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Online Nation

2020 Report

Raising awareness of online harms

Published 24 June 2020

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Overview

Online Nation is an annual research report, published for the first time in 2019. Using research produced both by Ofcom and others, this report and the accompanying interactive data look at what people in the UK are doing online, how they are served by online content providers and platforms, and their experiences of using the internet, alongside business models and industry trends. As well as looking at long-term trends, this year's report includes more recent data looking at online behaviour in the UK during the coronavirus (Covid-19) pandemic.

Alongside this we have published our latest Adults' media use and attitudes report and research into internet users' concerns about and experience of potential online harms, with advice on the research design provided by the Information Commissioner's Office (ICO).

The report follows a similar structure to last year, with chapters on:

- **the online consumer** – covering the most popular online services and their use in the UK and consumers' attitudes towards and understanding of them;
- **the online industry** – covering online sector growth and trends from a UK perspective; and
- three final chapters looking in detail at specific aspects of the online experience, helping us to understand how specific online communications and media are used by people in the UK and how businesses monetise and operate their services. This year, we include three detailed chapters on **online games, video-sharing platforms** and **online communication services.**

As in 2019, this report is an important part of our work to understand communications markets and consumer behaviour. We have a duty to research and promote media literacy, which includes promoting an understanding of what is happening online.

There have recently been a number of developments around Ofcom's remit in regard to online services. Namely, Ofcom is preparing to take on new duties for the regulation of UK-based video-sharing platforms (VSPs) and the UK Government has announced that it is minded to appoint Ofcom as the regulator of the forthcoming online harms regime. While the information in this report may have relevance to a number of different areas of our remit, it does not put forward policy guidance or make any policy recommendations.

Some of the key findings from our report are set out below, with a longer summary also available.

What we have found – in brief

Consumer and industry: time spent online, and associated revenues, grew in 2019

- In September 2019 the average time spent online each day by adults aged 18+ was 3 hours 29 minutes, up from 3 hours 11 minutes in 2018.[1] In comparison, on average, adults spent 3 hours 19 minutes watching TV on a TV set each day,[2] and 2 hours 40 minutes listening to radio each day.[3]
- 71% of all measured time spent online was on smartphones. 35% of internet users only accessed the internet on mobile devices (smartphone or tablet).[4]
- 13% of adults do not use the internet, a figure that is broadly unchanged since 2014. Half of over-75s do not use the internet (51%).[5]
- In 2020, a fifth (22%) of UK adults have a smart speaker in the home and 11% of all UK households own some kind of 'smart home' technology (including devices such as smart home security, smart lighting and smart heating).[6]
- Advertising is the main revenue source for many internet business models and has grown at a compound growth rate of 20% for the past five years,[7] with the UK online advertising market generating £15.7bn in 2019.[8]
- 39% of the total time spent online by adult internet users in the UK in September 2019 was spent on Google-owned sites (which includes YouTube) and Facebook-owned sites (including Instagram and WhatsApp).[9] Google and Facebook sites combined had an estimated 78% of UK online advertising revenues in 2019.[10]

Covid-19 impact: time spent online reaches record levels, though digital advertising revenues are forecast to decline for the first time

- In April 2020, internet users in the UK spent an average of 4 hours 2 minutes online each day, 37 minutes more each day per online adult compared with January 2020.[11]
- In April 2020, the reach of education (+3 percentage points), health (+5pp) and government (+5pp) sites had all grown since January, while UK users of news sites spent more than three

[1] Source: Comscore MMX Multi-Platform, Total Internet, Adults 18+, Sep 2018 & 2019
[2] BARB, Avg. Daily Minutes based on adults in TV households, Adults 18+, Sep 2019
[3] RAJAR 2019 Q3, Adults 18+ listeners; excludes internet listening; 3-month weight
[4] Comscore MMX Multi-Platform, Age: 18+, Sep 2019, UK.
[5] Ofcom Adults' Media Literacy Tracker 2019
[6] Ofcom Technology Tracker 2020
[7] Oliver & Ohlbaum estimates and analysis, based on data from AA/WARC, PwC Global Entertainment and Media Outlook, Enders Analysis (based on company data and AA/WARC), Zenith, Statista, the e-Commerce Foundation, company reporting and public filings. UK adjusted for CPI at 2019 prices by Ofcom.
[8] 2019 IAB UK & PwC, Digital Adspend Study
[9] Comscore MMX Multi-Platform, Age: 18+, Sep 2019, UK.
[10] Ofcom calculation, based on gross revenue data from AA/WARC and Oliver & Ohlbaum analysis
[11] Comscore MMX Multi-platform, Total Internet, Age: 18+, Jan 2020, April 2020

minutes more on these sites on average each day, and users of social media sites spent more than 18 minutes more each day on average.[12]

- TikTok increased its reach among adults in the UK from 5.4 million to 12.9 million between January and April 2020; Houseparty increased from 175,000 to 4 million; Zoom reached 13 million adult internet users in April, up from 659,000 in January.[13]
- People are using a range of sources to access news about the coronavirus, with BBC services the most popular source of news. At the height of the crisis, around half said they had seen false or misleading information about the coronavirus in the last week.[14]
- Although 2019 was another year of growth for online advertising, the latest Advertising Association/WARC Expenditure report forecasts that the impact of the coronavirus in 2020 will result in year-on-year declines in paid search and online display advertising for the first time.[15]

More people in the UK are using their mobiles to access online games, and engaging with game content across a range of social platforms

- In 2019, 16% of all adults played games online, rising to 48% among 16-24 year-olds,[16] and 59% of 5-15 year-olds.[17]
- In 2009, 27% of adults played games on a dedicated console, falling to 16% in 2019, while the proportion playing games on mobiles increased from 6% to 23%.[18]
- UK revenues for games software exceeded £3.8bn in 2019, compared to £2.6bn for video and £1.4bn for music.[19]
- One in ten (9%) UK game-playing adults have used a games social network such as Steam or Xbox Live in the past month. Of those who use the communication features of games and game-related platforms, a third (33%) talk to friends more via these platforms than via other forms of online communication, and more than half (53%) talk about a wider range of topics than the games they are playing.
- Fifteen percent of adults and almost two in five (37%) 18-24 year-olds say they watch videos of gameplay on services such as YouTube or Twitch every month. 56% of 8-15 year olds say they watch game videos online.
- A fifth (21%) of adults who watch gaming videos say that they prefer watching other people playing video games to playing games themselves.
- 4% of game-playing adults say they spend money each month on supporting a streamer, increasing to 8% for 18-24 year-olds.
- 15% of UK adult players have played games on a social media platform.[20]

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[12] Comscore MMX Multi-Platform, Adults 18+, Jan 2020 and Apr 2020, UK
[13] Comscore MMX Multi-Platform, Age: 18+, Jan, April 2020, UK.
[14] Ofcom Covid-19 news and information: consumption and attitudes
[15] Advertising Association/WARC Expenditure Report (press release), 30 April 2020
[16] Ofcom Adults' Media Literacy Tracker 2019
[17] Ofcom Parents' and Children's Media Literacy Tracker 2019
[18] Ofcom Adults' Media Literacy Tracker 2019
[19] Entertainment Retailers Association, 2020 Yearbook Statistics
[20] Ofcom online games research 2020 (children and adults)

Young people are particularly heavy users of video-sharing platforms (VSPs), which let users engage with a range of content and social features

- 90% of adults and 98% of children aged 8-15 who use the internet have used a VSP in the past year. 32% of these adults report spending more time watching videos on VSPs than watching live broadcast TV, rising to 57% among 18-24 year-olds.[21]
- UK adult visitors to YouTube spent an average of 29 minutes on the site every day in September 2019. 18-24s spent more than twice as long as average on YouTube, at 65 minutes every day.[22]
- Video-sharing sites are characterised by a long tail of content. The top 20 most-viewed channels on YouTube accounted for just one fifth (21.5%) of total time spent on the platform by adults in September 2019.[23]
- 40% of adults and 59% of 8-15s who use video-sharing sites have made a video and uploaded it online. Among adults who post videos on video-sharing sites, 49% say they do this to share their experiences with friends or family, while 17% of adults who upload videos on VSPs report receiving money or gifts from their videos.
- 45% of adults and 54% of 8-15 year olds who use a VSP say they comment on others' videos at least once a week. 61% of adults say they mostly do this on the videos of people they know personally.[24]

Most internet users use online messaging and calling services and use increased during the coronavirus pandemic

- In February 2020, 73% of UK adult internet users used online text messages, 54% use online voice calls, 35% use video calls and 55% use emails, at least weekly. Nine in ten adult internet users used any of those four services at least weekly.
- The level of use of WhatsApp for text messaging was very similar to the use and reach of SMS among adult internet users.[25] Although more adult internet users report having used SMS (94%) than WhatsApp (71%) for text messaging in the last 12 months, on a daily basis they are using WhatsApp (40%) and SMS (41%) to a similar extent.
- Until early this year, online video calling was used much less than other online communication services, with 35% of online adults using online video calling at least weekly in the 12 months to February 2020.[26] In May 2020, this had doubled to 71% of online adult consumers using online video calling services at least weekly, with 38% using them at least daily. Our research suggests that 7% of adult internet users used video calling for the first time as a result of the coronavirus pandemic.[27]

