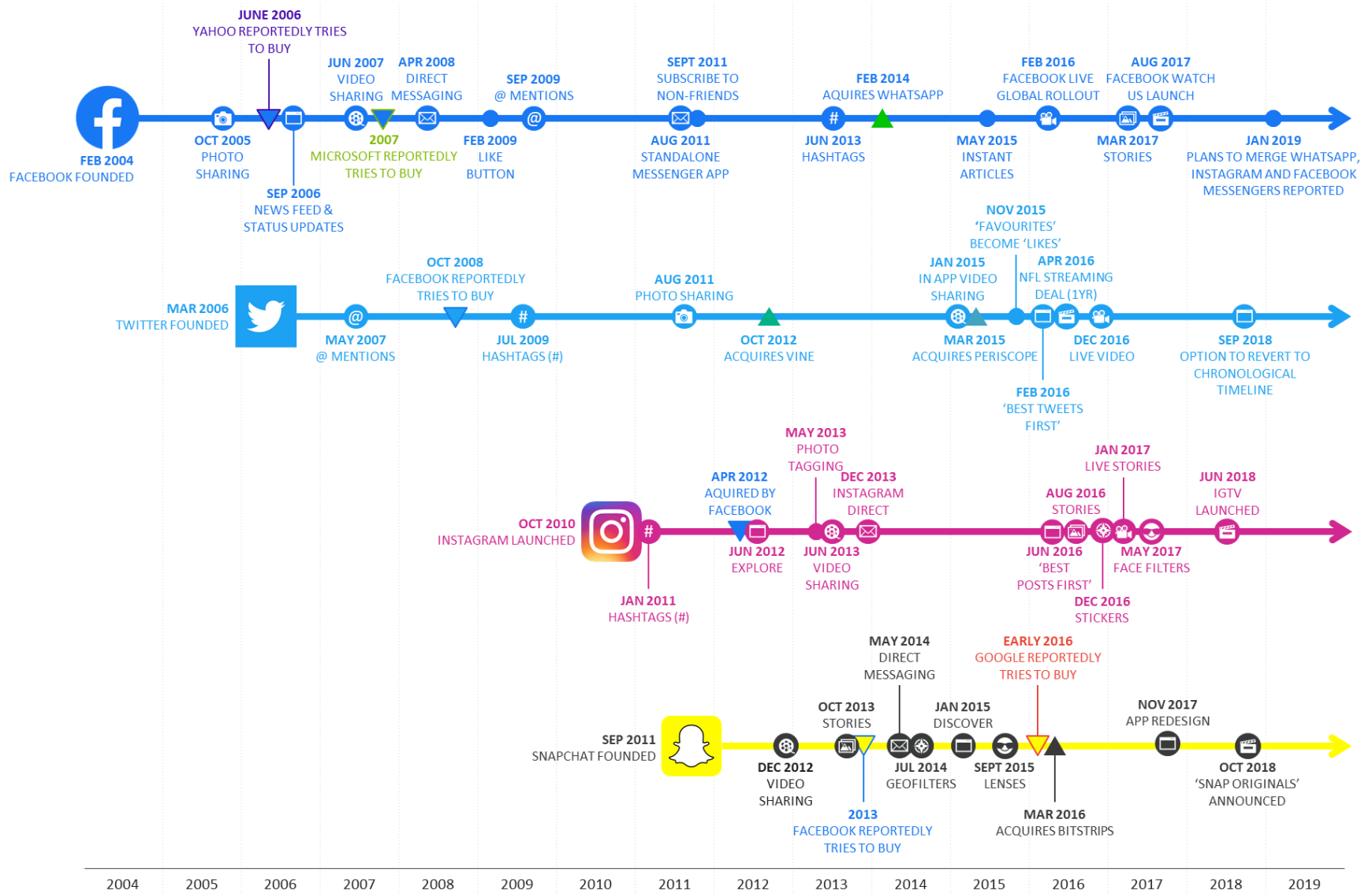
Arrows indicate any significant differences at the 95% confidence level between 2016 and 2018.

Altogether, Facebook remains the furthest reaching social media service, with a strong legacy user base who continue to check the service regularly as a core part of their online consumption. However, it also appears that users are accessing a range of social media, messaging and video-sharing services for various and unique functionality. This goes a long way towards explaining the constant evolution of social media services, as they integrate an ever-increasing number of features to establish a unique service proposition (USP) and maintain engagement.

**To remain popular, social media services are constantly evolving and integrating new features**

To remain competitive, social media services innovate and acquire new features, or incorporate features that have been successful on other platforms. Figure 5.8 demonstrates this reactive nature of the social media market.

Figure 5.8: Timeline of key functionality on Facebook, Twitter, Instagram and Snapchat



Source: publicly available reports and press releases.



Facebook launched the News Feed, now a central feature of its service and key source of its advertising revenues, a few months after Twitter launched with tweets and timelines. The Facebook News Feed now aggregates updates from users' friends, followed pages and sponsored posts, using an algorithm to determine which posts should appear higher in the personalised ranking (reportedly, from an inventory of around 2,000 choices).<sup>257</sup> The Feed has been highly influential in the social media sector. From 2015, Twitter in turn introduced an algorithmic timeline which ranks tweets according to factors including their recency and level of engagement, as well as users' interactions with the author and past engagement.<sup>258</sup> Other platforms that started with feeds based on posts' recency before moving to algorithmic feeds to increase engagement include Instagram and Pinterest. Often platforms move back and forth between algorithmically-driven and chronological feeds based on user feedback.<sup>259</sup>

In some cases, the acquisition of emerging competitors can be a quick route to integrating innovative features. For instance, Snapchat's acquisition of selfie animation app Lookserly has been cited as a key development behind its incorporation of the lenses (augmented reality filters applied to people or real-world objects through the camera) which are now central to its app.<sup>260</sup> Meanwhile, Twitter purchased short-form video-sharing platform Vine before its official launch in 2012, before closing the service in 2016.<sup>261</sup> In the same year, it signalled a shift towards live streaming video; its 2015 acquisition, Periscope, allowed it to integrate livestreaming directly within its mobile app.<sup>262</sup>

Facebook's 2012 acquisition of Instagram and 2014 acquisition of WhatsApp are two other examples. In Facebook's Q3 2018 earnings, Mark Zuckerberg noted a shift (also suggested in the section above) among users to more private and/or ephemeral forms of communication, such as messaging and Stories (which originated on Snapchat).<sup>263</sup> Accordingly, reports emerged earlier this year about Facebook's long-term plans to merge the Facebook, Instagram and WhatsApp messengers, making it possible for users to send encrypted messages to other Facebook-owned services without switching apps.<sup>264</sup> Many commentators have identified a shift away from the shared and permanent Facebook News Feed and profile,<sup>265</sup> which Facebook appeared to confirm at its Developer conference in April, outlining its plans for a more 'privacy-focused social platform'.<sup>266</sup>

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<sup>257</sup> 12 February 2019, [The Cairncross Review: a sustainable future for journalism](#), p.29. [accessed March 2019]. *New York Times*, 25 April 2017, '[Can Facebook Fix Its Own Worst Bug?](#)'. [accessed March 2019].

<sup>258</sup> Twitter Blog, 9 May 2017, '[Using Deep Learning at Scale in Twitter's Timelines](#)'. [accessed April 2019]

<sup>259</sup> See: *The Verge*, 29 March 2018, '[Pinterest's new feed has just your friends' pins, and no algorithmic recommendations](#)'. [accessed April 2019]

<sup>260</sup> *Tech Crunch*, September 2015, '[Snapchat Acquires Lookserly To Power Its Animated Lenses](#)'. [accessed March 2019]

<sup>261</sup> Vine on *Medium*, 27 October 2016, '[Important News about Vine](#)'. [accessed March 2019]

<sup>262</sup> Periscope on *Medium*, 14 December 2016, '[Broadcast live from Twitter](#)'. [accessed March 2019].

<sup>263</sup> [Facebook Q3 2018 Earnings Call Transcript](#).

<sup>264</sup> *The New York Times*, 25 January 2019, '[Zuckerberg plans to Integrate WhatsApp, Instagram and Facebook Messenger](#)'. [accessed March 2019].

<sup>265</sup> See: *The Verge*, 2 May 2019, '[Why Facebook is making a big bet on Messenger](#)'v. [accessed May 2019] *BBC News*, 31 October 2018, '[Is Facebook's News Feed fading?](#)'. [accessed April 2019]

<sup>266</sup> Facebook Newsroom, 30 April 2019, '[Day 1 of F8 2019: Building New Products and Features for a Privacy-Focused Social Platform](#)'. [accessed May 2019]

Mark Zuckerberg, 6 March 2019, '[A Privacy-Focused Vision for Social Networking](#)'. [accessed May 2019]

## Social media services are looking towards adjacent markets such as e-commerce, video streaming and gaming

In order to maintain users, increase user time spent on their platforms and develop new revenue streams, social media platforms look not only to each other but also to adjacent markets. Given the high level of engagement generated by online video (see *Video* chapter), Facebook, Twitter and Snapchat have moved towards programmatic types of content, often employing video strategies that fit with their existing businesses. In 2016, Twitter became the first social media platform to win rights to stream NFL games, in a deal reportedly worth \$10m (£7.4m) deal.<sup>267</sup> The huge and engaged audience attracted by sports content generates premium advertising rates, so content rights are hotly contested by social media companies, other online giants like Amazon and traditional media companies. At its 2017 NewFronts presentation, Twitter launched 16 streaming video partnerships in genres including sports, news and entertainment, emphasising the importance of premium live video as an extension of its USP as a destination to find out what's happening in real time.<sup>268</sup>

Meanwhile, in September 2017, it was reported that Facebook was willing to spend up to \$1bn in 2018 (£750m) on original content for its 'Facebook Watch' service, which has included comedies, dramas and reality shows.<sup>269</sup> Facebook has also partnered with print and broadcast journalists to produce news programming for its service, including a partnership with Channel 4 in November 2018. This complements its Instant Articles feature, launched in May 2015, which partners with news and content publishers who make selected articles available directly through the Facebook app.

Similarly, Snapchat partners with entertainment, sports and news providers to generate vertical video, text and interactive content for its 'Discover' service. In February 2019, Snapchat was reportedly spending, in some cases, over \$50k (£38.4k) per episode on its own original programming,<sup>270</sup> which includes teen dramas, comedies and musicals. Content deals like these not only act as a draw to users to spend more time on the platform but allow services to charge for premium advertising.

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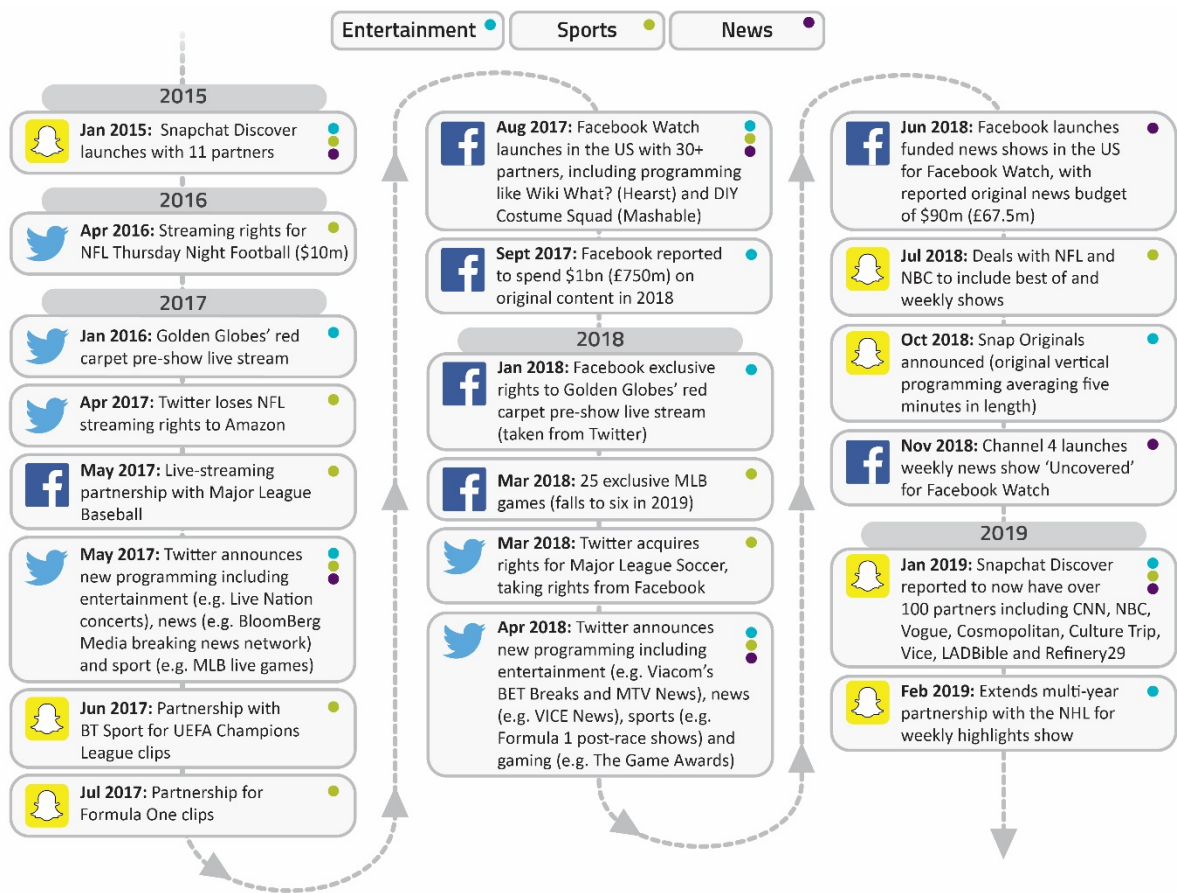
<sup>267</sup> *The Register*, 5 April 2016, '[Twitter spends \\$10m on rights to cover Thursday-night NFL games](#)'. [accessed March 2019]. Conversion using Bank of England Yearly Average 2016, \$1 = £0.74

<sup>268</sup> Twitter Blog, 2 May 2017, '[New premium video content coming to Twitter](#)'. [accessed May 2019]

<sup>269</sup> *The Wall Street Journal*, 8 September 2017, '[Facebook Is Willing to Spend Big in Video Push](#)'. [accessed March 2019]. Conversion using Bank of England Yearly Average 2018, \$1 = £0.75

<sup>270</sup> *Digiday*, 27 February 2019, '[Video Briefing: Snap wants more scripted original shows for Snapchat Discover](#)'. [accessed March 2019]. Conversion using Bank of England monthly average, Feb 2019, \$1 = £0.7683.

Figure 5.9: Content deals, partnerships and investments on Twitter, Facebook and Snapchat



Source: publicly available reports and press releases. Conversions using Bank of England yearly average 2018 (\$1 = £0.75).

The pursuit of user engagement extends beyond video. Augmented Reality (AR) is central to Snapchat's product, and Facebook has also invested in AR/Virtual Reality (VR) technology, notably with its 2014 acquisition of Oculus. Gaming is another enticing market for social media firms (see the *Video* chapter). At its 2018 NewFronts presentation, Twitter announced a broadened round of games-related streaming, including The Game Awards show (broadcast live on Twitter for the third consecutive year) and live streams by IGN and Gamespot at the Electronic Entertainment Expo (E3).<sup>271</sup> Last year, Facebook launched Fb.gg, where viewers can find video game streams on the social media platform, bringing together streamers, pages and groups they follow/like, plus featured creators and e-sports competitions, as well as providing a way for viewers to tip streamers with Facebook 'Stars'.<sup>272</sup> In April 2019, Snapchat announced the launch of its own gaming platform, Snap Games, accessed through the main app and supported by in-game advertisements.<sup>273</sup>

Finally, some social media services are using e-commerce to diversify beyond their main source of revenue, advertising. On Facebook, setting up a 'Shop' allows businesses to show and sell products to people by directing them to their site or, for some retailers, directly through Facebook itself.<sup>274</sup> In March 2019, Instagram introduced 'Checkout on Instagram' for users in the US, allowing users to purchase products directly through the app; it launched with a select group of brands including Nike, Kylie Cosmetics and H&M.<sup>275</sup> By encouraging direct purchases between users and brands across its portfolio of apps, Facebook can begin to diversify its revenues beyond advertising, and again leverage the shift towards more private communications.

## Users' experiences of social media

### Despite the range of functions available to users, connecting to others remains core to social media

Although users can access a diverse range of functions and an increasing amount of professional content through social media, keeping in touch with others and sharing thoughts, photos and videos is still at its core. As Figure 5.10 shows below, keeping in touch with friends and family, sharing photos and videos and staying up to date with news and current affairs are the most important functions on Facebook, Instagram, Twitter and Snapchat. Searching for or buying products was perceived as unimportant across all platforms.

There are important nuances in how people communicate with others on different social media platforms. Twitter stands apart from Facebook, Instagram and Snapchat in that people are more likely to value the platform for keeping up to date with news and current affairs or following public figures, while only 37% of people consider Twitter to be important for staying in touch with friends and family. People are almost equally likely to consider Facebook and Twitter important for sharing opinions. Meanwhile, accessing groups with similar interests is important for 54% of people on

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<sup>271</sup> Twitter via *PR News Wire*, 30 April 2018, '[Twitter announced over 30 premium video content deals at Digital Content NewFronts, expands depth and breadth of programming slate](#)'. [accessed April 2019].

<sup>272</sup> Facebook News Room, 7 June 2018, '[New Ways for Gaming Creators to Get Started and Get Discovered on Facebook](#)'. [accessed April 2019]

<sup>273</sup> Snap Inc, 4 April 2019, '[Snap Partner Summit | Introducing Snap Games](#)'. [accessed April 2019]

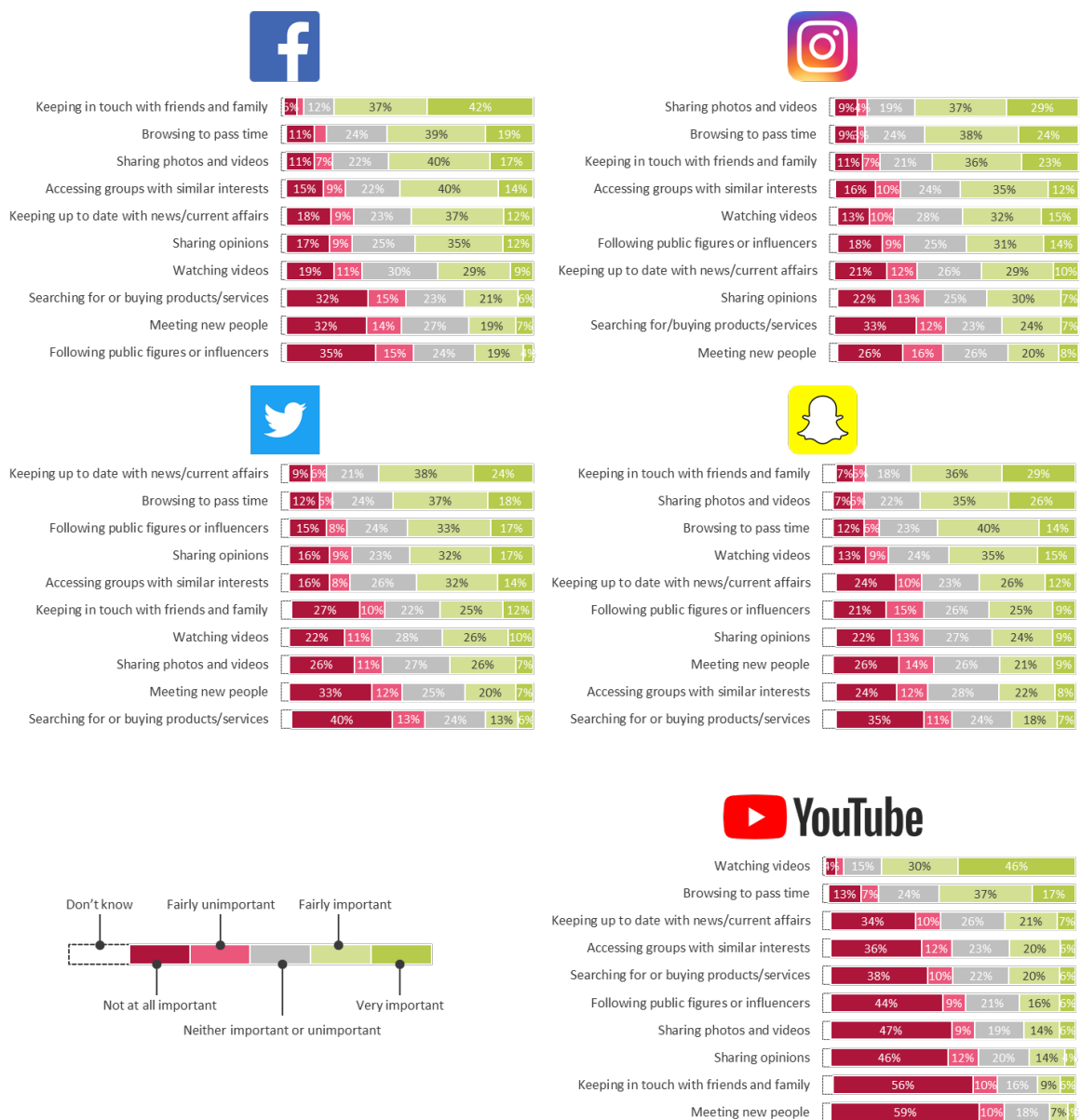
<sup>274</sup> Facebook, '[Add a shop to your Page](#)'. [accessed March 2019].

<sup>275</sup> Instagram Info Center, 19 March 2019, '[Introducing Checkout on Instagram](#)'. [accessed March 2019].

Facebook, 47% of people on Instagram and 46% of people on Twitter, but for only 30% of people on Snapchat.

The features that users consider important on YouTube differ greatly from the other services, even though they share some features. Browsing to pass the time is considered important across all the platforms, but a majority of users continue to see YouTube primarily as a platform for video consumption and only a minority emphasise its social aspects. Watching video varies in importance between Snapchat, Twitter, Instagram and Facebook; to add further context from our Technology Tracker research, only 15% of UK adults reported that they used social networking services to view online TV programmes or films.<sup>276</sup>

Figure 5.10: Importance of activities undertaken on selected social media sites and YouTube, 2019



Source: Ofcom research 2019.

Question: Q16. How important are these things for you when accessing...?

<sup>276</sup> Ofcom *Technology Tracker*, 2019

*Base: UK adults aged 16+ who use Facebook (1623), Instagram (787), Twitter (751), Snapchat (481), YouTube (1766).*

Social media relies on user-generated content, providing a means for friends and family to stay in touch, and for users to connect with like-minded individuals, discover new interests and content, and express themselves to a potentially global audience. As in real life, interactions between individuals can differ and the tools provided by social media can be used for good and for harm. We explore this duality in the section below, as highlighted by our consumer research.

### **Social media can inspire both self-expression and self-consciousness**

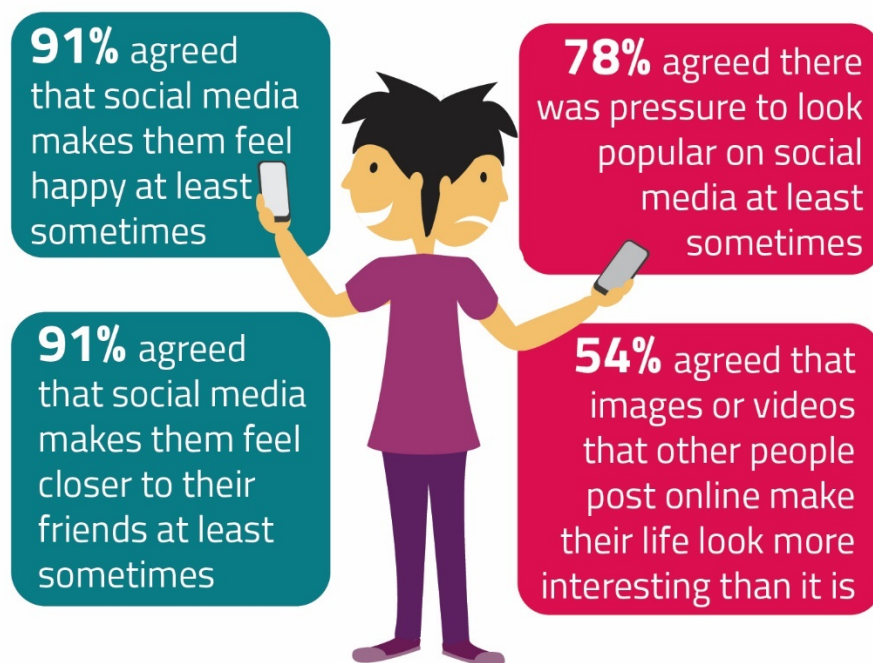
On social media, users can choose which parts of their life they decide to share. Carefully curating an online image or identity emerged as a key theme in our latest Children's Media Lives research. The research also revealed practices by some children and teens to maintain two or three social media accounts on the same social media platform to portray different versions of their online self to different groups of friends.<sup>277</sup>

The tension between social media as something which could, on the one hand, empower children to express themselves and connect with friends and, on the other, be a source of distraction and social pressure was demonstrated in our quantitative Ofcom Children's Media Use and Attitudes research. Ninety-one per cent of 12-15 year-olds with a social media account agreed that social media made them feel happy at least some of the time, the same proportion who felt that social media made them feel closer to their friends. There was a general awareness among children, however, that people might post images or videos that are not representative of their lives, with 54% agreeing that images or videos that other people post online make their life look more interesting than it is. Seventy-eight per cent of children aged 12-15 with a social media account felt there was pressure to look popular on social media at least some of the time.

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<sup>277</sup> 29 January 2019, [Children's media lives – Wave 5: A Report for Ofcom](#). [accessed April 2019]

Figure 5.11: Agreement among 12-15s who go online with statements about being online or on social media: 2018



Source: Children's Media Literacy Research 2018.

### Personalised content can be relevant and interesting, but could put users at risk of 'echo chambers'

Social media is an important source of news in the UK. In 2018, our News Consumption survey showed that around a third of both children and adults use Facebook as a source of news. Among 12-15 year-olds, social media services make up six of the ten most popular sources of news (compared to two of the ten among adults).<sup>278</sup> As outlined above, content on social media may be highly personalised. First, users might choose to follow and receive content only from people they know or identify with. As Italian communications regulator AGCOM noted in its 2018 report on Big Data, "on social networks, each individual is not a mere user of news but potentially becomes an active part in the dissemination of information, opinions and points of view", by clicking, sharing, reacting and commenting.<sup>279</sup> Second, many social media services filter content to serve only that which is most relevant to the user, based on their preferences and history (see the *User Data* chapter).

On one hand, serving content which is targeted specifically to meet people's known preferences is beneficial, allowing users to navigate through large amounts of user-generated content. However, concerns have arisen around potential 'filter bubbles' or 'echo chambers', in which users are only exposed to opinions which match their pre-existing beliefs. As the Australian Competition and Consumer Commission (ACCC) set out, filter bubbles or echo chambers become more contentious if

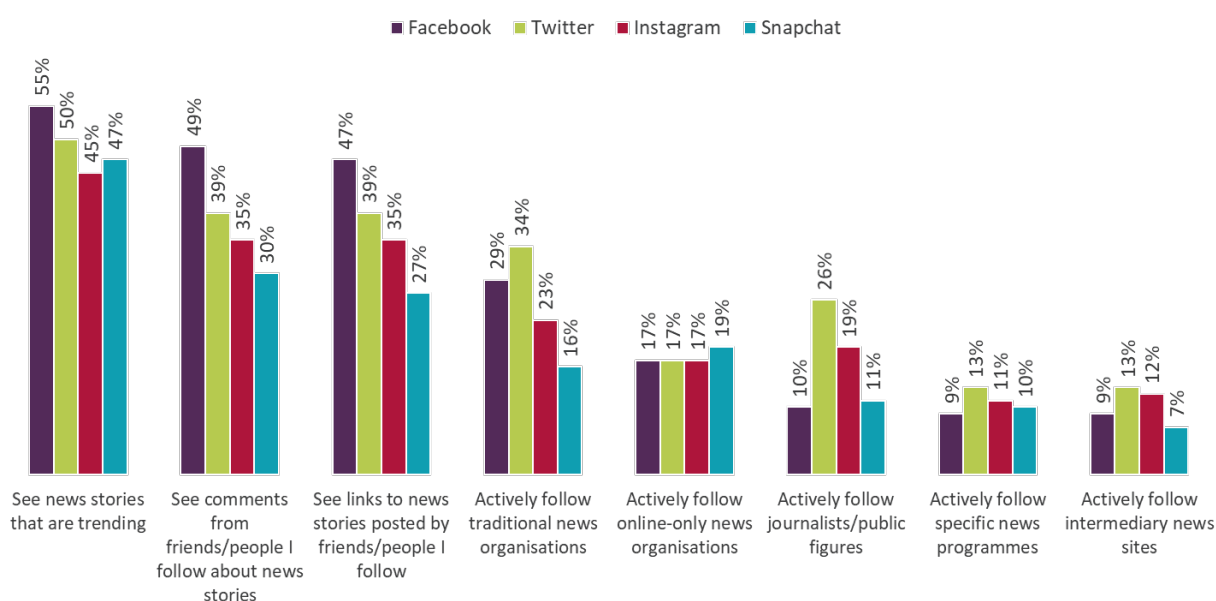
<sup>278</sup> Ofcom *News Consumption in the UK*, 2018

<sup>279</sup> AGCOM, *Big data*, p.74.