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[21] Ofcom video-sharing platforms research 2020 (children and adults)
[22] Comscore MMX Multi-Platform, YouTube.com, Age: 18+, Sep 2019, UK. Note: Excludes TV set use.
[23] Comscore MMX Multi-Platform, YouTube partners report, Age: 18+, Sep 2019, UK. Note: Excludes TV set use
[24] Ofcom video-sharing platforms research 2020
[25] SMS stands for short message service, a widely used type of text messaging sent over mobile networks.
[26] Ofcom online communication services research 2020
[27] Ofcom Covid-19 news and information: consumption and attitudes

Many users continue to express confidence in their abilities online, though concerns about potential harms online remain high

- According to our 2019 adults' media literacy research, 87% of internet users said they were confident in their online abilities generally, while almost three-quarters (73%) said they were confident that they could manage who has access to their personal data online.[28]
- Only about half (53%) of all adults identified advertising as the main source of funding for search engines,[29] broadly in line with understanding among 12-15 year-olds (54%).[30]
- A sizable minority of internet users (45%) said they were not happy for companies to collect and use their personal information under any circumstances, up by six percentage points since 2018.[31]
- According to our latest research into internet users' concerns about and experience of potential online harms, most (57%) 12-15 year-olds agree that the internet makes children's lives better, and most (66%) adults agree that the benefits of going online outweigh the risks.
- Nevertheless, the majority say they have concerns about going online (89% of 12-15s, 86% of adults) and have had a potentially harmful experience online in the past year (81% 12-15s, 62% of adults).
- Like last year, social media is the most commonly cited source of potentially harmful experiences, among both adults and children. 20% of adults who have experienced a potential harm identify social media as the most recent source, followed by email (16%), search engines (8%) and instant messengers (8%). Meanwhile, 30% of 12-15s identify social media as a source of potential harm that they have experienced, followed by email (13%), instant messengers (12%) and video-sharing sites (8%).
- A fifth of adult internet users (19%) and a third of 12-15s (29%) say they have acted to report harmful content that they have seen online.[32]

[28] Ofcom Adults' Media Literacy Tracker 2019
[29] Ofcom Adults' Media Literacy Tracker 2019
[30] Ofcom Parents' and Children's Media Literacy Tracker 2019
[31] Ofcom Adults' Media Literacy Tracker 2019
[32] Internet users' concerns about and experience of potential online harms ("Ofcom-ICO research 2020")

1. The online consumer

Introduction

Key metrics

Figure 1.1: UK online consumer market: key metrics

UK online consumer market	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Internet take-up (%)	76	79	80	82	85	86	88	87	87	89
Smartphone take-up (%)	27	39	51	61	66	71	76	78	79	82
Tablet take-up (%)	2	11	24	44	54	59	58	58	54	52
Laptop take-up (%)	55	61	62	63	65	64	64	63	60	57
Consideration that the smartphone is the most important device for internet access (%)	n/a	n/a	n/a	32	32	38	46	48	52	60

Source: Ofcom Technology Tracker 2011-2020.

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

	3-4	5-7	8-11	12-15	16-24	25-34	35-44	45-54	55-64	65-74	75+
Incidence of going online, by age (%)	57	77	92	99	98	100	98	93	83	70	49

Source: Ofcom Parents' and Children's Media Literacy Tracker 2019, ages 3-15; Ofcom Adults' Media Literacy Tracker 2019, ages 16+. Note: Children's figures based on users who 'ever go online at home or elsewhere'.

This chapter examines the take-up, use and experience of online services by people in the UK. Using data from Comscore, the UKOM-accredited online audience measurement currency,[33] it considers time spent and the most popular sites and apps used in the UK. And using research conducted by Ofcom and others into media literacy and the take-up of different technologies, it explores consumers' experiences of and attitudes towards online services.

Using data from our 2020 quantitative and qualitative research into internet users' concerns about and reported experience of potential online harms (referred to as our "online harms research"

[33] The UK Online Measurement Company (UKOM) was formed in 2009 with a mandate from the advertising industry to establish measurement standards for digital media. UKOM appointed Comscore as its exclusive partner for online media audience measurement in the UK in 2012.

throughout this report), conducted jointly with the Information Commissioner's Office, we also consider headline concerns and experiences of potential harms online.

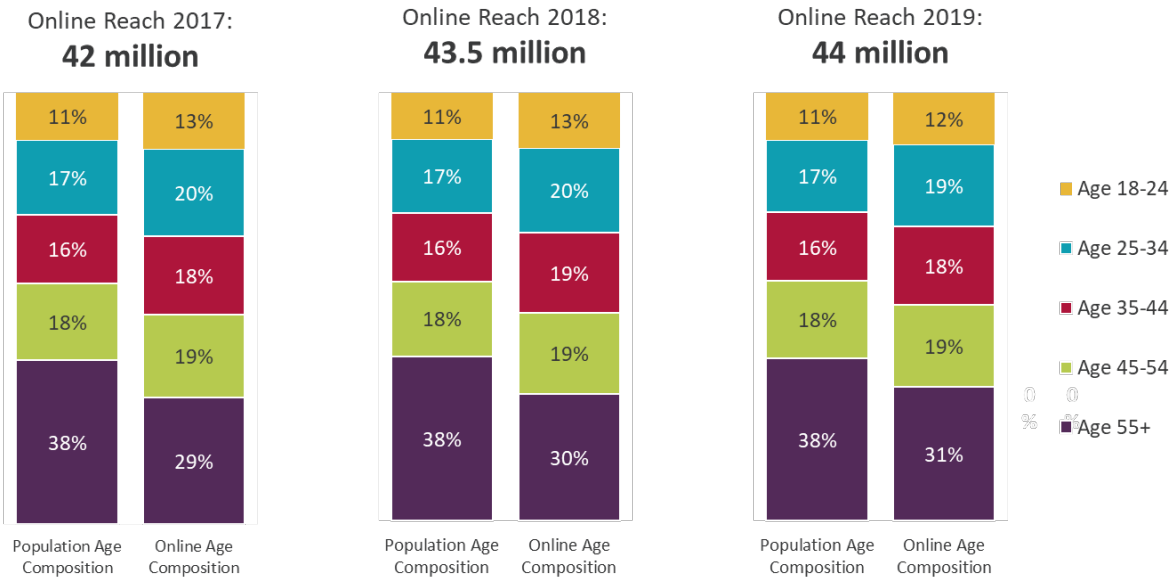
Finally, the coronavirus pandemic has highlighted how integral the internet is in maintaining communication with one another, for finding sources for information and entertainment and purchasing essentials. After considering consumer behaviours and attitudes in 2019, the chapter goes on to explore online behaviours between January and April 2020 in the context of the coronavirus pandemic.

Internet take-up and use

87% of the UK adult population use the internet

Ofcom research shows that 87% of adults aged 16+ in the UK used the internet in 2019,[34] a figure that has not changed significantly over the past five years.[35] Data from Comscore show that 44 million adults aged 18+ accessed the internet in September 2019 (our sample month), up from 43.5 million adults in the previous year.[36] As shown in Figure 1.3, younger age groups are more likely to use the internet. Nevertheless, there has been a gradual increase in the proportion of internet users who are over-54, reflecting growing take-up among older adults.

Figure 1.3: UK population and online UK population composition, by age



Source: Comscore MMX Multi-Platform, Total Internet, Adults 18+, Sep 2017, Sep 2018 & Sep 2019, UK; ONS 2017-2018, 2019 data indicative, UK.

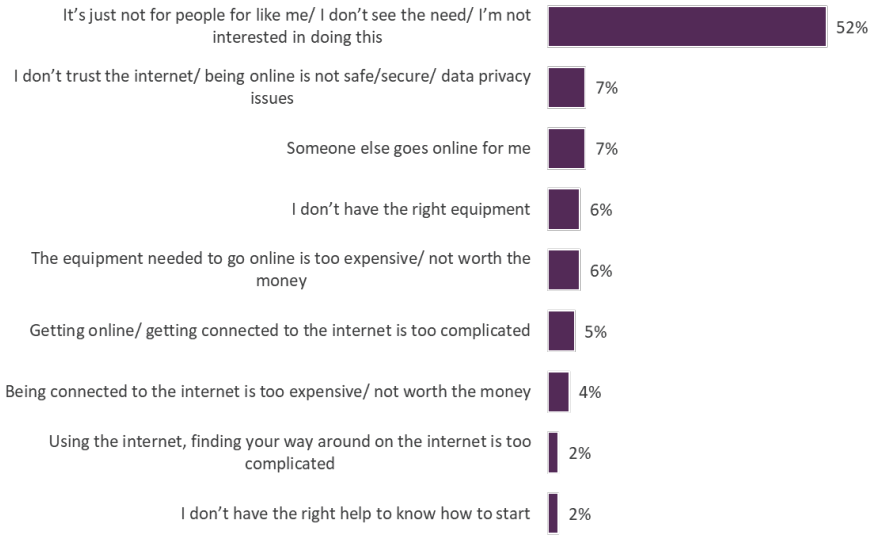
[34] Adults' Media Literacy Tracker 2019

[35] More recent Ofcom research from our 2020 technology tracker suggests that 89% of households in the UK have *access* to the internet, up from 87% in 2019. This is probably linked to an increase in households which only use smartphones to go online, up from 3% in 2019 to 5% in 2020, while take-up of fixed broadband has remained stable at 80%. Ofcom Technology Tracker 2020.