users are exposed to increasingly emotive or extreme ideas without challenge or an understanding of why they are being served that content.<sup>280</sup>

The existence and prevalence of ‘filter bubbles’ and ‘echo chambers’ has been subject to considerable debate. Our own research shows a mixed picture. In our News Consumption Survey 2018, we asked adults aged 16+ who use social media services how they access news through them. Across all sites, they were most likely to look at what was ‘trending’, followed by news either posted in comments or linked by their friends or people they follow. We asked 12-15s who used social media to follow news a similar question and found that they were as likely to access news via comments and links posted by their friends/family/people they follow (52%) as they were to access news via trending news (51%).<sup>281</sup>

**Figure 5.12: How news is accessed via Facebook, Twitter, Instagram and Snapchat, adults: 2018**



Source: Ofcom News Consumption Survey, 2018

Base: all adults using each site for news (Facebook=1609, Twitter=689, Instagram=444, Snapchat=298)

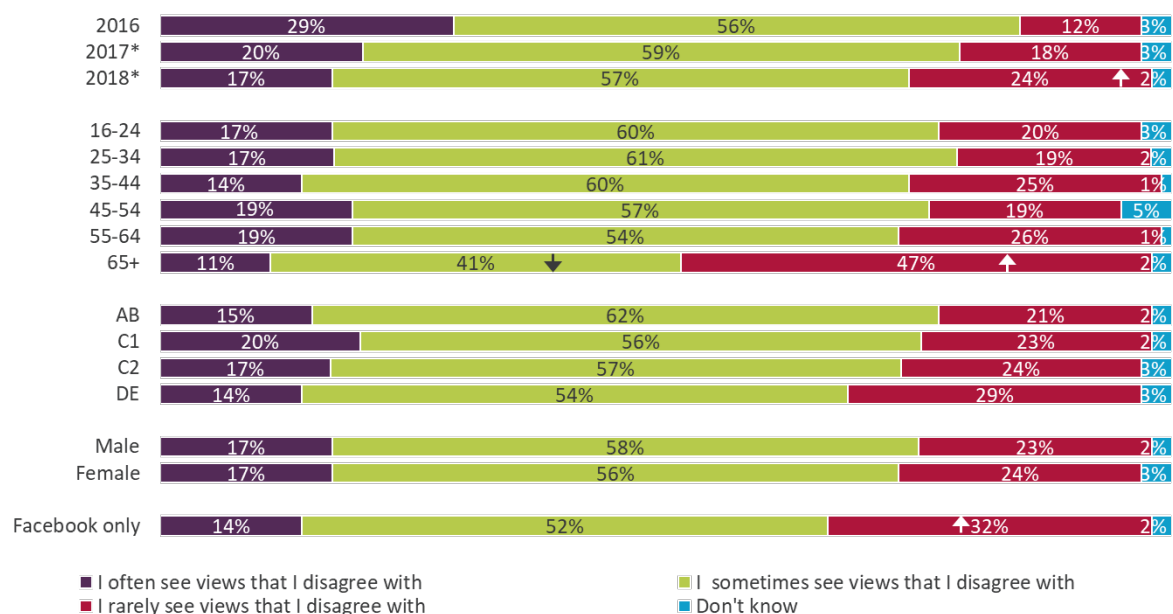
Despite this tendency to discover news through what is served by the service as trending, or is posted by a self-selected sphere of friends and family, our [Adults' Media Literacy](#) research shows that the majority of social media users see opinions on social media which challenge their own, at least sometimes. Our latest research shows that 17% of social media users often, and 57% sometimes, see views on social media that they disagree with. However, the proportion who rarely see views they disagree with increased between 2017 and 2018 by six percentage points to 24%, and the proportion of people who rarely see views they disagree with and who only use Facebook was higher than the average for all social media users (32% vs. 24%).

<sup>280</sup> ACCC, December 2018, [Digital Platforms Inquiry: Preliminary Report](#), p.283.

<sup>281</sup> Ofcom, [News Consumption in the UK](#), 2018 Figure 17.11.



**Figure 5.13: Extent to which people see views on social media that they disagree with, by age, gender and socio-economic group**



Source: Ofcom Adult Media Literacy Tracker 2018

IN28. When you use social media, which one of these best applies? (prompted responses, single coded). \* NB – definition expanded since 2017 to also include messaging sites or apps, previously just asked about social media.

Base: All adults aged 16+ with a social media or messaging site profile/ account (1247 aged 16+, varies by demographic)

Arrows show significant differences (95% level) between 2017 and 2018 at the overall level, by age / socio-economic group compared to all with a social media profile/ account, by males compared to females, and by Facebook only compared to average.

### Social media companies have started to respond to these concerns with technological and financial solutions

In response to concerns around the diversity of news and opinion on social media, services have started to implement technological changes. For example, in August 2018, Twitter CEO Jack Dorsey suggested that the site was experimenting with features that would promote alternative viewpoints within users’ timelines.<sup>282</sup> At the end of March 2019, Facebook introduced the ‘Why am I seeing this post?’ tool to explain to users how the content in their feed is ranked, citing the interactions that have informed the personalisation of content on the service.<sup>283</sup> After receiving criticism for encouraging extreme points of view to grow, social media services have started to implement features which limit the spread of false or polarising views. For example, in a November 2018 blog, Mark Zuckerberg set out how Facebook addresses sensationalist or provocative content (which does

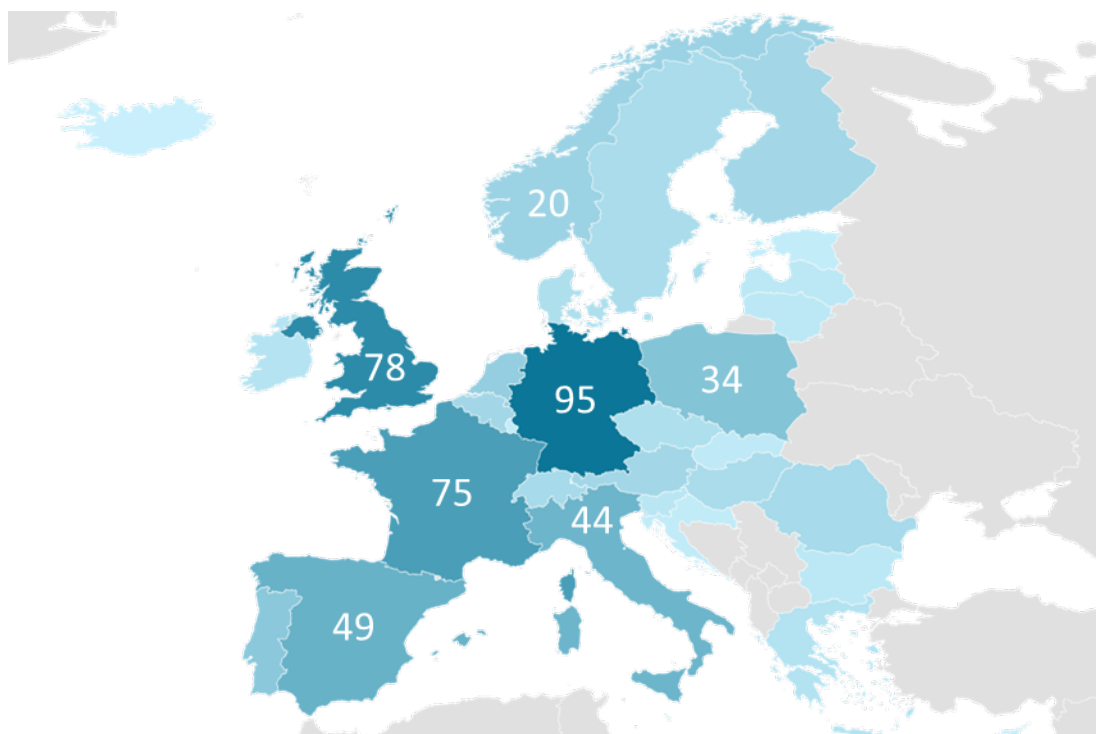
<sup>282</sup> *Washington Post*, 15 August 2018, ‘[Jack Dorsey says he’s rethinking the core of how Twitter works](#)’. [accessed March 2019].

<sup>283</sup> Facebook Newsroom, 31 March 2019, ‘[Why Am I Seeing This? We Have an Answer for You](#)’. [accessed April 2019]

not necessarily violate its terms of service) by moving it lower down the News Feed.<sup>284</sup> In a more specific area, from February 2019, Pinterest made it impossible for users to search for terms relating to vaccinations to address the spread of anti-vaccination campaigns.<sup>285</sup>

As well as attempting to find technological solutions to ‘echo chambers’, large technology companies have offered some financial support to trusted news publishers and projects. In January 2019 Facebook pledged \$300m (£230m) over three years to local news, \$6m (£4.6m) of which was earmarked for the Community News Project to partner with local newsrooms in the UK to train and fund community journalists over two years.<sup>286</sup> It comes a year after Google announced a \$300m (£230m) three-year initiative – the Google News Initiative – aimed at ‘strengthening quality journalism, supporting sustainable business models and empowering newsrooms through technological innovation’.<sup>287</sup> Google has funded a number of UK-based projects through the Digital News Innovation fund, a separate €150m (£130m) fund for European news; UK projects accounted for 78 of the 654 projects in the first six rounds of funding, the second highest number of projects after Germany (95).<sup>288</sup>

**Figure 5.14: Projects funded through the Google Digital News Innovation Fund, as of April 2019**



Source: Google News Initiative: [DNI Fund Projects](#). Projects tallied 24 April 2019.

<sup>284</sup> Mark Zuckerberg, 15 November 2018, '[A Blueprint for Content Governance and Enforcement](#)'. [accessed March 2019].

<sup>285</sup> *The Wall Street Journal*, 20 February 2019, '[Pinterest Blocks Vaccination Searches in Move to Control the Conversation](#)'. [accessed March 2019]

<sup>286</sup> Facebook for Media, 15 January 2019, '[Doing more to support local news](#)'. [accessed April 2019].

<sup>287</sup> Google Blog, 20 March 2018, '[The Google News Initiative: Building a stronger future for news](#)'. [accessed April 2019]

<sup>288</sup> Google, [DNI Fund Projects](#). [accessed March 2019].

All conversions in this section using Bank of England monthly average, Feb 2019, \$1 = £0.7683, €1 = £0.87.

## Increasingly, social media companies are using content moderators to monitor and address content which might be harmful to users

In recent years, social media companies have been subject to concerns more generally around harmful content and conduct. In response, major social media companies have put more resources into their content moderation teams, which assess and deal with content and conduct reported by users or flagged by their own systems as potentially illegal, offensive or upsetting. Facebook has increased the number of content moderators it employs from 4,500 in May 2017,<sup>289</sup> to 7,500 in July 2018 and around 15,000 in December 2018.<sup>290</sup> YouTube similarly reported that it would employ 10,000 people ‘working to address content that might violate [its] policies’ by the end of 2018.<sup>291</sup> This ‘industrialised’ method of content moderation, involving thousands of moderators to assess huge amounts of content, and significant investment in AI-driven detection systems, is unique to the very largest sites.

Smaller social media sites rely on much smaller numbers of staff, or on unpaid volunteers, to moderate content on their platforms. Reddit, for instance, reportedly has around 40 staff working on policy and content issues (around 10% of its 400 total workforce), otherwise relying on its estimated 91,563 ‘moderator accounts’ to police various subreddits according to the terms of each individual forum.<sup>292</sup> Meanwhile, Snapchat uses moderators to assess reported snaps,<sup>293</sup> as well as editors to review and approve the content on its public-facing ‘Discover’ feed,<sup>294</sup> making human moderation more viable for the constrained amount of UGC that is widely distributed.

Content or behaviour which is deemed illegal, offensive or in breach of a service’s user guidelines may be removed. Other measures against content perceived to be extreme, offensive or harmful might include, non-exhaustively, interstitial warnings (where users are alerted to sensitive content and can ‘opt-in’ to seeing it), de-prioritisation (where content appears lower in a curated feeds), demonetisation, search restrictions, and account warnings or suspensions. In making content moderation decisions, platforms have to consider the appropriate balance between users’ freedom of expression and protection from harm, which is often subject to considerable debate.

### Case study: Facebook Community Standards and content removal

Facebook’s Community Standards set out the types of content that are not allowed on Facebook, sorted into six broad areas: **violence and criminal behaviour** (e.g. threats, terrorist activity, organised violence); **safety** (e.g. bullying, harassment, sexual exploitation of children and adults, suicide and self-injury); **objectionable content** (e.g. hate speech, violent and graphic content, adult nudity); **integrity and authenticity** (e.g. spam, false news); **respecting intellectual property** (i.e. copyright-infringing content); and **content-related requests** (removal requests by users/guardians or

<sup>289</sup> *The Guardian*, 3 May 2017, ‘[Facebook Live: Zuckerberg adds 3,000 moderators in wake of murders](#)’. [accessed March 2019].

<sup>290</sup> Facebook, 26 July 2018, ‘[Hard Questions: Who Reviews Objectionable Content on Facebook – And Is the Company Doing Enough to Support Them?](#)’. [accessed March 2019].

<sup>291</sup> YouTube, 4 December 2017, ‘[Expanding our work against abuse of our platform](#)’. [accessed March 2019].

<sup>292</sup> Robyn Caplan for Data & Society, 14 November 2018, ‘[Content or Context Moderation?: Artisanal, Community-Reliant and Industrial Approaches](#)’, p.21. [accessed March 2019].

<sup>293</sup> Snapchat Support, ‘[Report abuse on Snapchat](#)’ [accessed March 2019].

<sup>294</sup> Snap Inc, ‘[Introducing the new Snapchat](#)’

governments). Facebook allows users to report content that they deem objectionable. It has also invested in detection technology to proactively monitor and remove content in contravention of its standards.

Content reported by users is reviewed by Facebook to determine if it is in breach of its standards and, if so, it is often removed. Some disturbing or sensitive content may be covered with a warning, while graphic content might not be shown to underage users. Users who posted the content may also be given a warning or have their profile removed, depending on the severity of the content and any previous breaches. Facebook reports the content it takes action against worldwide, and the proportion of which was found by its systems before being reported by users, by breaking it down into different types of content. In May 2019, it introduced metrics around the number of appeals received and the amount of content restored (either with or without an appeal).

	Pieces of content actioned <i>Apr 2018 – Mar 2019</i>	Proportion found by Facebook before being reported by users <i>Jan – Mar 2019</i>	Content removed and then appealed <i>Jan – Mar 2019</i>	Content removed and later restored <i>Jan – Mar 2019</i>
Terrorist propaganda	23.5m	99.3%	40.1k	182.3k
Hate speech	12.7m	65.4%	1.1m	151.2k
Violence and graphic content	75.5m	98.9%	171k	69.8k
Adult nudity and sexual activity	109.8m	96.8%	2.1m	1.1m
Spam	5.8bn	99.9%	20.8m	44.3m

Facebook is developing its metrics, so some figures are only available for shorter time periods. Between July 2018 and March 2019, it took action against 7.5m pieces of content which violated its bullying and harassment standards (14.1% before users reported them in Q1 2019), and 21m pieces of content contravening its standards against child nudity and sexual exploitation (99.2% before users reported in Q1 2019). It is also developing metrics around how prevalent content in breach of its standards was (as a percentage of all content viewed). For example, in Q1 2019, for every 10,000 content views, an estimated number between 23 to 25 would contain graphic violence, 12 to 14 were estimated to contain adult nudity/sexual activity and less than 3 were estimated to contain terrorist propaganda or child nudity/sexual exploitation. Facebook provides an [explanation of how these metrics are determined](#). [accessed May 2019]

Facebook also publishes the number of reports and removals of IP-infringing content, content restrictions based on local law and requests for user data that it receives from governments around the world. These can be found in its Transparency report.

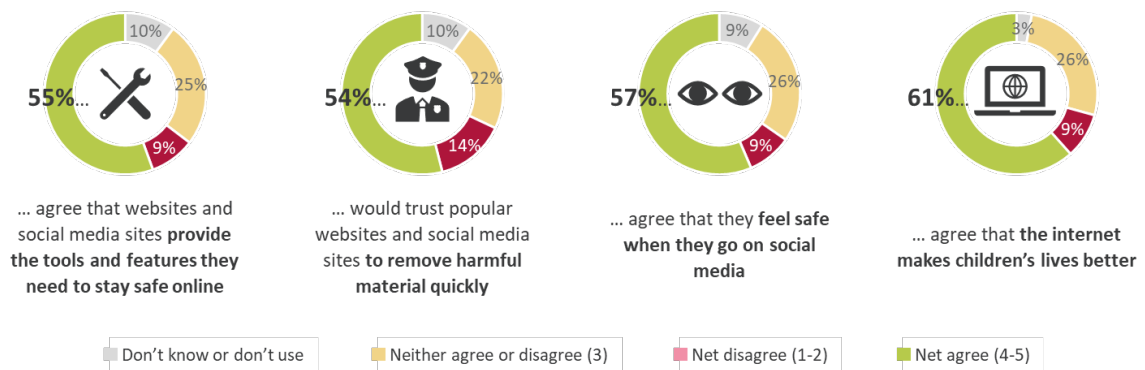
Sources: [Facebook Community Standards](#). [accessed May 2019]

[Facebook Transparency Report](#). [accessed May 2019]

**Our research suggests that many 12-15 year olds and adults trust popular social media sites to remove harmful content quickly, although many aren't sure**

According to our latest online harms quantitative research, 57% of 12-15 year-olds agree with the statement “I feel safe when I go on social media (such as Instagram or Facebook)”. A similar proportion agreed that “websites and social media sites (such as Instagram or Facebook) provide the tools and features I need to stay safe online (e.g. a report button, the ability to change my privacy settings, etc.)”. Around one in ten 12-15 year-olds disagreed with both statements.

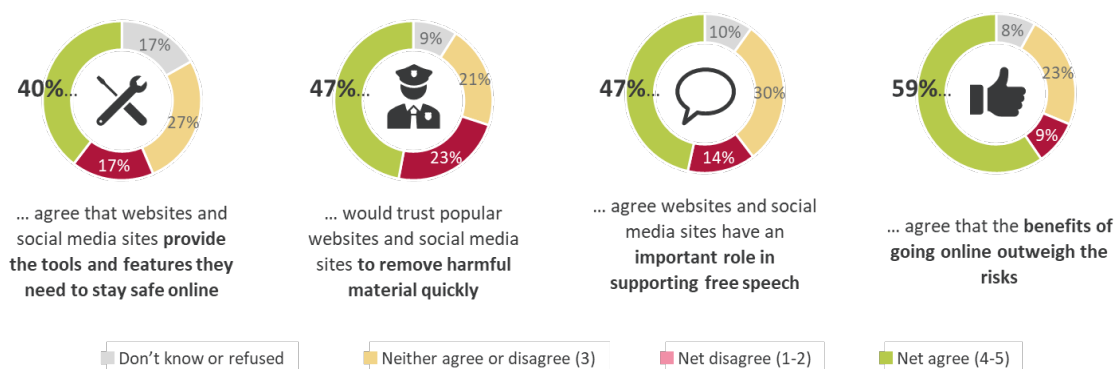
**Figure 5.15: Children’s attitudes to safety and content on the internet and social media**



Source: Ofcom-ICO research 2019  
Base: all respondents (1001)

The number of adults agreeing that websites and social media sites provide the tools needed to stay safe was lower than the proportion of children who agreed (40% vs. 55%), but more than those adults that disagreed (17%). Forty-seven per cent of adults agreed (versus 23% who disagreed) with the statement “If illegal, offensive or harmful material appears on the most popular and most used websites and social media sites I would trust them to remove it quickly”. This number was also higher among 12-15 year-olds, 54% of whom trusted popular websites and social media sites to remove harmful material quickly.

**Figure 5.16: Adults’ attitudes to safety and content on the internet and social media**



Source: Ofcom-ICO research 2019  
Base: all respondents (2057)

A majority (47%) of adults agreed that “websites and social media sites have an important role in supporting free speech, even where some users might find the content offensive” (vs. 14% who

disagreed). Many adults (49%) also *disagreed* with the statement “online ‘trolls’ and bullies put me off using social media”. Among children, the level of agreement and disagreement with this statement was much more level: 36% agreed, 33% disagreed. Despite these potential drawbacks, 59% of adults agreed that the benefits of going online outweighed the risks, while 61% of children agreed that the internet generally makes children’s lives better.

### **Despite this level of trust, our research highlighted persistent concerns about harmful or offensive content and conduct on social media**

Using a broad definition (ranging from experiences that are mildly annoying to seriously harmful), 61% of adult respondents to our quantitative research had encountered some type of potentially harmful experience online in the last 12 months, most commonly spam email and fake news. Social media sites were the most common place to experience all types of potential harms we asked about, with the exception of viruses/spyware/malicious software etc. (where search engines were the most commonly cited place to experience the harm).

Facebook is the most commonly cited source for the majority of potential online harms. For example, 69% of adults who said they had come across fake news said they had seen it on Facebook. Among 12-15 year-olds, Facebook was the most commonly-mentioned source of the majority of potentially harmful experiences mentioned.

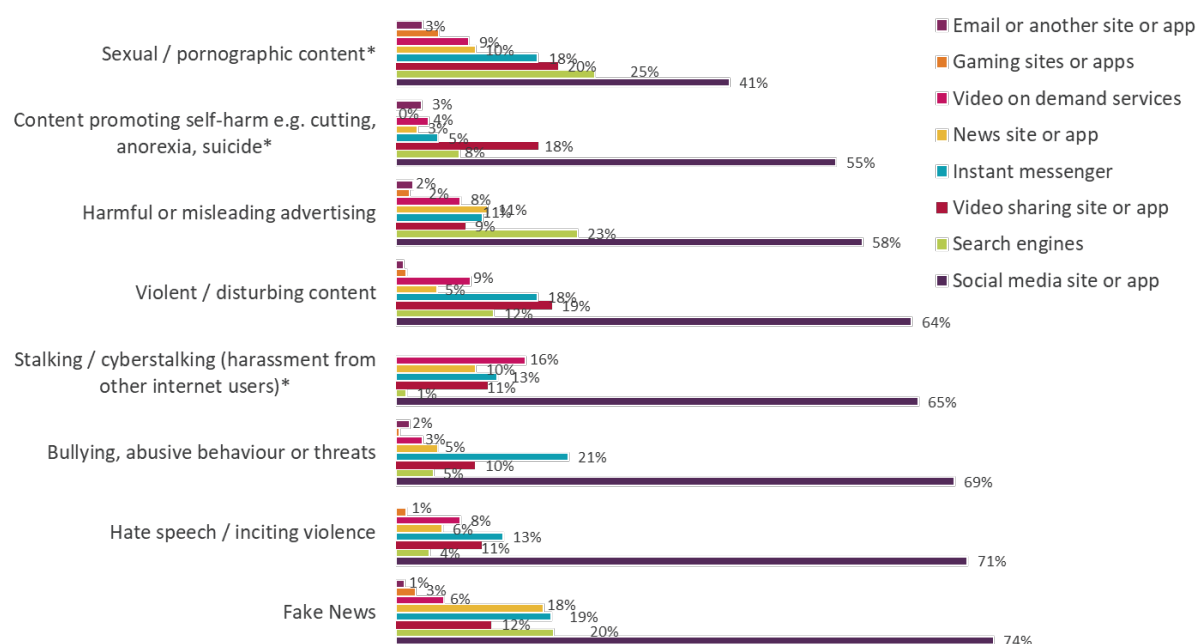
Content and conduct-related harms were especially of concern in relation to children. Among adults, 55% of internet users said that bullying, abusive behaviour and threats concerned them in relation to children, while 49% said the same about sexual/pornographic content, 46% about violent/disturbing content, 44% about material showing child sexual abuse, 42% about content promoting self-harm and 40% about people pretending to be someone else. The biggest concerns among 12-15 year-olds themselves were also related to the conduct of other internet users: 53% were concerned about bullying, abusive behaviour or threats, while 49% were concerned about people pretending to be others.<sup>295</sup>

The chart below compares the sources of some of the content and conduct harms experienced by adult respondents (please see the *Online Harms* report for all harms).

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<sup>295</sup> Ofcom-ICO research [2019](#)

**Figure 5.17: Reported sources of content and conduct harms**



Source: Ofcom-ICO research 2019

Base: all respondents concerned about and with experience of (fake news, 184; hate speech/inciting violence, 103; bullying, abusive behaviour or threats, 108; stalking/cyberstalking, 40\*; violent/disturbing content, 155; harmful or misleading advertising, 107; content promoting self-harm, 52\*; sexual/pornographic content, 98\*).

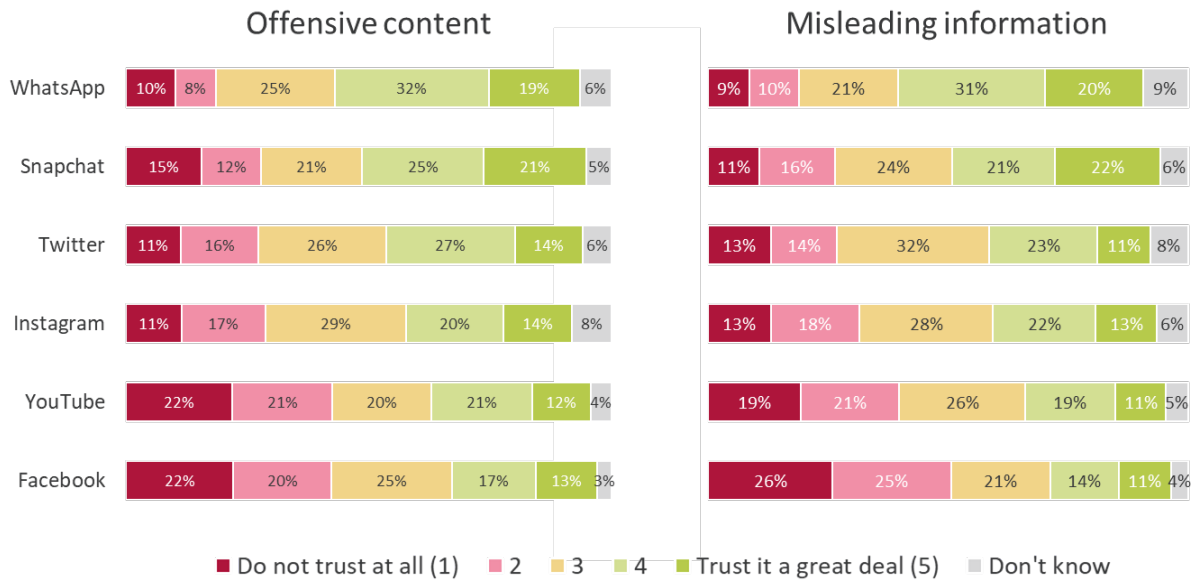
Note low bases marked by \*.

19% of adult internet users reported having taken action to report something they had seen on the internet that they thought was offensive, disturbing or harmful.

**Among adult users of services, YouTube and Facebook are the least trusted in terms of protecting users from offensive content and misleading information**

We asked adults who use the services below to rate their level of trust in the online platforms to protect them from offensive content. Among social media services, Snapchat was the most trusted in this regard (46%), although a higher proportion of people trusted WhatsApp to protect them from offensive content. YouTube and Facebook were among the least trusted platforms. A similar ranking was achieved regarding misleading information.

**Figure 5.18: Level of trust in selected social media, messaging and video-sharing apps to protect users from offensive content and misleading information**



Source: Ofcom-ICO research 2019

Base: all respondents who use the service (Facebook, 557; YouTube, 433; Instagram, 234; Twitter, 158; Snapchat 198; WhatsApp, 506).





# Video

## Introduction

### Key metrics

Figure 6.1: UK video users: key metrics

	2015	2016	2017	2018	2019
Use of internet for TV/video viewing in past week (adults) <sup>1</sup>	37%	42%	40%	40%	39%
Video advertising expenditure (£m) <sup>2</sup>	£700m	£1155m	£1781m	£2307m	N/A
Daily internet users making a VoIP call once a week or more <sup>3</sup>	17%	N/A	40%	43%	N/A

Source: <sup>1</sup>Ofcom Technology Tracker QE21 (H1 2015) QE 22 (H1 2016) QE23 (H1 2017) QE25 (H1 2018) QE15 (2019) Base: those who use the internet at home or elsewhere. <sup>2</sup>IAB/PwC 2018 Digital Adspend Study. Data adjusted for CPI at 2018 prices by Ofcom. <sup>3</sup>TouchPoints 2015, 2017, 2018

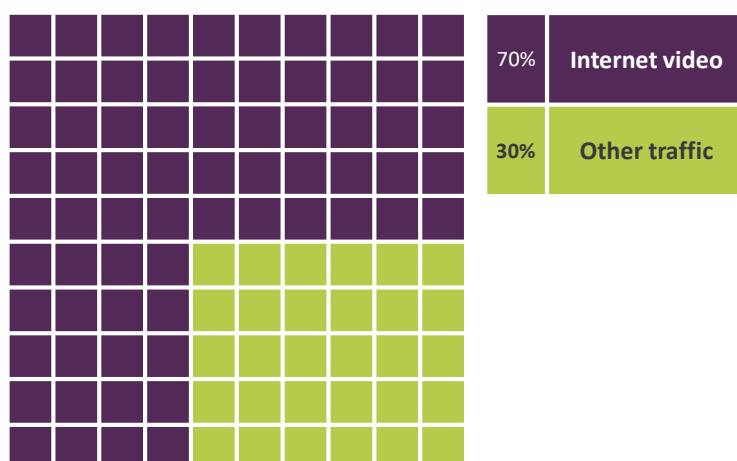
### Video accounts for the majority of UK internet traffic

The majority of UK internet traffic is internet video, and this has been growing steadily each year: 70% in 2017, up from 67% in 2016, and 64% in 2015.<sup>296</sup> This includes video produced and accessed for a broad range of purposes, including streaming of TV and films, clips and short-form videos from social media and video-sharing sites such as YouTube and Vimeo, footage from security cameras, advertising and video calls. According to figures from Cisco’s Visual Networking Index, it would take 2.5 million years to watch all the video that crossed the internet in the UK in 2017.<sup>297</sup>

<sup>296</sup> Cisco [Visual Networking Index](#) (2017 Year in Review) ([2016 data](#), [2015 data](#))

<sup>297</sup> Ibid. “In the United Kingdom, 110 billion minutes (208,513 years) of video content crossed the internet each month in 2017. That’s 41,703 minutes of video streamed or downloaded every second.”