[36] Comscore MMX Multi-Platform, Total Internet, Adults 18+, Sep 2018 & 2019

Thirteen per cent of adults aged 16+ never go online, a figure that has been consistent since 2014. Older adults and DE adults are more likely than average to be non-internet users (27% of DE adults, 30% of 65-74s and 51% of adults aged 75+). Working-age adults (16-64s) in DE households are more than four times as likely as those in non-DE households to not use the internet (13% vs. 3%), showing that differences in non-use of the internet are driven both by age and by socio-economic group. Our 2020 Technology Tracker research suggests that 2% of households with children do not have access to the internet at home.[37] A lack of interest/not seeing the need remains the main reason cited by more than half of non-users for not going online (52%).[38]

Figure 1.4: Main reason for not going online: 2019



Source: Ofcom Adults' Media Literacy Tracker 2019. Question: IN8B. (SHOWCARD) Which one of the following best describes the main reason why you don't go online? (SINGLE CODE). Base: Those who do not go online (185)

Related to their lower internet use, our 2019 media literacy research also indicates that over-65s and adults in DE households are less likely to use online banking (53% and 46% respectively, compared to 73% among all adults), to complete government processes such as renewing passports or driving licences online (44% of over-65s and 47% of DE households, compared to 59% among all adults), or to look online for public services information (39% among DE households, compared to 54% among all adults).[39]

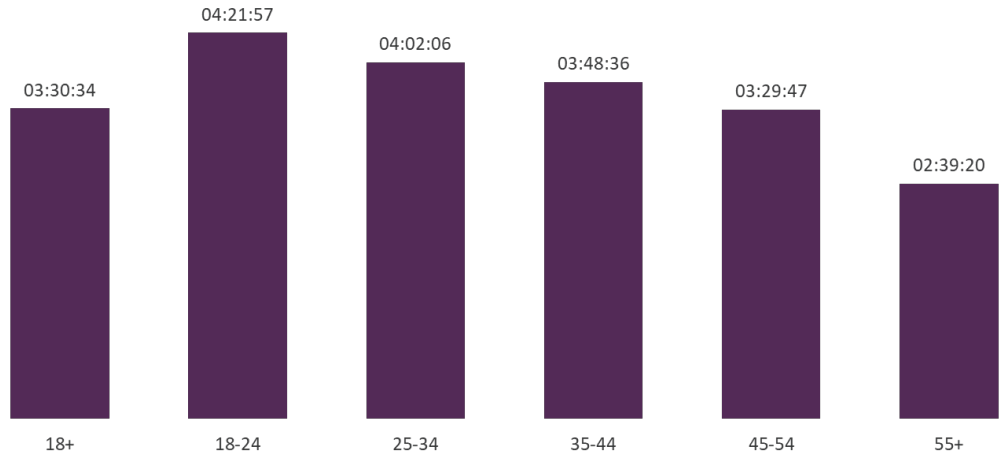
[37] Ofcom Technology Tracker 2020
[38] Adults' Media Literacy Tracker 2019
[39] Adults' Media Literacy Tracker 2019

UK adults who go online spend three and a half hours online each day on average

In September 2019 the average time spent online each day by adults aged 18+ was 3 hours 29 minutes, up from 3 hours 11 minutes in 2018.[40] In comparison, on average, adults spent 3 hours 19 minutes watching TV on a TV set each day,[41] and 2 hours 40 minutes listening to radio each day.[42]

Not only do a lower proportion of older people use the internet, but those who do, use it less than younger people, as shown in figure 1.5. Younger adults (18-24) spend the most time online, and with each ascending age break, average time spent online declines. How time is spent online across a range of websites is explored later in this chapter (Use of internet services).

Figure 1.5: Average time spent online per visitor per day, by age (hours:minutes)



Source: Comscore MMX Multi-Platform, Total Internet, Age: 18+, Nov 2019, UK. Nov 2019 charted to include Snapchat tagging enhancement.

Devices: take-up and use

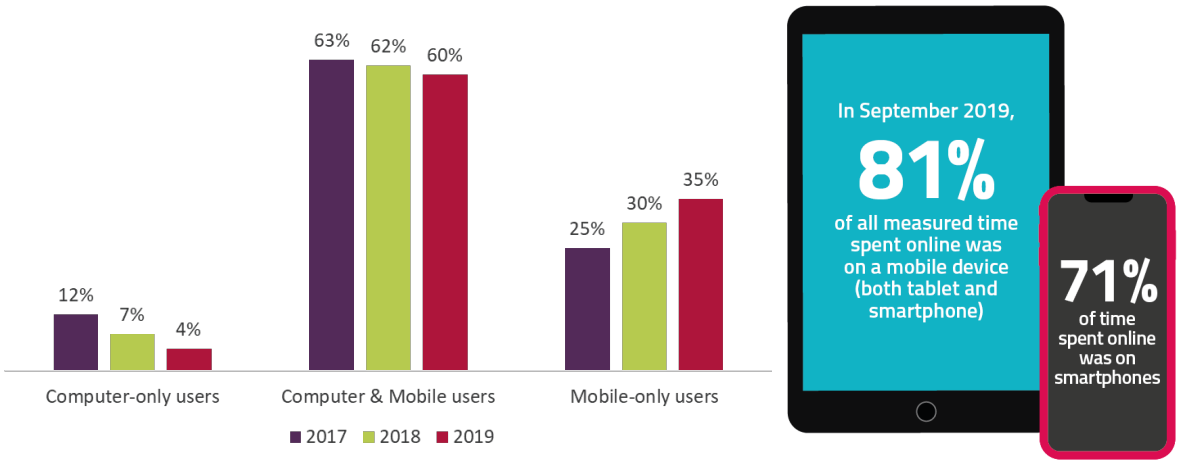
Smartphones are the most popular device for accessing the internet

Eight in ten adults aged 16+ use smartphones in 2020. In comparison, almost six in ten (57%) adults have a laptop, half (52%) have a tablet and only a quarter (24%) have a desktop PC in their households. Smartphones are cited as the most important device for accessing the internet at home or elsewhere among all adults 16+ (60%) and this is particularly true among DE adults (66%).[43]

[40] Comscore MMX Multi-Platform, Total Internet, Adults 18+, Sep 2018 & 2019
[41] BARB, Avg. Daily Minutes based on adults in TV households, Adults 18+, Sep 2019
[42] RAJAR 2019 Q3, Adults 18+ listeners; excludes internet listening; 3-month weight
[43] Ofcom Technology Tracker 2020

Data from Comscore show that the majority of internet users (60%) access the internet on both computers (laptop or desktop) and mobile devices (smartphones or tablets).[44] In 2019, just 4% of internet users accessed the internet via a computer only, down from 12% in 2017. Across the same period, the proportion who use only mobile devices has shot up: 35% of internet users accessed the internet solely via a smartphone or tablet in 2019 – a 10 percentage point (pp) increase compared to 2017. Across computers, tablets and smartphones, 71% of time spent online in September 2019 was on smartphones.

Figure 1.6: Devices used for accessing the internet



Source: Comscore MMX Multi-Platform, Age: 18+, Sep 2019, UK.
Note: Measured time includes activity where data is available (desktop and laptop PCs, tablets and smartphones); it therefore excludes activity on smart TVs, smart speakers and other internet-connected devices.

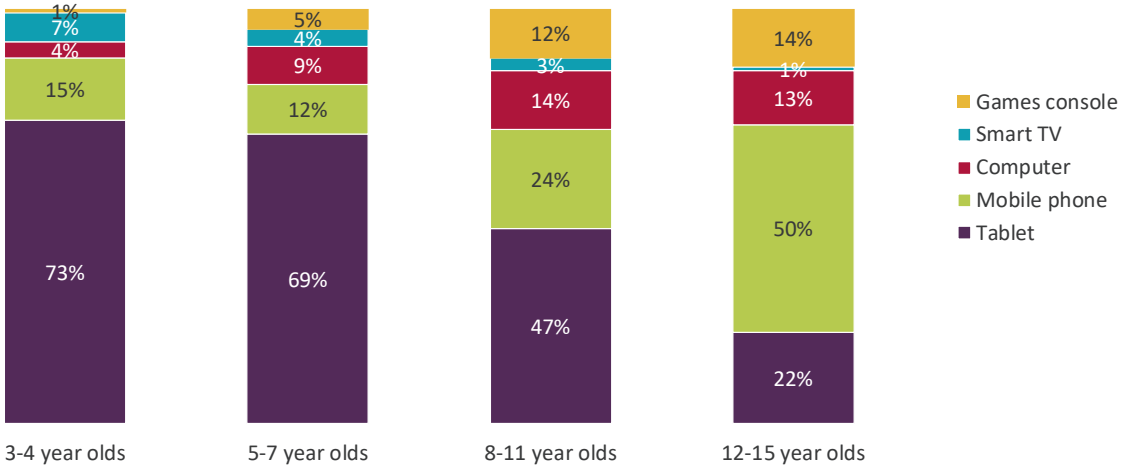
Our adults' media literacy research also suggests that users are showing a growing preference for smaller, more portable devices. Among adults, there is a sustained decline in the use of a computer to go online (53% in 2019, down from 58% in 2018 and 81% in 2014) and a growing proportion of people only using devices other than a computer to go online (34%, up from 29% in 2018 and 6% in 2014).[45]

As children get older, their device preference shifts from 'mostly tablet' to 'mostly mobile phones'

Ofcom research shows that children use a range of devices to access the internet, but their behaviours vary by age.[46] More than two-thirds of younger children (aged 3-7) 'mostly' use tablets to go online, but this proportion falls as children get older, with just 22% of 12-15 year-olds 'mostly' using a tablet. Instead, half of 12-15s 'mostly' use mobile phones to access the internet, twice the proportion of 8-11s who do so (24%).

[44] Comscore MMX Multi-Platform, Total Internet, Adults 18+, Sep 2019
[45] Ofcom Adults' Media Literacy Tracker 2019
[46] Ofcom Parents' and Children's Media Literacy Tracker 2019

Figure 1.7: Devices 'mostly' used for accessing the internet by children aged 3-15

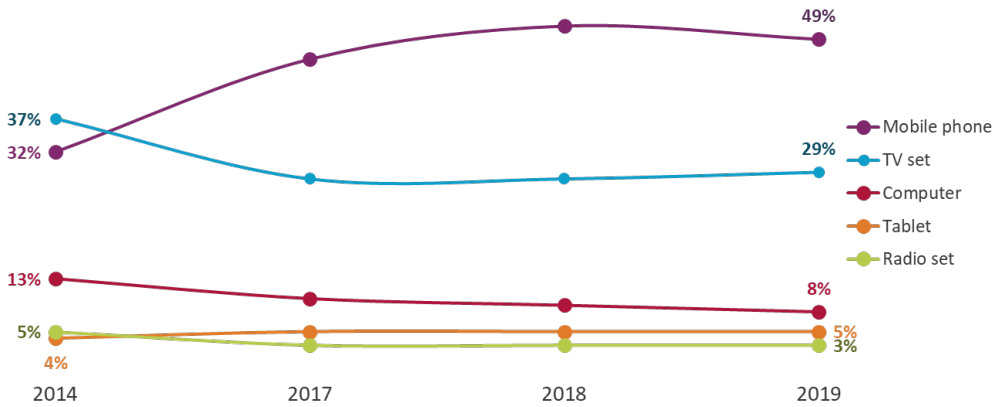


Source: Ofcom Parents' and Children's Media Literacy Tracker 2019. Question: QP24/ QC12B. And when your child goes online at home or elsewhere, which device do they mostly use? (prompted responses, single coded).
Responses from parents for 3-7 year-olds and from children aged 8-15. Base: Parents whose child ever goes online aged 3-15 (602 aged 3-4, 634 aged 5-7, 757 aged 8-11, 748 aged 12-15).

Adults under 55 hold their mobile most dear, while those aged 55+ are more likely to miss their TV sets

Around half of all adults say that their mobile phone is the device they would miss the most were it taken away from them.[47] Younger adults are most likely to say this: 74% of adults aged 16-24 said they would miss their mobile phones the most, 66% of 25-34s, 62% of 35-44s and 59% of 45-54s, compared to just 29% of 55-64s, 19% of 65-74s and 8% of over-74s. TV sets are of more value to adults aged 55+, with 44% of 55-64s, 54% of 65-74s and 63% of over-74s saying they would miss TV sets the most.

Figure 1.8: Most-missed device among adults: 2014-2019



[47] Ofcom Adults' Media Literacy Tracker 2019

Source: Ofcom Adults' Media Literacy Tracker 2014-2019 Question: 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+ (1883) Showing responses by >1% of all adults in 2019.

Connected devices

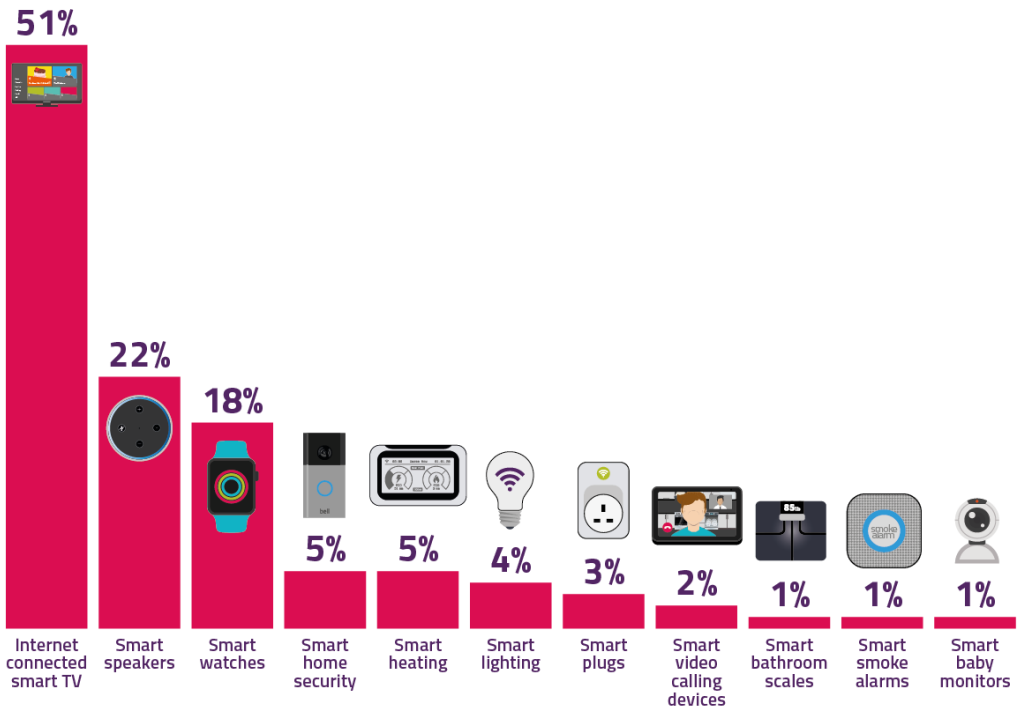
More than half of UK homes have a smart TV

Smart TV sets can connect directly to the internet and can access video-on-demand services in addition to accessing broadcast television via more traditional means (digital terrestrial, digital satellite or cable). Almost six in ten (57%) homes have a smart TV in 2020, up from 42% in 2018. In 2020, more than six in ten (63%) UK households connect their TVs to the internet to watch something on the TV screen (this includes 51% with internet-connected smart TVs, as well as other devices used to connect the TV to the internet, such as internet-connected set-top boxes and streaming sticks such as Google Chromecast), up from 49% of homes in 2018.

A range of other internet-connected devices continue to emerge in the marketplace, often dubbed 'smart' technology. Ofcom research shows that overall, a third of adults have at least one of the smart technology items (excluding smartphones and smart TVs) we ask about in their homes; 43% of these adults are aged 35-54, and 67% are ABC1. One in five adults (22%) reported having a smart speaker in their home, 18% had smart watches or wearable fitness trackers and 11% of all UK households had some kind of 'smart home' technology (including devices such as smart home security, smart lighting or smart heating).[48]

[48] Ofcom Technology Tracker, 2018-2020

Figure 1.9: Smart technology – incidence of internet-connected devices in the household: 2020



Source: Ofcom Technology Tracker, 2020. Base: All respondents (3959) Question: QV1. Which of these do you, or does anyone in your household, have in your home at the moment? (MULTI CODE). QH62. Are any of your TV sets 'smart TVs'? These are types of TV that are connected to the internet and can stream video directly onto your television screen, without the need for a computer, set-top box or games console. (SINGLE CODE). QH80. And are any of your smart TV sets connected to your home broadband service? (SINGLE CODE).

Forty-five per cent of respondents with smart tech in the home cited convenience as a reason why they bought these products rather than a non-internet connected device. One in three respondents also pointed to the fun and enjoyment of trying new technology, and a similar proportion said that their connected devices offered more, or better, features than non-internet connected options.[49]

Use of internet services

Popular online properties

Google and Facebook are the two most popular online properties, each reaching over 95% of the digital population

In September 2019, Google and Facebook properties remained the most-used properties, reaching almost all online adults (99% and 96% respectively).[50] Amazon continued to reach nine in ten online adults across its e-commerce sites and the film and television information database IMDb which it

[49] Ofcom Technology Tracker, 2018-2020

[50] Properties are groups of websites and apps owned by the same company; for instance, Google properties include Google Search, Gmail and YouTube; Facebook properties include Facebook and Messenger, Instagram and WhatsApp.

owns, while e-commerce site eBay continued to reach seven in ten online adults. Microsoft sites continued to reach a similar proportion of the adult online population as in previous years (87%).[51]

Figure 1.10: Top ten properties accessed by adults online, ranked by reach: September 2017-2019

Increase of 3 percentage points or more on year prior

Decrease of 3 percentage points or more on year prior

No change or change within 3 percentage points on year prior

New entrant into the top ten properties

	2017		2018		2019	
Rank	Property	Reach	Property	Reach	Property	Reach
1	Google Sites	98%	Google Sites	98%	Google Sites	99%
2	Facebook	95%	Facebook	96%	Facebook	96%
3	BBC Sites	91%	BBC Sites	93%	Amazon Sites	92%
4	Amazon Sites	88%	Amazon Sites	91%	Reach Group	88%
5	Microsoft Sites	87%	Microsoft Sites	86%	Microsoft Sites	87%
6	eBay	75%	Reach Group	83%	BBC Sites	87%
7	Reach Group	73%	Verizon Media	72%	News UK Sites	79%
8	News UK Sites	71%	eBay	72%	eBay	73%
9	Yahoo Sites	70%	Sky Sites	72%	Sky Sites	70%
10	Mail Online/ Daily Mail	69%	News UK Sites	68%	Verizon Media	70%

Source: Comscore MMX Multi-Platform, Adults 18+, Sep 2019, UK.

BBC sites, third in the rankings in September 2018, had moved down to sixth place in 2019, driven by decreases in reach to both BBC news and sports sites. Both Reach Group and News UK increased their reach (to 88% and 79% respectively) and both properties moved up within the top ten in 2019. Both News UK's key news sites increased their reach in 2019: The Sun (+14%) and The Times (+42%). The Reach Group's year-on-year increases were driven by gains across a range of their portfolio of news sites, including both national titles (The Mirror +34% and The Express +62%) as well as local titles (Manchester Evening News +24% and The Liverpool Echo +22%).