**Figure 6.2: Internet video as a proportion of UK internet traffic**



Source: Cisco Visual Networking Index (2017 Year in Review)

The growth in video traffic is driven both by technological advancements and by changing consumer behaviour. Improvements in network infrastructure have enabled higher-resolution video and audio files to be transferred faster and more reliably. At the same time, demand for services that rely on this technology – such as video calling, streaming and gaming – has continued to grow, which has led to the development of content and business models specific to the online environment.

This chapter focuses on the shift towards video across the online ecosystem and the underlying funding and advertising structures that enable this. Looking to the future, the chapter also examines the use of new immersive and interactive video content, including virtual reality, augmented reality and online gaming, as well as concerns raised by consumers surrounding online video.

## Video communication

### The increase in connectivity and mobility through smartphones has contributed to the rise of video as a powerful communicative tool

As smartphone camera technology has developed and the devices themselves have become integrated into our daily lives, users have been presented with increasingly sophisticated and innovative ways to communicate beyond a standard voice call. In a world where you can HD video call anywhere at the touch of a button, traditional voice calls are declining. In the last five years, fixed voice call volumes have more than halved (-52%), with the biggest percentage decrease stemming from international calls.<sup>298</sup> Historically the most expensive calls to make, the number of minutes generated by UK landlines to overseas operators has decreased by nearly two-thirds in the last five years (-61%), with international calls from UK mobiles not far behind (-50%).<sup>299</sup>

The decline in traditional voice is set against an increase in use of video and voice calling using the internet (VoIP). Often free to download and use, apps such as Skype, Facetime and WhatsApp allow users to make video calls over a broadband connection using their laptop or smartphone, providing a

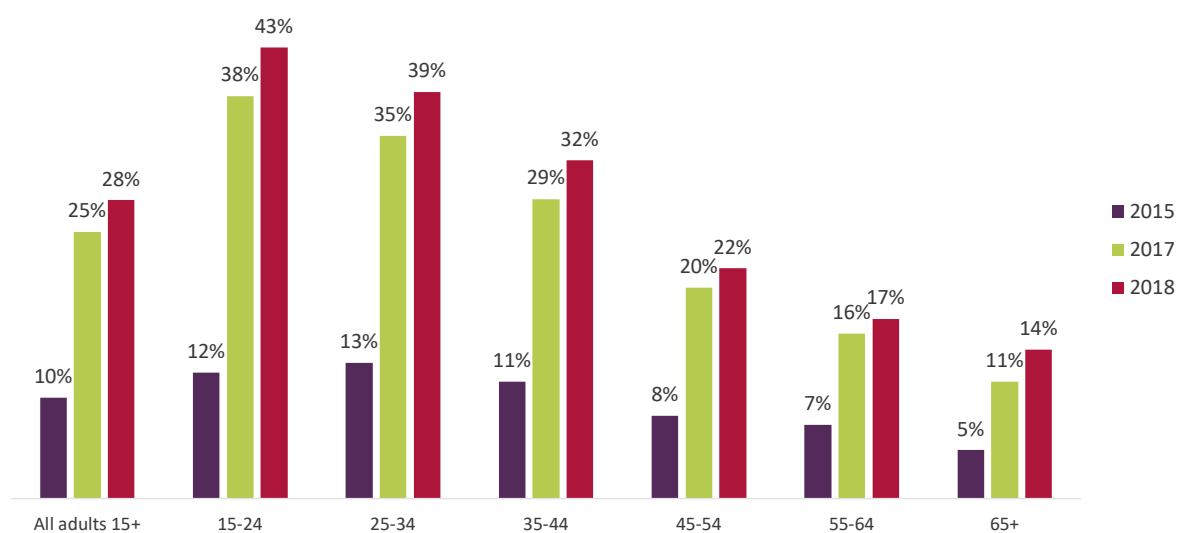
<sup>298</sup> Ofcom [Telecommunications data revenues, volumes and market share update Q4 2018](#), 2019

<sup>299</sup> Ibid.

more immediate, personal and cost-effective way to communicate, regardless of geographic location.

According to TouchPoints data, more than a quarter (28%) of GB internet users aged 15+ make a VoIP call at least once a week, a near three-fold increase since 2015. This increase is even greater for young people aged 15-24, nearly half of whom are now using internet video calling apps regularly (43%) compared to just 12% in 2015.<sup>300</sup> Although the frequency of use decreases in older age groups, it's important to note that use of these apps has increased across all age groups in the last four years, and a significant proportion of older people now using them regularly as a means of communication. Nearly a fifth (17%) of those aged 55 to 64 and just under a sixth (14%) of over-64s make VoIP calls at least once a week, indicating the power of easy-to-use technology, such as video calling, to disrupt and change consumer behaviour.

**Figure 6.3: Daily internet users making a VoIP call once a week or more**



Source: TouchPoints 2018 (GB adults 15+ who use the internet every day)

### **Ease of use and convenience are key, as evidenced by the integration of video calling capability into popular social media apps**

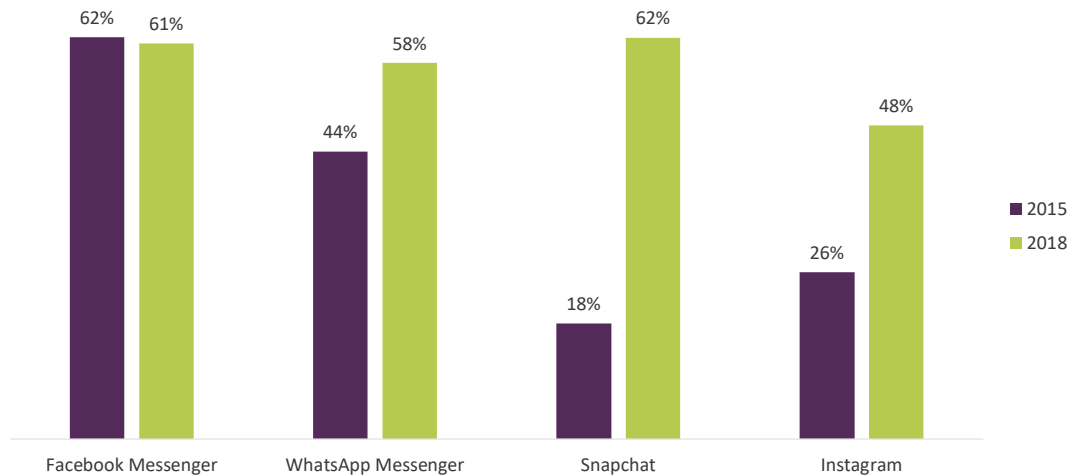
Video calling has also been integrated into text-based messaging and social media apps. Snapchat, which initially grew in popularity due to the ephemeral nature of users' photos and videos, first enabled users to make video calls with each other in May 2014. Since then, video calling has also been incorporated into Facebook Messenger, WhatsApp and Instagram,<sup>301</sup> as social media platforms push to increase their number of monthly active users (MAUs) by providing more services. This is an important functionality of these services and their use in the UK continues to grow: since September 2015, the percentage of UK mobile app users with WhatsApp, Snapchat and Instagram installed increased by 14, 44 and 22 percentage points respectively. For more information on the range of

<sup>300</sup> TouchPoints 2018 (GB adults 15+ who use the internet every day)

<sup>301</sup> Facebook Messenger added video calling capability in April 2015, WhatsApp in November 2016 and Instagram in May 2018

services provided by such apps and the evolution of social media platforms, see the social media chapter of this report.

**Figure 6.4: Reach of selected social media apps with video calling capability**



Source: Comscore Mobile Metrix, Total Mobile, App only, Age: 18+, September 2015 & 2018, UK

### **Video is also playing a large part in UK businesses, both as a communication tool and an enabler of behavioural change**

Telecoms companies are increasingly offering bespoke VoIP and video conferencing products aimed at large companies, driven in part by rapid pace of development in technology and changes in employee working patterns. Figures released by the Office for National Statistics in 2016 estimated that there were about 4.2 million remote workers in the UK,<sup>302</sup> around 13.7% of the total workforce, creating increased opportunity for virtual meetings and video calls with colleagues and clients in other locations.

As mentioned above, the high cost associated with traditional overseas voice calls makes VoIP calling more attractive to businesses which have colleagues and clients in international locations. In addition to large-scale communications solutions, versions of familiar social apps providing VoIP video connectivity are also being adapted to target the professional market e.g. Skype for Business, WhatsApp Business. These apps are also expanding their functionality to cater to the conference call market, with Skype recently doubling its group call participant limit from 25 to 50 individual users.

Beyond facilitating changes to working practices, video also presents businesses with the opportunity to offer services to consumers in a more flexible way. One notable example is in healthcare, where apps such as Babylon Health and LIVI allow users to book and attend GP consultations remotely via smartphone. In the UK over 50,000<sup>303</sup> people are registered with GP at Hand, the NHS booking and video consultation service, extending access to expert advice to those with limited mobility or time.

<sup>302</sup> Office for National Statistics [Home workers rates and levels: Jan to Mar 2015](#), 2016

<sup>303</sup> GP at Hand "[Over 50,000 people already have GP at hand as their NHS GP, with a 96% satisfaction score](#)", 2019

## Video content

### A wide range of organisations publish online video content in the UK

In 2019, 39% of UK adults who use the internet at home or elsewhere said they had used the internet to watch videos or TV programmes/films.<sup>304</sup> Internet users in the UK watch online video from a wide range of sources, as demonstrated by the diversity of the 100 video properties with the highest reach (see Figure 6.5).<sup>305</sup> Although the majority of these relate to digital native organisations (i.e. organisations that do not have a presence in traditional broadcast, news or the music industries), a quarter, including the BBC, ITV and Channel 4, have a background in radio and TV broadcasting. Two sports leagues (Major League Soccer and the NFL) are also among the top 100 video properties, reflecting the potential for sport leagues to create and distribute video content directly to viewers.

The way these organisations use video varies; in the past people have spoken of a ‘pivot to video’ to take advantage of the increasing consumption of online video, to appeal to audiences and advertisers, and to reach new audiences via distribution and sharing on social media platforms. For example, news organisations may create online video content to generate video advertising revenue and reach a mass audience without needing a paywall-centric strategy.

Despite the rapid growth in online video consumption and the online video advertising market (discussed below), some analysts have recently argued that publishers have been disappointed by the results of this ‘pivot to video’ strategy, citing increased production costs (as video content is generally more costly than text-based or audio content), poor user experience (as video advertising and videos may take longer to load on a page) and a lack of standardised measurement metrics.<sup>306</sup>

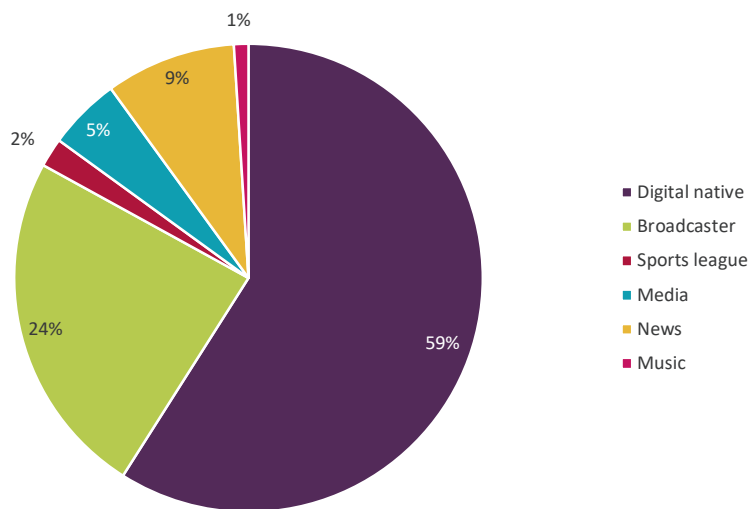
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<sup>304</sup> Ofcom [Technology Tracker](#), 2019

<sup>305</sup> i.e. the total number of people who watch video content from each provider

<sup>306</sup> See: Ad Age [‘Why the ‘Pivot to Video has failed’](#) and Columbia Journalism Review [‘The secret cost of pivoting to video’](#)

Figure 6.5: Analysis of the top 100 Comscore video properties, by type of organisation



Source: Comscore VMX Multi-Platform, Age:18+, Sep 2018, UK

Note: Organisation classification by Ofcom.

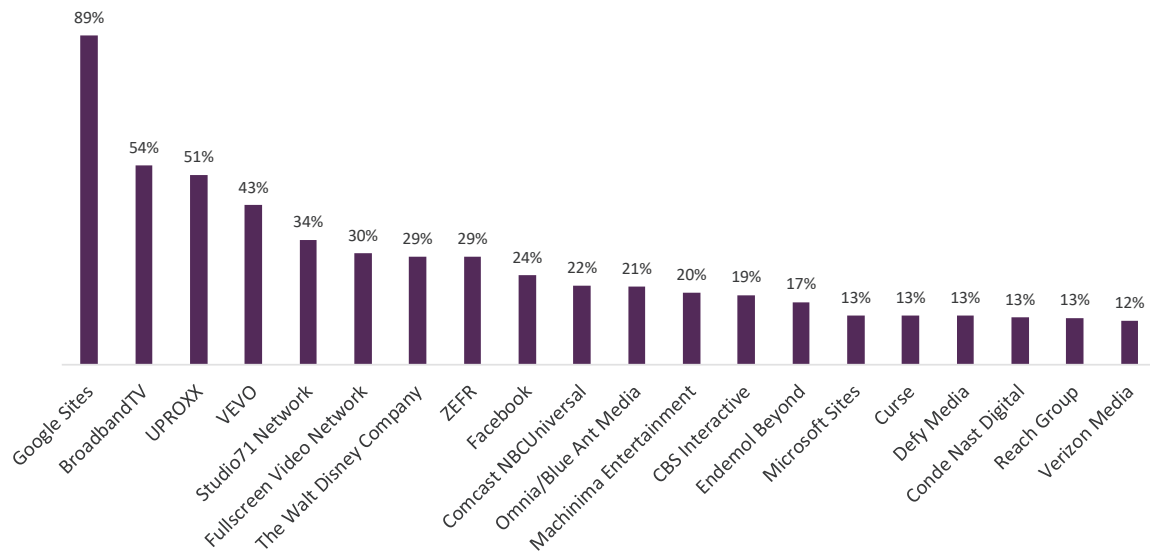
The single largest online video source by reach and consumption is the Google properties, reflecting video consumption of YouTube.<sup>307</sup> Also among the top twenty comScore video properties are multi-channel networks (MCNs), collections of channels which manage and cross-promote channels to build audiences and may also play a role in managing talent and advertising and sponsorship relationships. One key example is the music video MCN Vevo, whose owners include Universal Music Group and Sony Music Entertainment in addition to Google and Abu Dhabi Media. As an MCN, Vevo can cross-promote its channels and manage and sell its own advertising inventory, although since 2018 YouTube has increased the amount of advertising it sells on Vevo's behalf, following an agreement between YouTube and Vevo.<sup>308</sup>

Media companies including Disney, Comcast/NBC Universal, Conde Nast and Verizon Media (which includes Yahoo) also feature in the top-20 video properties, as does Facebook which has been increasing its focus on video in recent years.