Visitors in the UK spend 47 minutes on a Google site each day on average

By time spent, Google and Facebook remain the top two most popular properties on smartphones, tablets and computers. On average, adult users in the UK spent 47 minutes a day on a Google site in September 2019, up from 43 minutes the year before. While neither Spotify or Netflix were in the top ten based on reach, both appear in the top ten properties based on time spent, ranking 3rd and 4th respectively in 2019. Time spent on Netflix is likely to be significantly understated, as the data only captures time spent on computers and mobile devices and does not include time spent watching Netflix on connected TV sets, while time spent on Spotify does not include the time spent listening on smart speakers.

[51] Comscore MMX Multi-Platform, Total Internet, Adults 18+, Sep 2019

Figure 1.11: Top ten properties accessed by adults online ranked by average time spent per day, by visitors to the sites: September 2017-2019

Increase of 5 minutes or more on year prior

Decrease of 5 minutes or more on year prior

No change or change within 5 minutes on year prior

New entrant into the top ten properties

	2017		2018		2019	
Rank	Property	Time	Property	Time	Property	Time
1	Google Sites	40 mins	Google Sites	43 mins	Google Sites	47 mins
2	Facebook	32 mins	Facebook	29 mins	Facebook	36 mins
3	Spotify	10 mins	Spotify	23 mins	Spotify	15 mins
4	Netflix	10 mins	Netflix	15 mins	Netflix	15 mins
5	BBC Sites	5 mins	BBC Sites	5 mins	Samsung Group	6 mins
6	The Match Group	5 mins	Xhamster	4 mins	Verizon Media	4 mins
7	Yahoo Sites	4 mins	Verizon Media	4 mins	Microsoft Sites	4 mins
8	eBay	4 mins	eBay	4 mins	eBay	4 mins
9	Microsoft Sites	3 mins	Microsoft Sites	3 mins	BBC Sites	4 mins
10	Sky Sites	3 mins	Amazon Sites	2 mins	Twitter	3 mins

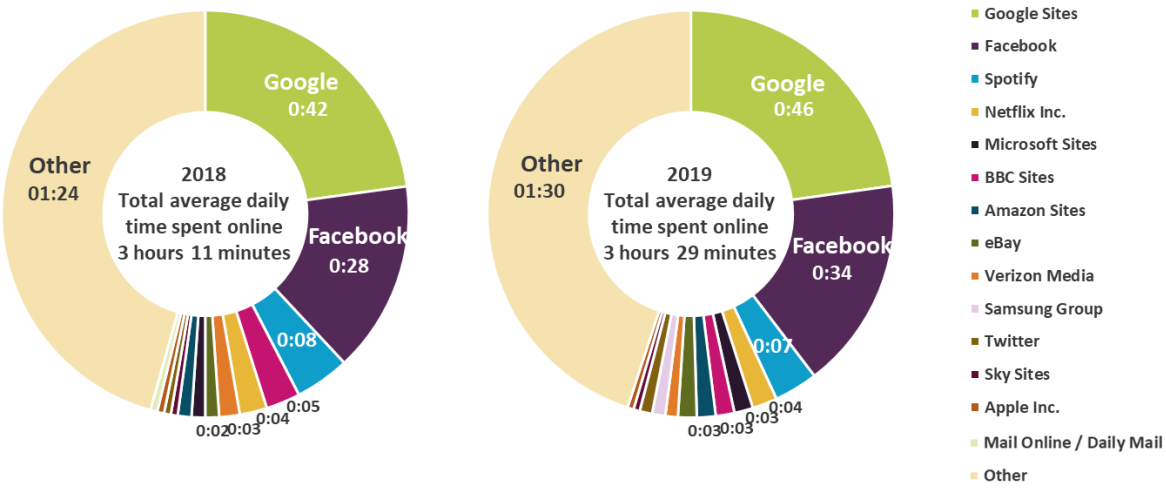
Source: Comscore MMX Multi-Platform, Top 100 Properties, Age: 18+, Sep 2017-2019, UK. Note: Online use via a TV set is not measured by Comscore.

Thirteen of the properties accessed by UK adults were used on average for a minute or more a day across smartphones, tablets and computers; 57% of the average time spent online each day per adult is on these 13 properties. The remaining 43% of time spent online is across a long tail of properties; estimates suggest that there are more than 180 million sites active globally.[52] More than a third of measured time online was spent on Google- or Facebook-owned sites (39% in September 2019, up from 37% in September 2018).[53]

[52] Netcraft, May 2020 Web Server Survey, 26 May 2020

[53] Comscore MMX Multi-Platform, Age 18+, Sep 2018 and 2019, UK. Note that Comscore does not integrate all online platforms, notably it does not measure internet use via smart TVs.

Figure 1.12: Share of average time spent online per day by adult digital population, split by property: September 2018 and 2019 (hours:minutes)



Source: Comscore MMX Multi-Platform, Adults 18+, Sep 2018 and Sep 2019, UK.

Social media

On average, adult visitors spend 49 minutes on social media sites each day

Social media and messaging sites reach 98% of the UK adult digital population. On average, visitors aged 18+ spent 49 minutes per person per day on social media sites, considerably more time on average than in key areas such as news sites (12 minutes per user), e-commerce sites (14 minutes) and even gaming sites (31 minutes). [54]

Time spent on social media sites is higher among younger adults: 18-24s spend 1 hour 20 minutes each day on social media, while over-54s registered 29 minutes on average. Though social media sites attract equal proportions of men and women, 60% of time spent on social media sites by adults was by women. Ninety-two per cent of time spent on social media sites took place on a mobile device (smartphones and tablets) rather than on a computer, compared to 81% of total time spent online.

Facebook (including Messenger) has a 30pp lead over the next furthest-reaching social media site

In 2019 Facebook (including Messenger) remained the social media site with the highest reach among online adults aged 18+. Of the top ten social media sites, Facebook is also the site on which users spend the most time, with users aged 18+ spending on average 23 minutes 3 seconds on the site each day (although this is down from 23 minutes 40 seconds in 2018).

Facebook-owned sites Instagram and WhatsApp come second and third in the ranking, each reaching 60% of online adults aged 18+. Among 18-24s, Facebook and Instagram also rank first and

[54] Comscore MMX Multi-Platform, Adults 18+, Sep 2019 (Nov 2019 for social media), UK. Social media - sites/apps where the creation and consumption of content is user-generated or sites that serve a social networking role; excludes YouTube which is categorised separately.

second, with WhatsApp pushed into fourth place, as mobile app Snapchat reached 73% of this group (WhatsApp reached 66%).

Video-sharing site TikTok was a new entrant to the top ten in 2019, reaching 10% of online adults aged 18+. Its reach is greater among 18-24s (29%), who also spend longer on the site on average (22 minutes 34 seconds for 18-24s, vs. 15 minutes 57 seconds for all adults). TikTok and Snapchat are not in the top ten social media sites used by adults aged 55+; they are replaced with local neighbourhood social site Nextdoor, which reached 12% of adults aged 55+, and social campaigning site Change.org, which reached 11% of this group.

Figure 1.13: Top ten social media sites, by reach of the online population: November 2019

Rank	Top Social Media Sites	Reach of online population (%)	Avg. Time Spent per visitor per day (min:sec)
1	Facebook and Messenger	95	23:03
2	Instagram	60	04:41
3	WhatsApp	60	07:07
4	Twitter	54	03:45
5	Pinterest	36	01:51
6	LinkedIn	32	01:56
7	Snapchat (Mobile App)	26	21:17
8	Reddit	23	02:30
9	Blogger	16	00:09
10	TikTok	10	15:57

Source: Comscore MMX Multi-Platform, Adults 18+, Nov 2019, UK.

A majority of children aged 12-15 have a social media account

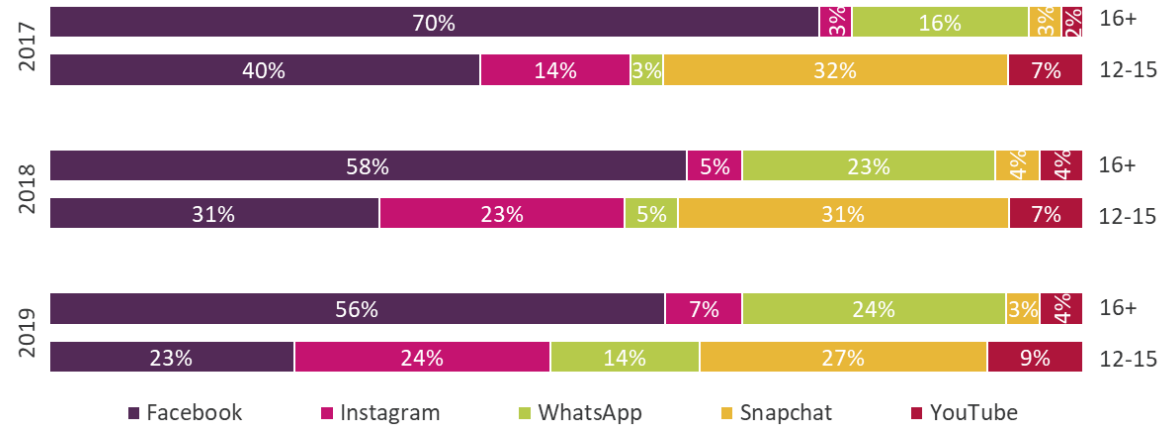
Ofcom research shows that 70% of children aged 12-15 and 19% of children aged 8-11 claim to have a social media profile or account, despite most social media sites having minimum age requirements (13 for Facebook, Snapchat, Instagram, YouTube and TikTok; 16 for WhatsApp). Almost seven in ten 12-15s with a social media account use Facebook, WhatsApp or Instagram.