<sup>307</sup> This figure also includes YouTube views ascribed to Google Properties for those publishers whose YouTube channels are not reported against the channel operator's parent entity.

<sup>308</sup> Vox ['YouTube is using a new deal with Vevo, the music labels' video venture, to boost ad sales'](#), 2018

**Figure 6.6: Top 20 video properties, by reach: September 2018**



Source: Comscore VMX Multi-Platform, Total audience, Sep 2018, UK

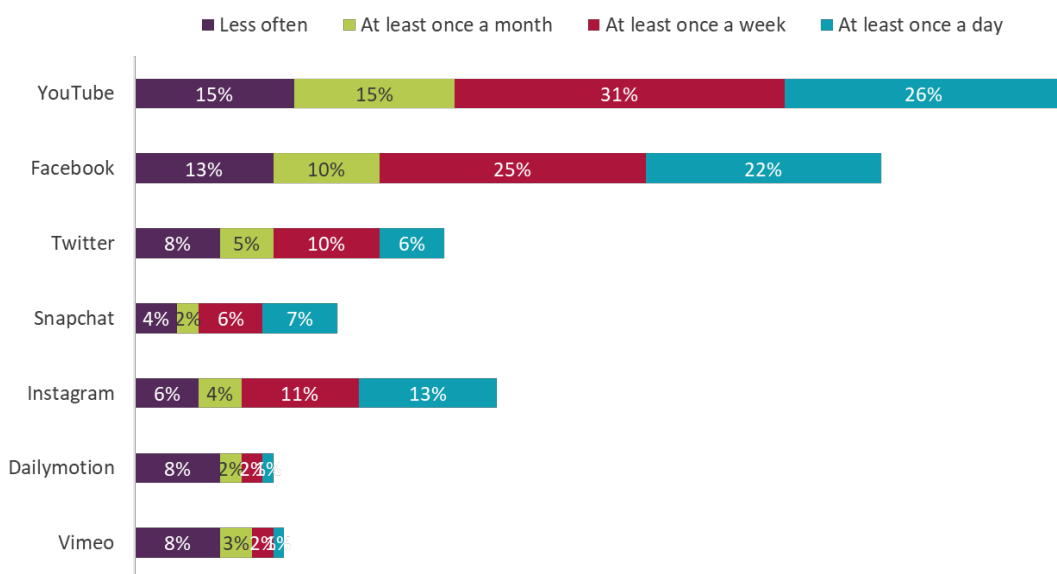
Note: Video consumption on mobile devices is not captured on entities measured solely via the panel.

### **Eighty-six per cent of online adults watch videos on YouTube**

As discussed above, one of the rationales for the ‘pivot to video’ that some publishers have made was to take advantage of the appetite for internet users to consume videos. Overall, 86% of UK adults online say they watch video on YouTube, with a quarter of UK online adults doing this at least once a day.

The overall usage figures mask some significant differences in use among demographic groups. For example, overall 19% said they watch videos on Snapchat, but this includes 77% of those aged 16-17, while only 1% of over-64s said they had done this.

**Figure 6.7: Use of selected social media platforms to watch video**



Source: Ofcom research 2019. Question: Q17. How often do you do each of the following? Base: UK adults aged 16+ (2131). NB: Question prompted for specific brands, and thus the question differs from the Tech Tracker questions about use of the internet to watch video/TV programmes.

### **A wide variety of online video content is available on the YouTube channel groupings with the highest reach**

Many of the largest MCNs, such as Broadband TV and Studio 71, work with multiple independently-owned channels as well as commissioning their own content. MCNs have also been established by rights holders such as music labels, broadcasters and TV production houses to manage and consolidate their presence on online video platforms.

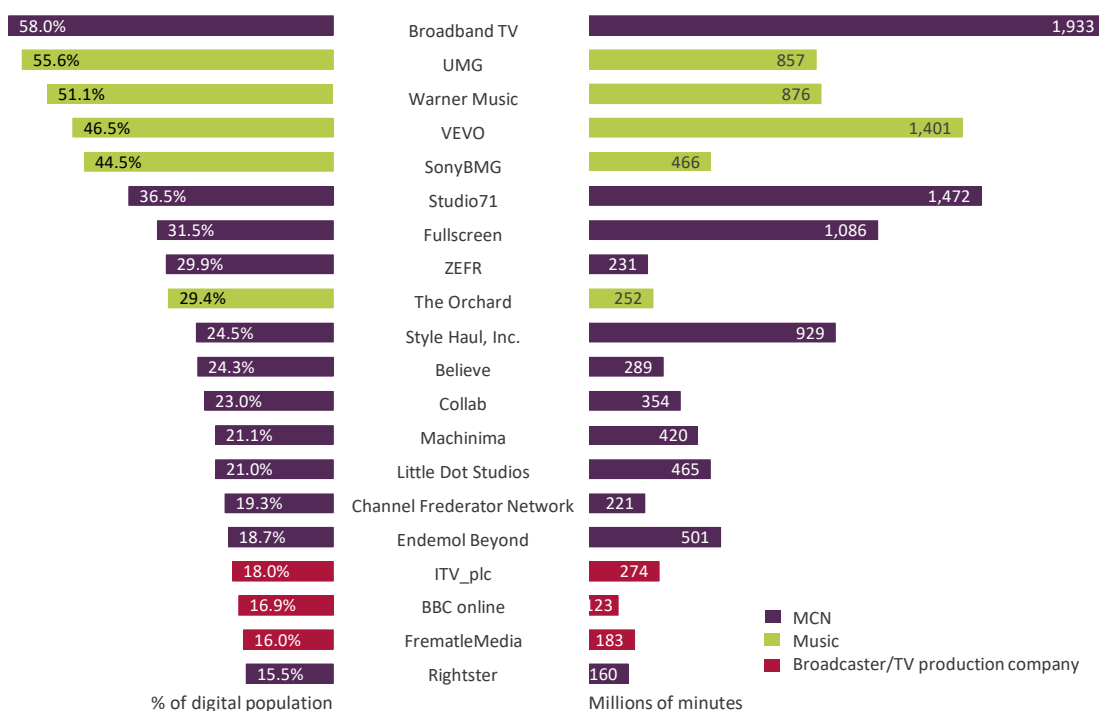
MCNs specialising in music videos accounted for four of the five top YouTube channel entities<sup>309</sup> by reach in 2018. However, channels associated with UK TV broadcasters or production companies also feature among the YouTube channel entities with the highest reach. For example, Fremantle content includes videos relating to TV programmes *The X Factor* and *Britain's Got Talent* on Fremantle's channels, while the ITV and BBC channels contain content associated with their TV programmes as well as other 'digital native' content.<sup>310</sup>

<sup>309</sup> These channel entities are the highest-level YouTube channel entity in the comScore hierarchy reported in the YouTube Partners report, generally a comScore Media [M] entity or a Channel [C] entity. Each entity listed in Figure 6.8 may potentially relate to multiple individual YouTube channels.

<sup>310</sup> Note: BBC Studio's YouTube channels are reported separately.



**Figure 6.8: Reach among digital population and total video minutes (million minutes) consumed on top 20 YouTube channel entities: September 2018**



Source: Comscore VMX Multi-Platform, Age: 18+, Sep 2018, UK

Note: Categorisation by Ofcom.

### People in the UK watch online video content for a variety reasons

As evident from the reach of the channels operated by the major music labels, one of the main reasons why people watch online video is to watch music videos; 62% of those who watch videos on sites or apps like YouTube, Vimeo, Snapchat or Facebook say they do this.<sup>311</sup> Another common reason for watching videos on these platforms is to watch ‘how-to’ videos, with 57% claiming to do this. Consumption of this genre is consistent across age groups, with 61% of 16-24s and 57% of over-54s saying they watch this type of content. Examples of larger YouTube channels offering a range of how-to content include Howcast, although many channels offer videos in this genre, including lifestyle and beauty videos. ‘How-to’ videos are particularly suited to viewing on mobile devices as people can watch them where and when it suits them, pausing and rewinding to follow the video at a pace which suits them.

Funny / comedy videos are consumed by more than half of those who watch online video; 56% of people watch this genre. However, this varies considerably with age – 67% of those aged 16-24 watch these, compared to 41% of over-54s.

Other distinctive forms of online video genre include the approximately 13 million<sup>312</sup> ASMR<sup>313</sup> videos which have been uploaded to YouTube and which have become increasingly popular among UK

<sup>311</sup> Ofcom *Adults’ media use and attitudes report*, 2019, QIN19B

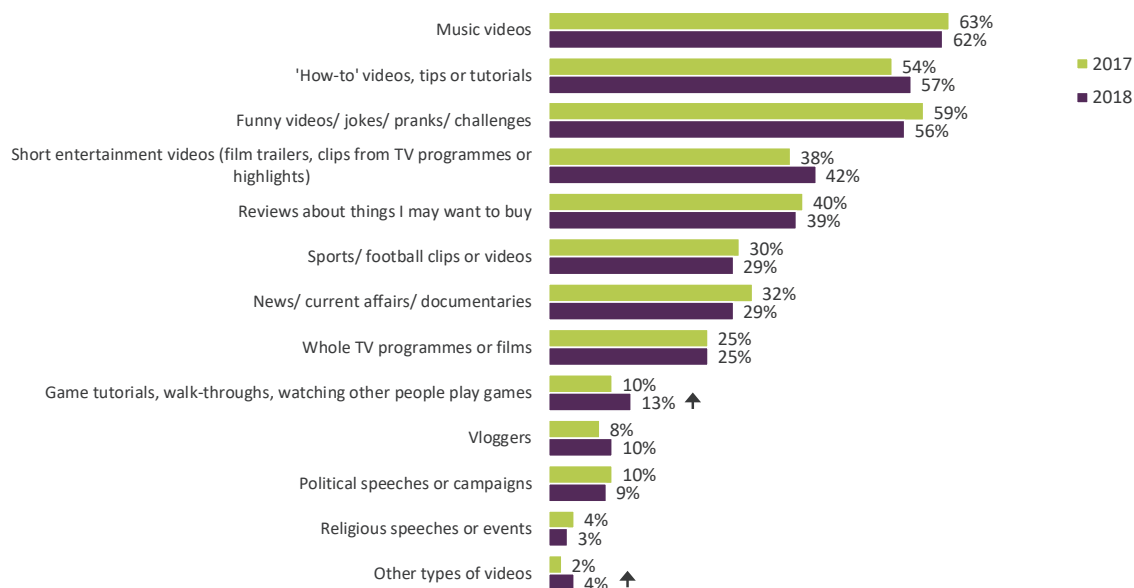
<sup>312</sup> BBC News *‘ASMR: The Scots YouTuber who makes your brain tingle’*, 2019

<sup>313</sup> Autonomous Sensory Meridian Response

users.<sup>314</sup> These videos are designed to relax the viewer in response to specific types of soft sound and image in the video, and examples include videos involving the production of and playing with ‘slime’ or even the images and sounds of people eating. Ofcom’s previous research on children’s content consumption<sup>315</sup> highlighted YouTube as a source of non-TV like video content for young people, with popular formats including vlogs, gaming videos, tutorials, slime and craft videos.

We will cover online video services in more detail in our 2019 *Media Nations* report, which is scheduled for publication in the summer.

**Figure 6.9: Type of video content consumed online**



Source: Ofcom Adults’ Media Literacy Tracker 2018

IN19B. (SHOWCARD) And what types of videos do you tend to watch on these sites and apps? (MULTI CODE)

Base: Those who ever watch videos on sites or apps like YouTube, Vimeo, Snapchat or Facebook Arrows show significant changes (95% level) between 2017 and 2018

## Video search

### Video sites are increasingly used as search engines for finding specific information

Thirty-one per cent of UK adults aged 15+ use online video sites such as YouTube more than they did a year ago,<sup>316</sup> and research indicates that this increase reflects not only higher consumption of video, but a change in how these sites are used as an informational resource. When searching for information online, 40% of UK adults say they search directly via the YouTube website or app.<sup>317</sup>

<sup>314</sup> The index for the term ‘ASMR’ on YouTube searches in the UK has increased over time, from an average of 28 in 2016 to 69 in 2018. See: [Google Trends](#)

<sup>315</sup> Ofcom [Life on the small screen: What children are watching and why. A report for Ofcom](#), 2019

<sup>316</sup> Ofcom Search questionnaire 2019. Question: Q9. Compared to last year, when you find things online do you use the following more or less than you used to? Base: UK adults aged 16+ (2131)

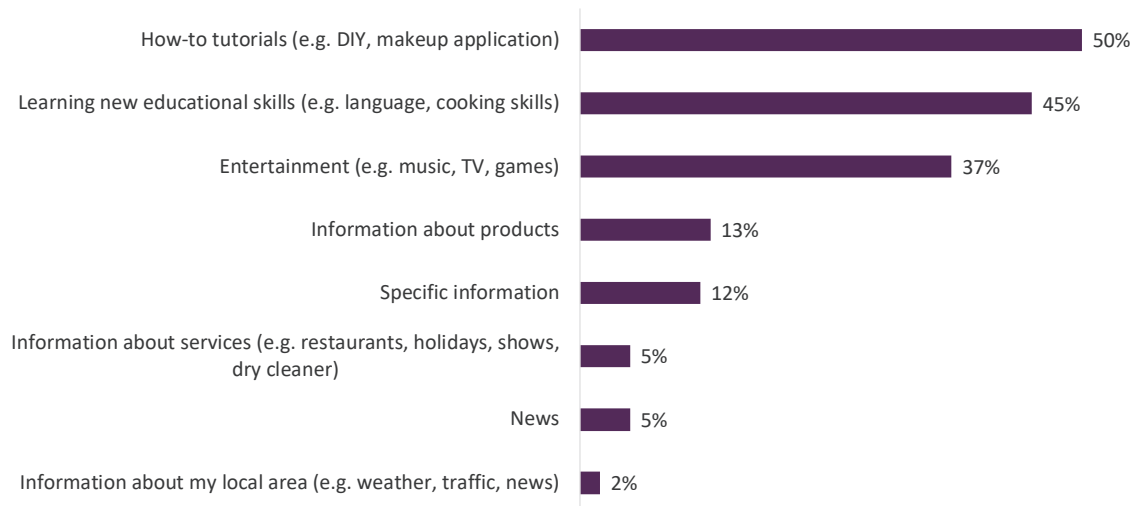
<sup>317</sup> Ofcom Search questionnaire 2019

Question: Q2. Which of the following do you use to search for things on the internet? (THIS INCLUDES ANY TYPE OF SEARCH FOR ANY TYPE OF INFORMATION OR CONTENT)

Base: UK adults aged 16+ (2131)

Practical skills such as DIY and cooking are the most searched-for category, mirroring the popularity of the how-to videos and tutorials discussed above, and highlighting the power of video to inform and educate.