In 2019, no single social media site or app had a clear lead as the main one used by 12-15 year-olds; about a quarter of social media users in this age group said that Snapchat, Instagram or Facebook was their main account. The use of WhatsApp as the main account had increased significantly since 2018; previously, Facebook and Snapchat had been the most-used sites/apps among 12-15s with a social media account.[55]

[55] Ofcom Parents' and Children's Media Literacy Tracker 2019

Adults' preferences have also been shifting. In 2019, 72% of adults had a social media account. In 2014, 97% of adult social media users had a Facebook profile and 48% only used Facebook; in 2019, 88% of social media users had a Facebook profile but just 16% were Facebook-only users.[56] Use of and attitudes to social media are explored further in our Adults' media use and attitudes report 2020.

Figure 1.14: Service considered as main social media profile/account, by year and age: 2017-2019



Source: Ofcom Adults' Media Literacy Tracker and Children's Media Literacy Tracker.

Question: 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 (1260 aged 16+ in 2019, varies by demographic). QP45/ QC21 – And which is your main social media or messaging site or app, so the one you use most often? (unprompted responses, single coded). Responses from children aged 12-15. Base: Children aged 8-11 or 12-15 who have a profile or account on social media/ messaging sites or apps (159 aged 8-11, 524 aged 12-15). Showing responses of >1% in 2019 among all adults with a profile/account. Note: 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.

Search

In 2019, UK visitors spent on average over six minutes searching online for information each day

Search services reached 92% of the online digital population in September 2019, in line with the figure for the previous year.[19] Adults aged 18-24 spent the least amount of time on search sites, in contrast to their use of social media sites, and men spent more time than women overall, accounting for 55% of all time spent on search sites (up from 53% in the previous year). Twenty-five per cent of the time spent on search sites was via a computer – a higher proportion compared with what we see online overall (19%), although this is down from 28% in 2018.

Google Search remained the highest-reaching search engine in September 2019, at 86% of the online adult population. Bing, second in the rankings, reached 47% of the online population (down from 49% in 2018). Yahoo was third in 2019, reaching 19% of the online adult population (up from

[56] Ofcom Adults' Media Literacy Tracker 2019

17% in 2018). After these top three search sites there is a steep drop in the proportion of adults using other sites.

Visitors spent an average of 6 minutes 9 seconds on search sites each day (up from 5 minutes 53 seconds in 2018). Most of this time was spent on Google sites, with users spending 5 minutes 37 seconds on average per day on Google search in September 2019 (up from 5 minutes 12 seconds in 2018); Bing was the only other search site in the top ten in 2019 where users spent an average of over a minute a day.

Figure 1.15: Top ten search sites, by reach to the online population: September 2019

Rank	Top Search Sites	Reach of online population (%)	Avg. Time Spent per visitor per day (min:sec)
1	Google Search	86	05:37
2	Bing	47	01:09
3	Yahoo Search	19	00:32
4	Info.co.uk	4	00:03
5	Ask.com	2	00:09
6	Searchnow.com	2	00:03
7	Mitula Classified SL.	2	00:05
8	iZito	2	00:02
9	Teoma.co.uk	1	00:02
10	Infospace Web Search	1	00:03

Source: Comscore MMX Multi-Platform, Adults 18+, Sep 2019, UK. Results in green indicates an uplift in the result vs.2018; red indicates a decline; results in black are in line with the previous year. Google Search data on iOS unavailable.

E-commerce

UK visitors spent three minutes more each day on online shopping sites in 2019 than in 2018

E-commerce sites reached 96% of the online adult population in September 2019, the same proportion as the previous year. [57] Each visitor spent just over 14 minutes per day on e-commerce sites, up from 10 minutes 41 seconds in September 2018. Adults aged 45-54 spent the most time on e-commerce sites, at 17 minutes per day on average, while 18-24 year olds spent only 9 minutes. Women using e-commerce sites spent 3 minutes more than men each day (15 minutes vs. 12 minutes). Mobile devices account for 81% of the time spent on shopping sites – exactly in line with the proportion of time spent online across all sites via mobile devices.

As in September 2018, Amazon was the most popular e-commerce site in terms of reach, at 84% of the online adult population. Nine of the top ten e-commerce sites registered yearly growth in reach,

[57] Comscore MMX Multi-Platform, adults 18+, Sep 2019, UK. E-commerce and online/offline transaction sites/apps that include manufacturers and retailers. Includes supermarket sites/apps or sites/apps where users can purchase and/or deliver groceries, beverages/food products.

whereas Amazon was flat year on year. All the sites in the top ten registered more time spent per person each day, year-on-year. The top ten e-commerce sites vary by demographic; Asda and Boots were replaced by ASOS and Uber Eats in the top ten among online 18-24s, while Marks & Spencer replaced Just Eat in the top ten among over-54s.

Figure 1.16: Top ten e-commerce sites, by reach of the online population: September 2019

Rank	Top E-Commerce Sites	Reach of online population (%)	Avg. Time Spent per visitor per day (min:sec)
1	Amazon	84	03:24
2	eBay	73	04:07
3	Argos	36	00:25
4	Samsung	31	06:47
5	Tesco	26	00:20
6	Apple	23	00:07
7	Wish.com	20	03:07
8	Just-Eat	18	00:38
9	Asda	18	00:32
10	Boots	16	00:17

Source: Comscore MMX Multi-Platform, Adults 18+, Sep 2019, UK. Results in green indicates an uplift in the result vs.2018; red indicates a decline; results in black are in line with the previous year.

News

In 2019, the Sun Online was the furthest-reaching news site in the UK, although users spent the most time on BBC News

In September 2019, 98.7% of the UK online adult audience accessed news and information sites, spending on average 12 minutes on these sites each day, in line with September 2018. Online news usage skewed older and more male; 40% of the time spent on news online was by over-54s, and 55% of time spent on news sites was by men. Seventy-nine per cent of time spent on news sites took place on mobile devices, lower than the overall proportion of online time on mobile devices (81%).

The top eight news sites reached at least four in ten UK adults online, and the top five sites reached at least half of adults online. The Sun reached the highest proportion of the online adult population in September 2019, at 75.4%. Each of the top ten news sites reached a higher proportion of the online population in September 2019 vs. September 2018 with the exceptions of BBC News and The Telegraph. The Telegraph, fifth in the rankings in 2018 with 47.9% reach, ranked eighth in 2019 with 44.3%. This was driven by decreases in reach to younger adults aged 18-34. BBC News was the news site with the highest reach in September 2018, reaching 69.6% of adults; it was fourth in September 2019, with 52.9%. BBC News lost reach across all age groups, particularly among 18-24s and 35-44s.

However, users spend much more time on BBC News than on other news sites, at an average of 2 minutes 6 seconds per day in September 2019 (although down from 2 minutes 30 seconds in 2018).

The Daily Mail ranks second based on time spent, with each user spending 1 minute 33 seconds on average per day on the site, also down since 2018 (1 minute 53 seconds). Indeed, five of the top ten sites registered less time spent per user in 2019 than in 2018, while the Mirror, The Guardian, The Independent, The Express and The Telegraph all increased their average time per user year-on-year.

Figure 1.17: Top ten news sites, by reach to the online population: September 2019

Rank	Top News Sites	Reach of online population (%)	Avg. Time Spent per visitor per day (min:sec)
1	The Sun Online	75.4	00:49
2	Mirror Online	58.5	00:31
3	The Guardian	53.1	00:56
4	BBC News	52.9	02:06
5	Daily Mail	52.4	01:33
6	Independent	49.1	00:17
7	Express	47.1	00:23
8	Telegraph	44.3	00:21
9	i News	15.0	00:04
10	Daily Star	12.8	00:12

Source: Comscore MMX Multi-Platform, Adults 18+, Sep 2019, UK. Results in green indicates an uplift in the result vs.2018; red indicates a decline; results in black are in line with the previous year.