**Figure 6.10: Content searched for via the YouTube website or app**



Source: Ofcom Search questionnaire 2019

Question: Q4. Which of the following do you normally use to search for the following things via the internet?

Base: UK adults aged 16+ (2131)

The placement of video on web pages and the incorporation of videos into the main page of search engine results has also helped drive the increase in use of video sites. Often placed at the top of web pages or embedded into news articles, users are directed towards video as an alternative to text-based media. For more information on how internet users search for and navigate content online, see the *Search and Discovery* chapter earlier in this report.

## Monetisation of online video

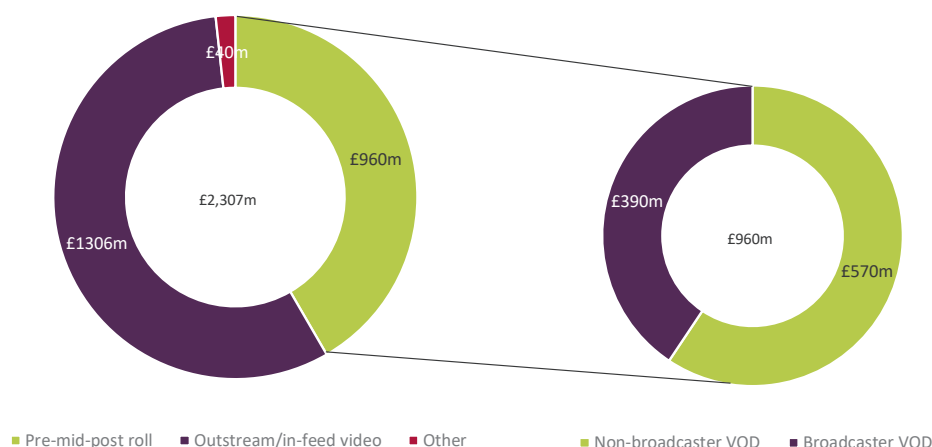
### Advertising is the primary funding model for online video; however, some creators are looking beyond advertising

As previously noted, one of the rationales for the ‘pivot to video’ strategy is to take advantage of growth in the online video advertising market. Online video advertising in the UK grew by 30% year on year in real terms in to reach £2.3bn in 2018, outperforming the total online advertising market which grew by 12% in real terms. Video advertising on smartphones was the driver of this growth, growing by 42% in real terms to reach £1748m.<sup>318</sup> Outstream<sup>319</sup>/in social feed video advertising formats (which are video advertising formats placed in content blocks or social media feeds) grew by 42% in real terms year on year to increase their share of total digital video advertising to 57%, reflecting the propensity to use these formats on smartphones. In contrast, video advertising on desktops and tablets grew by just 2% in real terms to £559m. Video’s total share of the display market grew by 4 percentage points to reach 44% in 2018.

<sup>318</sup> [IAB/PwC 2018 Digital Adspend Study](#)

<sup>319</sup> Outstream is video advertising which appears against non-video content (e.g. in an article)

**Figure 6.11: Online video advertising: 2018**



Source: IAB/ PwC 2018 Digital Adspend Study

In response to the growth of online video, and the potential challenges that such a large, fragmented ecosystem may present to sellers and buyers of video advertising, platforms, advertisers and content creators have developed ways to aggregate the market.

One way in which online video platforms have attempted to address inventory concerns has been to play a more active role in channel curation. For example, YouTube’s Google Preferred programme, launched in 2014, allows advertisers to buy audiences against YouTube channels that have been pre-screened by YouTube to meet requirements in terms of viewing numbers, production values and audience protection.<sup>320</sup> In addition, in early 2018 Google changed the eligibility for channels to monetise their content via advertising, requiring a minimum of 1,000 subscribers and a total of 4,000 hours of video views in the previous 12 months in order to address concerns about rogue channels.<sup>321</sup> Another response has been for platforms to invest in content, either directly or through partnerships with content creators, with YouTube, Facebook (Facebook Watch), Twitter and Snapchat among the online video platforms to have taken this route.

Although the primary source of revenue for YouTube is advertising, YouTube Premium (initially launched as YouTube Red) allows subscribers who pay £11.99 a month to play content from the YouTube platform without adverts. Subscribers are also able to download YouTube content to their devices for offline viewing (including children’s and gaming videos), as well as to stream music advert-free and in the background on their mobile devices. In November 2018 Google announced that YouTube Originals content, originally commissioned for YouTube Premium, would be made available to view with adverts for those without a subscription.<sup>322</sup>

<sup>320</sup> DigiDay UK, *‘YouTube is targeting TV advertisers with this year’s upfront pitch’*, 2019

<sup>321</sup> YouTube Creator Blog *‘Additional Changes to the YouTube Partner Program (YPP) to Better Protect Creators’*, 2018

<sup>322</sup> Engadget UK *‘YouTube cancels two originals but says it’ll keep making premium content’*, 2019

## Subscriptions, donations and merchandising as sources of funding for online video content

The majority of online video is directly or indirectly funded by advertising, although some content creators have turned to other funding models, such as subscriptions, donations and merchandising, to substitute or supplement advertising revenues. While data on online video advertising is hard to come by, some video creators have expressed concerns about fluctuations in the advertising revenues<sup>323</sup> they receive from online video platforms. Ampere Analysis estimates that although the average revenue for 1000 views has increased in nominal terms from \$1.59 (£0.97) in 2014 to \$2.49 (£1.87) in 2018,<sup>324</sup> this may be due to adverts being served more frequently, rather than an increase in CPM (cost per thousand impressions, a measurement of advertising price). In response to this uncertainty around advertising revenues some content creators have looked to other potential sources of revenue.

Patreon, founded in 2013, is an example of a crowd-funded donations platform used by 34,000 online video creators around the world to monetise their content in return for 5% commission. Both Facebook (whose Facebook Subscriptions service launched in 2018) and YouTube's Channel memberships (also launched in 2018) have also introduced features to allow content creators to offer additional content or benefits to audience members who pay a monthly fee.

Although the absolute numbers of consumers donating via this type of platform is low, the number of individual pledges on Patreon in the video category grew by 128% in the 12 months to September 2018 to reach almost 1.6 million unique pledges globally.<sup>325</sup> With an estimated average monthly pledge of \$2.29 (£1.72), the estimated average earnings of a content creator in the video Patreon category was \$107.92 (£80.94) per month.<sup>326</sup>

In total, 5% of UK internet users have ever made a one-off or regular donation to an online video creator, with 4% having made a one-off donation and 3% making a regular donation. Awareness of the ability to do either of these things this was relatively low; 61% and 62% respectively said they were unaware that it was possible to do them.

Overall, the incidence of making a donation, buying merchandise or clicking on an affiliate link to help fund video content is low; only 14% of internet users have ever done at least one of these, although it was most common among the 16-17 and 18-24 age groups, at 33% and 29% respectively.

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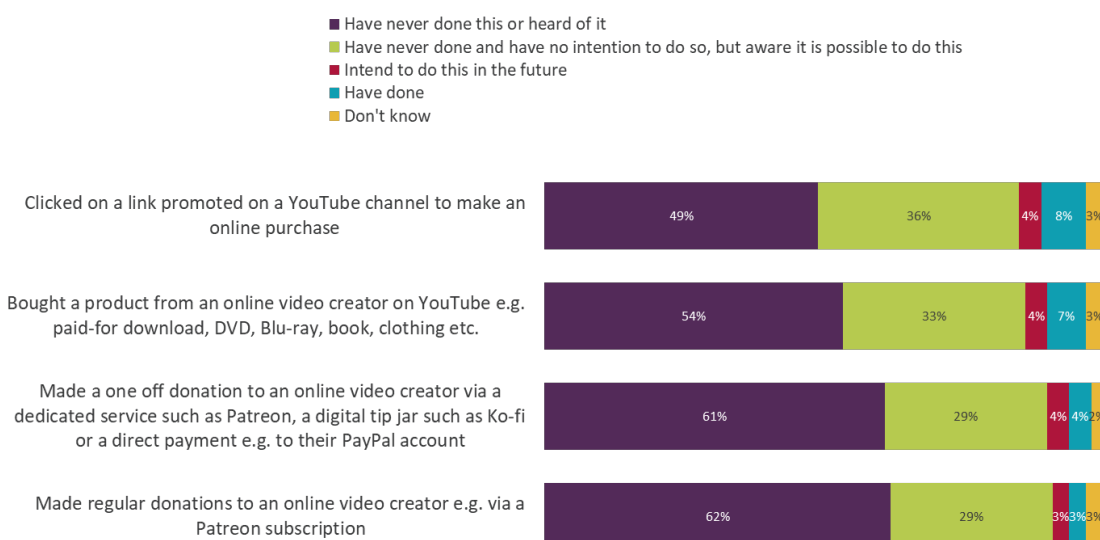
<sup>323</sup> See for example Polygon [\*'Why YouTubers are losing so much ad money \(and how they can survive the crunch\)'\*](#), 2017

<sup>324</sup> Ampere Analysis estimates, converted by Ofcom into GBP at Bank of England Yearly Average Exchange rate \$1=£0.61 (2014) and \$=£0.75 (2018). Note that the frequency of adverts served on a channel will vary between channels and may also vary over time.

<sup>325</sup> Graphtron.com

<sup>326</sup> Graphtron.com based on 1,597,085 individual pledges and estimated \$3,664,596 monthly pay-out (excluding pay-outs that are not published) to 33,958 creators. Number of pledges and estimated monthly pay-outs for month of September 2018, number of creators with at least one patron as at 30 September 2018. Bank of England Yearly Average 2018 exchange rate, £1 = \$1.33

**Figure 6.12: Use and awareness of monetisation options for online video creators**



Source: Ofcom Search questionnaire 2019 Question: Q18. Some online video creators make their money from their viewers. They can do this in a few different ways, some of which are listed below. Please select all responses that apply to you personally Base: UK adults aged 16+ (2131)

## Interactive and immersive video

### Broadband networks and powerful connected devices encourage interactivity

The online world offers opportunities for a diverse range of video content, and video formats encouraging interactivity allow consumers to engage with the content and move beyond passive consumption. Active interaction with video content is not a new phenomenon, but the widespread availability and take-up of fixed and mobile broadband networks, as well as increasingly powerful connected devices, has encouraged publishers to experiment and innovate. In this section we focus on popular examples of this innovation – interactive video, 360 degree video, and virtual and augmented reality – as well as gaming, which is both a form of interactive video content and a rich source of online video content in the form of live streams, e-sports and gameplay videos.

### Interactive video on big and small screens

The past couple of years have seen the release of a range of interactive video content tailored for both mobile phones and for larger screens. Launched in 2017, HQ Trivia, a free mobile quiz app for Android and iOS, allows users to play for cash prizes in live, real-time video quizzes which combine a TV-like quiz show with a live on-screen host, on-screen messaging and chat. In 2018 Facebook added interactive video features to Facebook Live, including quizzes and polling.

Interactivity has also been added to drama content. On 28 December 2018 Netflix released *Bandersnatch*, a standalone film in the Black Mirror anthology, in which viewers can make choices that dictate the storyline. The film encourages spending time developing the story, exploring different permutations and re-watching, and plays into unease about the influence of media on people's lives. Viewers are confronted with decisions and potentially shocking outcomes, and the programme uses the interactivity to give the viewer a sense of responsibility over the characters and therefore affect viewers' emotions more than with passive viewing.

## 360 video, virtual reality (VR) and augmented reality (AR) offer viewers more immersive video and AV content

By tracking and dominating the field of view of the viewer in real time, 360 video, VR and AR offer the potential for a more immersive experience than traditional and online AV content, especially when viewed through a modern smartphone or dedicated headset.

360-degree video (video which offers the viewer the ability to look fully up, down and around the scene) is one form of this more immersive AV content. In January 2015, YouTube created a dedicated channel with playlists of VR and 360 videos, which as of 25 March 2019 had 3.17 million subscribers. Facebook launched support for 360 videos in 2015, following this with a dedicated 360 video and VR app, Facebook 360, in 2017. A range of publishers are investing in 360 content, including the BBC, which in March 2016 filmed and uploaded an entire episode of technology TV programme *Click* in 360 video. Among the most-watched 360 degree videos on Facebook are videos related to sports content, gaming and company promotional videos,<sup>327</sup> while content aimed at children also featured among the most-watched 360 videos on YouTube.<sup>328</sup> Viewing figures for 360 video remain relatively small compared to more traditional forms of video – for example, the most-viewed YouTube video overall in February 2019 was a music video viewed approximately 200 million times,<sup>329</sup> while the highest-viewed 360 video was viewed around 4.6 million times.<sup>330</sup>

Virtual reality and augmented reality may offer greater levels of immersion than 360 video by offering freedom of motion due to the use of computer-generated images rather than pre-filmed video. Global VR content spend reached \$803m in 2017, of which games and interactive experiences comprised 97%.<sup>331</sup> Publishers of VR content include Sky, which offers VR content for its Sky VIP subscribers via the Sky VR app. Other broadcasters, including the BBC, are also creating and distributing their own VR content. Examples of VR content on offer include interactive film trailers and short films on sport. Sport is an area of development for VR; the technology gives fans the ability to have a more immersive experience. In May 2018, the NBA announced that it was partnering with Turner Sports and Intel for real-time 360 viewing using VR.<sup>332</sup>

In contrast to VR, which relies on fully immersing the viewer with computer graphics, augmented reality blends the viewer's field of view with computer-generated imagery in real time. Key consumer applications for this include mobile gaming. One of the highest-profile games which uses AR is Pokémon Go which had a reach of 30%<sup>333</sup> in its first month following its launch in 2016. The game is designed to be played while outside, viewed through a smartphone or tablet screen.