Online news aggregators (websites or apps that curate and feature news articles from a range of online news publishers), also explored in the Industry chapter, are another source of online news. Aggregator apps are often pre-installed on mobile devices (e.g. Apple News on Apple devices and Upday on Samsung devices), while news aggregator web pages are often served to users each time they sign out of commonly-used online services like email. News aggregators therefore create opportunities to drive users to news publishers' articles on websites they might not otherwise visit, adding incremental reach to news publisher sites. In September 2019 the Apple News app reached 24% of online adults and Upday reached 19%. [58]

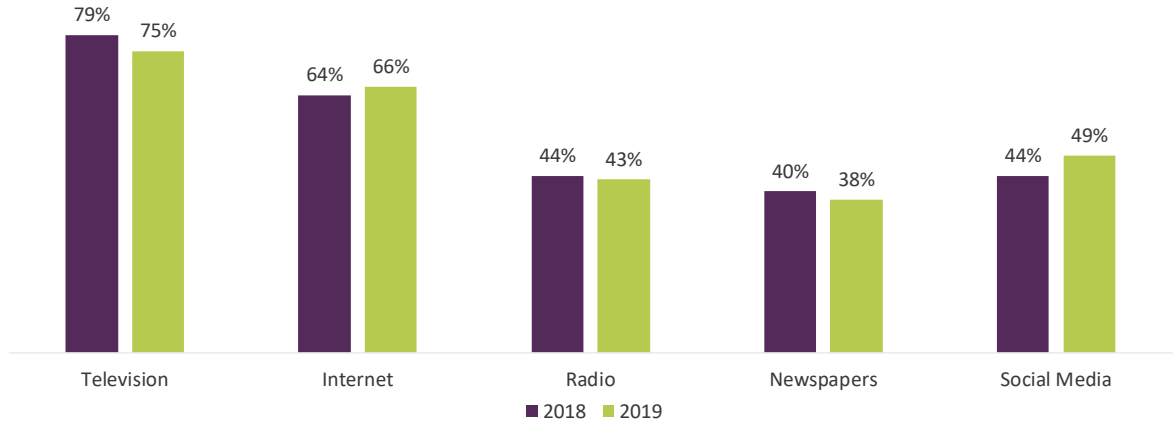
The use of social media as a source of news grew from 2018 to 2019

Ofcom research shows that in 2019 television remained the most-used platform for news, with 75% of adults saying they used the TV for news, ahead of the 66% of adults who used the internet for news. In 2019, over-64s were more likely to use TV (94%), radio (49%) or print newspapers (58%) for news than to go online (40%). This trend was reversed among 16-24 year-olds, who were much more likely to use the internet (83%) than the next most popular medium for news (television, 51%). People from ABC1 and minority ethnic backgrounds were also more likely to go online for news (72% ABC1, 61% C2DE; 82% minority ethnic, 64% white).[59] Use of social media sites as a source of news

[58] Comscore MMX Multi-Platform, Adults 18+, Sep 2019, UK.
[59] Ofcom News Consumption Survey 2019

grew between 2018 and 2019: 49% of adults said that they used social media as a source for news in 2019, up from 44% in 2018.

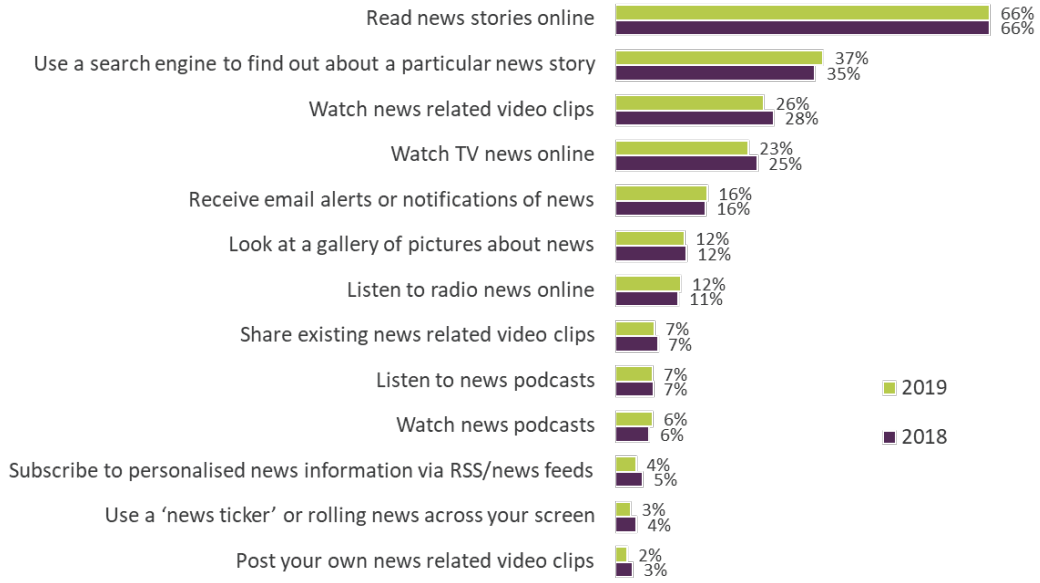
Figure 1.18: Use of main platforms for news: 2018-2019



Source: Ofcom News Consumption Survey, 2018 and 2019. Question: C1. Which of the following platforms do you use for news nowadays? Base: All Adults 16+ - 2019=4691, 2018=4618. Internet figures include use of social media and all other internet sources accessed via any device.

Across the internet generally (among those using internet sources other than social media), the most popular ways to access news in 2019 were reading news stories online (66%), using search engines to find out about particular news stories (37%) and watching news-related video clips (26%).

Figure 1.19: Ways to access news through the internet: 2018 and 2019



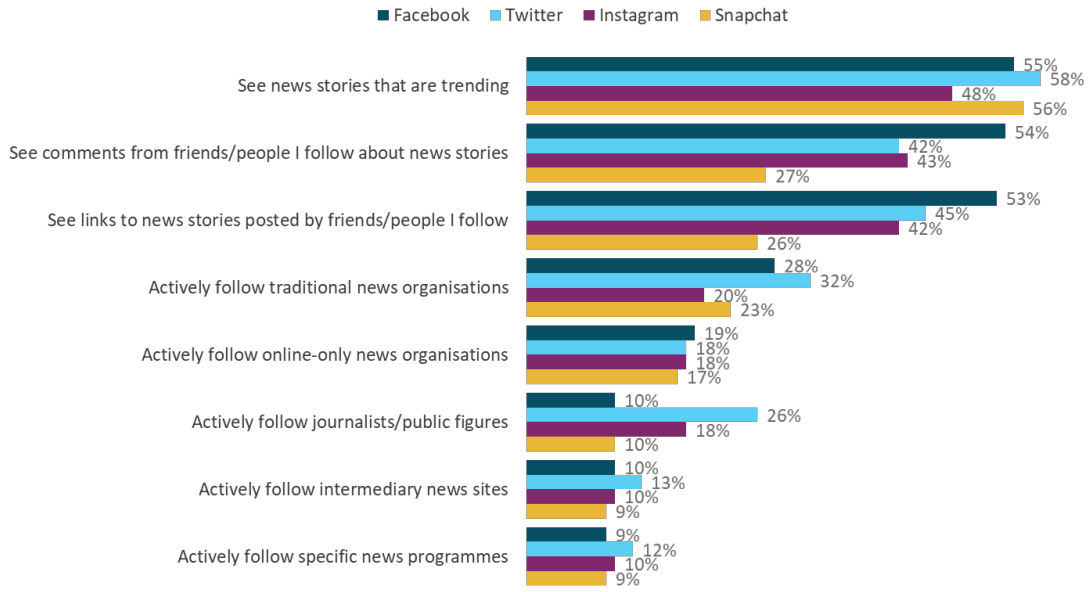
Source: Ofcom News Consumption Survey 2019. Question: D13. In which types of ways do you access and use news through internet sources nowadays? Base: All using other internet for news – 2019=1773, 2018=1661

**This question was not asked of those who said they used social media and no other types of internet site for news*

Among people who use social media for news, 41% say that they mostly get their news from social media posts, which includes posts from other users and links to online news stories posted by their contacts or by news outlets that they follow; 30% mostly get their news directly from news websites

or apps, while 25% use both sources equally.[60] The most common way to discover news on social media is to see stories that are trending, which may be delivered by different features on different platforms – for instance, Twitter shows trending news to users as determined by activity around hashtags and terms, while Snapchat features news content from publisher-partners on its Discover tab. Trust in online news and information is explored further in our Consumer attitudes and perceptions and Online behaviour during the coronavirus pandemic sections below.

Figure 1.20: How news is accessed via social media



Source: Ofcom News Consumption Survey 2019. Question: D9. Earlier you mentioned that you get news from [social media site]. Which of the following do you do nowadays? Base: All using each site for news 2019 – Facebook=1749, Twitter=826, Instagram=671, Snapchat=431.

Mobile applications

In March 2020 there were more than 5 million apps available for downloading across the Google Play and iOS app stores

Popularised following Apple's release of the App Store in 2008, mobile apps were introduced as a means of organising features such as contacts, email and calendars on smartphones and have since become a key way of using internet services on mobile phones. Unlike most websites, mobile apps are designed specifically for mobile devices and typically deliver faster performance and a better user experience than by accessing sites via web browsers on mobile devices. In March 2020 there were over 5 million apps available for downloading across the Google Play and iOS app stores, up from 4.8 million the year before.[61]

Mobile apps, like mobile sites, can generate income by featuring advertising. Additional revenue generators for mobile apps are consumer spend on buying apps or making in-app purchases. Data

[60] Ofcom News Consumption Survey, 2019
[61] App Annie, UK

from App Annie shows that the dating app Tinder was the top non-gaming app based on consumer spend in 2019. A second dating app, Bumble, also features in the top five non-gaming apps based on consumer spend, at number four, while the rest of the top five is made up of video and audio streaming platforms (Netflix second, YouTube third and Amazon Music fifth). Within gaming, Coin Master is the app on which consumers spent most in 2019, while Candy Crush Saga and ROBLOX feature in this list at numbers 2 and 3 respectively.