Consumers are able to use modern smartphones to access 360 video, VR and AR content, potentially with relatively inexpensive passive headsets, and some of the most popular AR applications to date, in particular PokémonGo, are designed not to require a headset in use. However, dedicated

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<sup>327</sup> Tubular Labs [Leader board of most viewed 360 videos on Facebook](#) (data as of February 2019)

<sup>328</sup> Tubular Labs [Leader board of most viewed 360 videos on YouTube](#) (data as of February 2019)

<sup>329</sup> 'Pedro Capó, Farruko - Calma (Remix - Official Video)' by Capavevo, Tubular Labs [Leader board of most viewed overall videos on YouTube](#) (data as of February 2019)

<sup>330</sup> 'Our brand new Airbus A321neo aircraft' – Cebu Pacific Air

<sup>331</sup> IHS Markit ['Immersive Computing – Consumer Augmented & Virtual Reality Report 2018'](#), 2018

<sup>332</sup> USA Today ['Meet the NBA's new frontier: watching games in virtual reality'](#), 2018

<sup>333</sup> Comscore Mobile Metrix, Pokémon GO (Mobile App) [C], Age: 18+, July 2016, UK

hardware for consuming 360 video, VR and AR has not yet become mainstream in the UK, with just 5% of UK households owning a VR headset (such as an Oculus Rift, PS VR, Samsung, Gear VR, or HTC Vive) in 2019,<sup>334</sup> and only 1% saying they play games at home using a VR headset.<sup>335</sup>

### **Computer and video games are an important source of online video content and have given rise to distinctive platforms and business models**

Computer and video games are an important part of the online video mix. In 2018, 21% of GB adults had ever watched gaming videos on online sites such as YouTube and Twitch, with 12% doing this at least monthly. Online video channels that focus on gaming are among the largest in terms of subscriber numbers and views.

Fewer people stream game-play themselves than watch online gaming videos. In 2018 only 6% of adults said they had ever shared or streamed games from their console to other players. As well as consistent upload speeds, creating and streaming game-play videos on a regular basis may require specific equipment, including a computer powerful enough to run the game and encode the video in real time, a headset and microphone. According to Forbes estimates,<sup>336</sup> five of the top ten highest-earning YouTubers operate gaming-focused channels, reflecting the popularity of the genre and the potential for monetisation. Channels such as these generate income from a range of sources including video advertising, sponsorship, merchandising, channel subscriptions and donations.

Although only 6% of UK consumers report that they have watched e-sports, the number of weekly gamers who do is significantly higher at 31%. Overall, 47% of 15-24s who play games on a weekly basis have ever watched e-sports compared to 18% of those aged 15-24, as a whole.<sup>337</sup> More broadly, e-sports are gaining traction as an online video format. Globally, the four biggest e-sports events in 2018 accumulated 190 million hours of live streams, representing 7% growth.<sup>338</sup>

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<sup>334</sup> Ofcom [Technology Tracker](#), 2019, QB1, base all respondents

<sup>335</sup> Ofcom [Adults' media use and attitudes report](#), 2019, G1, base all respondents

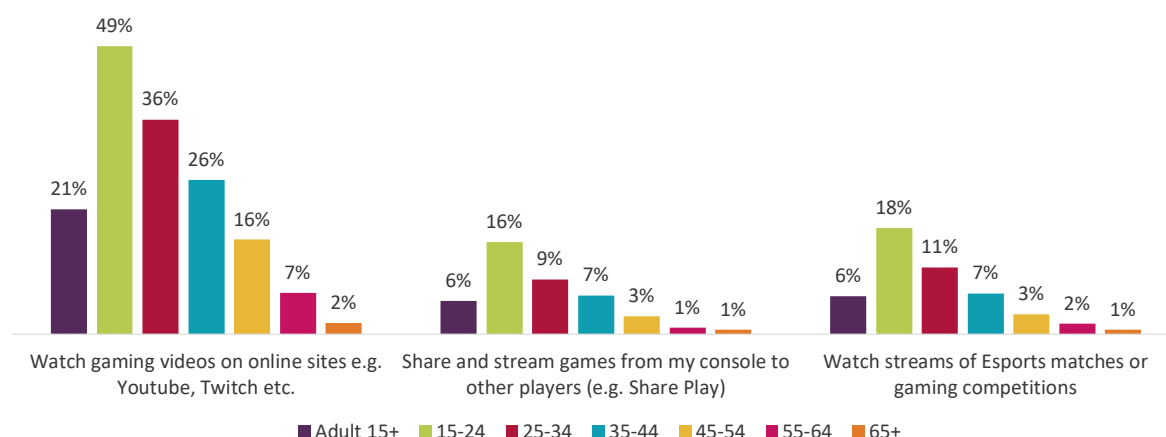
<sup>336</sup> Forbes ['Highest-Paid YouTube Stars 2018: Markiplier, Jake Paul, PewDiePie and More'](#), 2018

<sup>337</sup> TouchPoints 2018. Equivalent e-sports viewing data is not available in previous years.

<sup>338</sup> Newzoo ['Tournaments for the West's Four Biggest Esports Games Generated 190.1 Million Hours of Live Viewership on Twitch and YouTube Gaming'](#), 2018



**Figure 6.13: Video and computer game-related video activities**



Source: TouchPoints 2018.

Note: Percentages refer to the proportion of adults who ever do the above activities.

### Computer and video game publishers and platforms are adopting similar approaches to online video

We conclude this section of the chapter with a brief examination of computer and video games as a source of AV content in their own right, reflecting their competition with video for screen time, but also the potential for convergence in business models, as the way games are distributed and monetised share some similarities with video.

The internet supports consumers playing games in a range of ways. Overall, 24% of GB adults play games with other online users, with 11% adults doing so at least weekly. Younger demographic groups are more likely to use the internet for online multiplayer games, with 48% of those aged 15-24 doing this, compared to only 4% of over-64s.

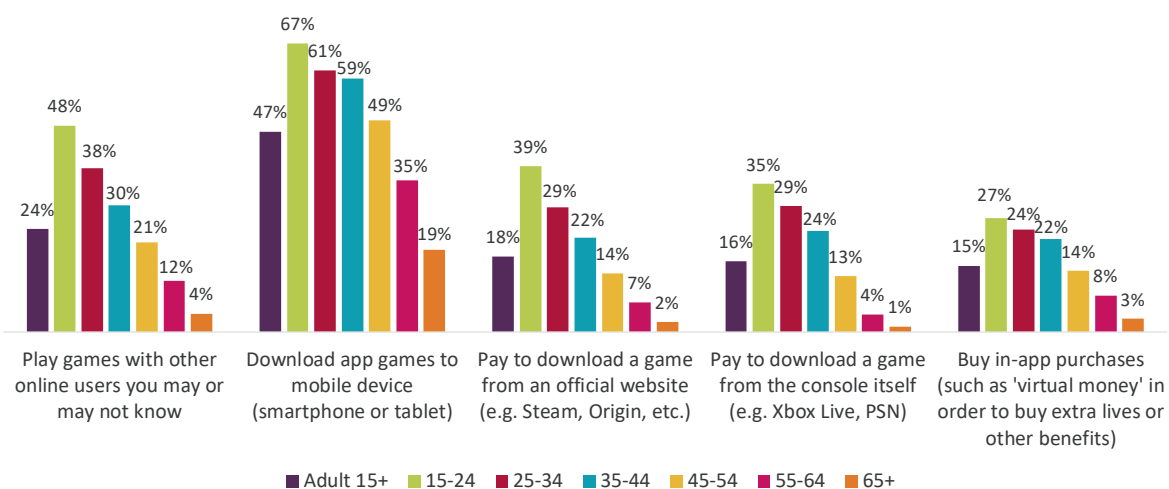
The internet can also be used to distribute gaming content and accounts for the majority of UK retail games revenues. Online and digital revenues grew by 20% in 2018 to reach £2.0bn,<sup>339</sup> while mobile game retail revenues grew by 10% to reach £1.2bn.<sup>340</sup> Overall, 18% of adults have paid to download a game from an official website such as Steam or Origin, in line with the 16% who have paid to download a game from a console platform itself. In contrast, many more people download app games to their mobile device, with 47% adults overall doing this.

Finally, the internet offers games publishers a range of ways in which to monetise their content instead of, or in addition to, an initial single up-front payment such as in-game advertising or via in-app purchases. Fifteen per cent of adults have made an in app-purchase in order to buy extra lives or other benefits in a game.

<sup>339</sup> This figure includes download revenues, DLC and in-game transactions. Source IHS Markit via UKIE [‘UK consumer spend on games grows 10% to a record £5.7bn in 2018’](#), 2019

<sup>340</sup> Source: Ibid

**Figure 6.14: Use of selected gaming activities with online element**



Source: TouchPoints 2018.

Note: Percentages refer to the proportion of adults who ever do the above activities.

Although not a new concept, cloud-based gaming, where game content is streamed from remote servers to the player's device, gained in saliency in 2019 following announcements from Google and Microsoft. Microsoft Project xCloud is due to start testing later in 2019. Google's Stadia, announced in March 2019 after testing in 2018, will run PC games through Chrome and will come with a controller connecting to the cloud-server using wi-fi.

Streaming games requires a fast and low-latency internet connection. However, as the game itself does not need to run on the device, it can allow gamers to play games without purchasing additional specialised gaming computers, and streaming games can potentially be played on a range of different devices, including smartphones.

In addition to streaming, publishers and distributors are introducing subscription-based models for gaming as an alternative to one-time purchases (in particular, for services such as PlayStation Now which focus on games for PCs/consoles). Apple recently announced its subscription-based, ad-free gaming service, Arcade, which will focus on the mobile market.

## Online video: harms and protection

### The shift towards video presents unique challenges with respect to content moderation and protecting internet users from harm

The sheer quantity of online video content, and the millions of individual online video content creators (compared to the relatively small number of TV-like content creators) give rise to particular challenges in protecting audiences from illegal or inappropriate content. Video requires sophisticated methods of screening and moderation, which may be especially difficult when video is being streamed in real time.

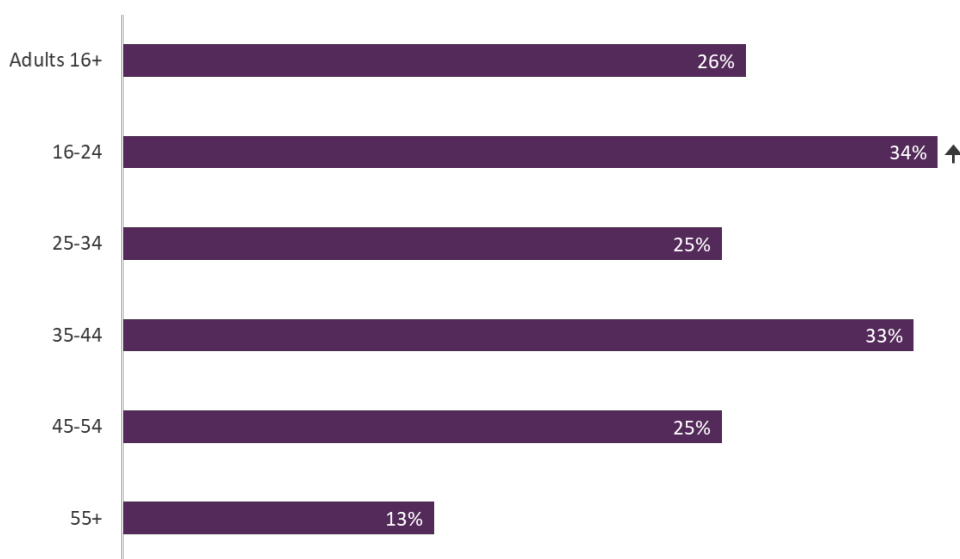
YouTube uses a combination of software and user reporting to detect material that is protected by copyright laws or which contains potentially offensive or harmful content. Similarly, Facebook uses a

combination of autodetection software to prevent inappropriate content being published, and user reporting and human moderators for videos that reach the site; users can flag material on the site, after which content moderators review the content in line with Facebook’s Community Standards<sup>341</sup> and remove any found to be in violation of this policy. In addition to requiring a combination of methods, the volume of user-generated video content uploaded every day poses a significant challenge to online video sites and sharing platforms in terms of moderating video content.

### Younger internet users are more likely to report video content as inappropriate

According to Ofcom research, 26% of YouTube users have seen content on YouTube they considered to be inappropriate; of these, 37% said they had reported it. Those aged 16-24 were more likely than average to have seen this type of content.

**Figure 6.15: Inappropriate content seen on YouTube**



Source: Ofcom Adults’ Media Literacy tracker 2018

Question: IN58B Have you ever seen something on YouTube that you considered inappropriate?

Base: Those who watch videos on sites or apps like YouTube, Vimeo, Snapchat or Facebook (All UK: 1179, 16-24: 232; 24-35: 229, 35-44: 252, 45-54: 202, 55+: 264)

Significance testing: Arrows indicate any significant differences at the 95% confidence level between UK 2018 and each age group.

### Video sharing and social media sites are the least trusted by internet users

Misleading information and privacy were the chief concerns for adult users of video-sharing and social media sites. According to recent Ofcom research, 40% of YouTube users do not trust these sites to not provide misleading information, and 35% do not trust YouTube to use their data responsibly and protect their personal data. Children described slightly different concerns: among 12-15 year-olds, 17% do not trust YouTube to protect them against offensive videos and pictures, with similar rates for TikTok (18%), Facebook and Instagram (both 15%).<sup>342</sup>

<sup>341</sup> Facebook [Community Standards: Introduction](#)

<sup>342</sup> [Ofcom-ICO research](#) 2019

## Case study: YouTube Community Guidelines and content removal

YouTube allows viewers of videos to report content that they deem to be inappropriate, or otherwise contravening the Community Guidelines. These relate to a range of areas, in particular relating to nudity and sexual content, harmful or dangerous content, hate content, violent and graphic content, harassment, threats, and spam and deceptive practices. Channels are also required to abide by policies relating to impersonation, privacy and child protection.

In addition, channels can place age restrictions on videos that they believe to be unsuitable for younger audiences due to the nature of the content. Viewers are also able to flag videos for review if they believe the video should be age restricted. Age-restricted videos cannot be monetised and only users which have logged in are able to watch them.

In 2018 YouTube removed 32.9 million videos which were found to have contravened the Community Guidelines. The majority of these videos were removed following automated flagging and before they had been viewed.

The first time a channel is found to have posted content which contravenes the Community Guidelines, it receives a warning. Subsequent breaches of the Community Guidelines result in 'strikes', each of which results in the suspension of features of the user's account, such as the ability to upload content. Three strikes in a 90-day period will result in the channel's closure. Channels can also be closed following a single severe contravention, or because their underlying purpose is to breach the guidelines. YouTube's policies allow channel owners to appeal against each strike once. Strikes for breaches of Community Guidelines are distinct from 'copyright strikes' which relate to complaints about unauthorised use of copyright material.

A total of 2.4 million channels were removed in the period in October-December 2018 for breaching Community Guidelines, 82% of which were removed for being spam, misleading or scam content, with 10% of removals being due to nudity or sexual content, and 3% for child safety reasons.

Sources:

[Google Transparency Report: YouTube Community Guidelines Enforcement](#)

[YouTube Community Guidelines](#)

[Community Guidelines strike basics](#)