Figure 1.21: Top 5 apps based on consumer spend; gaming and non-gaming, 2019

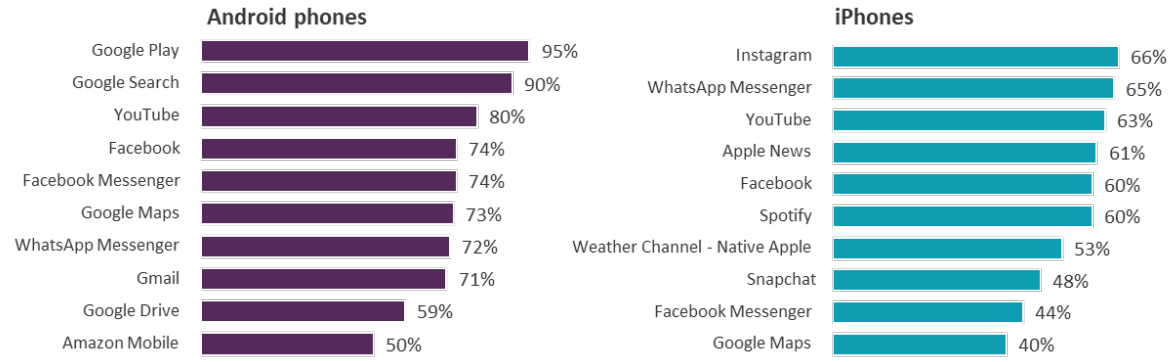
Rank	Top 5 non-gaming apps (based on consumer spend)
1	Tinder
2	Netflix
3	YouTube
4	Bumble
5	Amazon Music

Rank	Top 5 gaming apps (based on consumer spend)
1	Coin Master
2	Candy Crush Saga
3	ROBLOX
4	Clash of Clans
5	Pokémon GO

Source: App Annie, UK, 2019.

The top ten measured apps on Android phones and on iPhones, based on reach, are shown in figure 1.22. Six of the top ten apps on Android phones are Google-owned, three are Facebook-owned and Amazon's mobile app also features in the top ten. Four of the top ten apps on iPhones are Facebook-owned, while two are Google-owned. Half of the top ten iPhone apps are social media and networking apps, with Instagram at number one on iPhones. Spotify is in the top ten apps on iPhones but doesn't feature in the top ten on Android phones. YouTube is the third highest-reaching app on both Androids and iPhones.

Figure 1.22: Top ten smartphone apps, Android phones vs. iPhones, based on reach of mobile app universe



Source: Comscore Mobile Metrix, Adults 18+, Sep 2019 (Nov 2019 for Snapchat), UK. Data for Apple App Store and Safari unavailable.

Consumer attitudes and perceptions

Media and digital literacy

Ofcom's annual adults' media literacy and children's and parents' media use and attitudes research explores people's attitudes to, engagement with, and understanding of online services.

Nearly nine in ten adult internet users say they are confident going online, while almost three-quarters say they are confident managing their personal data online

In 2019, 87% of internet users aged 16 and over said they were confident in using the internet; this figure has remained broadly stable since 2014. Internet users aged 16-24 (77%), 25-34 (64%) and 35-44 (66%) are more likely to say they are very confident compared to the average adult internet user (53%). Seven per cent of internet users say they are not confident, and this increases to a quarter (26%) among those aged 75 and over. Internet users in DE households are also more likely to say they are not confident (12%).[62]

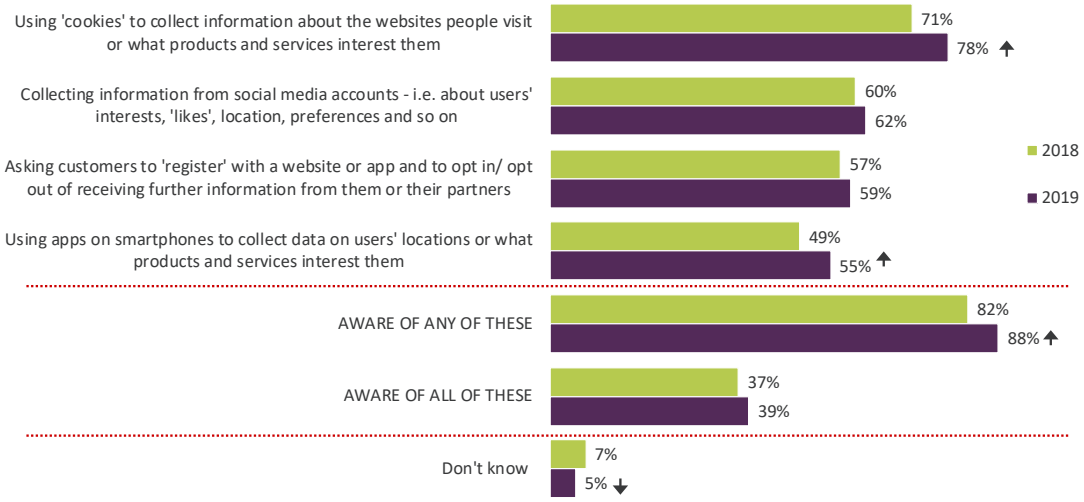
As in 2018, almost three-quarters of internet users (73%) say they are confident that they can manage access to their personal data online. More than a third (38%) state they are very confident, increasing to over half (54%) of 16-44 year-olds. As above, adults aged 75 or older (13%) and those in DE households (9%) are more likely than internet users overall (6%) to say they are 'not at all' confident. [63]

Awareness of the ways in which online services can collect user data has increased

In 2019, a majority of internet users were aware of the four methods of data collection that we asked about (Figure 1.23 below), with nine in ten (88%) being aware of any of them. This was up by 7 percentage points since 2018. However, a minority (39%), were aware of all four of the methods, in line with 2018 (37%). The use of cookies to collect information was the method most adults were aware of, up significantly from 71% in 2018 to 78% in 2019. Users continue to be least aware of the use of apps on smartphones to collect user data, although this is also up significantly since 2018. 44% of those who said there were confident in managing their personal data said they were unaware of data collection through smartphone apps.

[62] Ofcom Adult Media Literacy Tracker 2019
[63] Ofcom Adult Media Literacy Tracker 2019

Figure 1.23: Awareness of ways in which online companies can collect internet users' personal information: 2018-2019



Source: Ofcom Adults' Media Literacy Tracker 2019. 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 (1602 in 2018, 1601 in 2019).
Arrows show significant changes (95% level) between 2018 and 2019.

A majority agree to terms and conditions without reading them, although the numbers have decreased year on year

Our research suggests that most people continue to skip over service terms and conditions, where the ways in which services collect and use their users' data may be set out. In 2019, 65% agreed with the statement "when I visit websites or apps I usually accept the terms and conditions without reading them", although this figure has fallen from 69% in 2018. Those aged 16-24 are more likely than average (47% vs. 38%) to agree strongly with this statement.[64] Our 2020 online harms research 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". Fifty-three per cent of adult respondents and 67% of 12-15 year-old respondents agreed with this statement, suggesting that the speed and ease of accessing a service is one of the main drivers behind not reading the terms and conditions.[65]

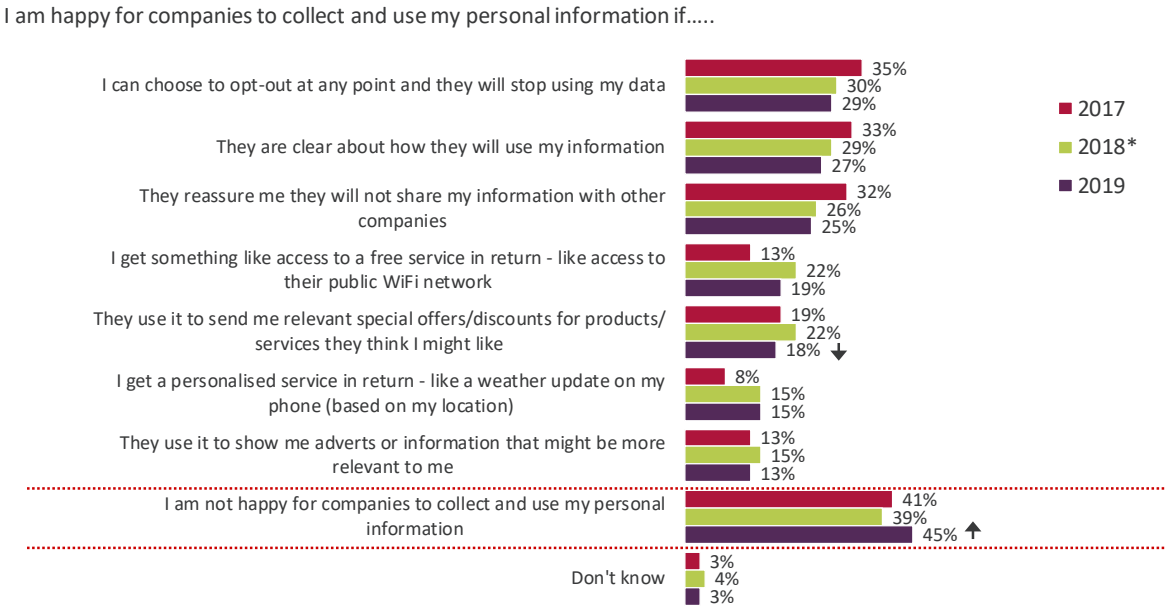
When looking at attitudes towards personalisation and data collection, a large minority are not happy for companies to collect and use their personal information

In 2019, nearly half of internet users (45%) said they were not happy for companies to collect and use their personal information under any circumstances, up by six percentage points since 2018. Younger internet users were less likely than average to say this (33% for 16-24s and 37% for 25-

[64] Ofcom Adults' Media Literacy Tracker 2019
[65] Ofcom-ICO research 2020

34s).[66] In 2019, just 13% said they were happy for companies to collect personal information to show them more relevant advertising.

Figure 1.24: Attitudes towards online companies collecting users' personal information online: 2017-2019

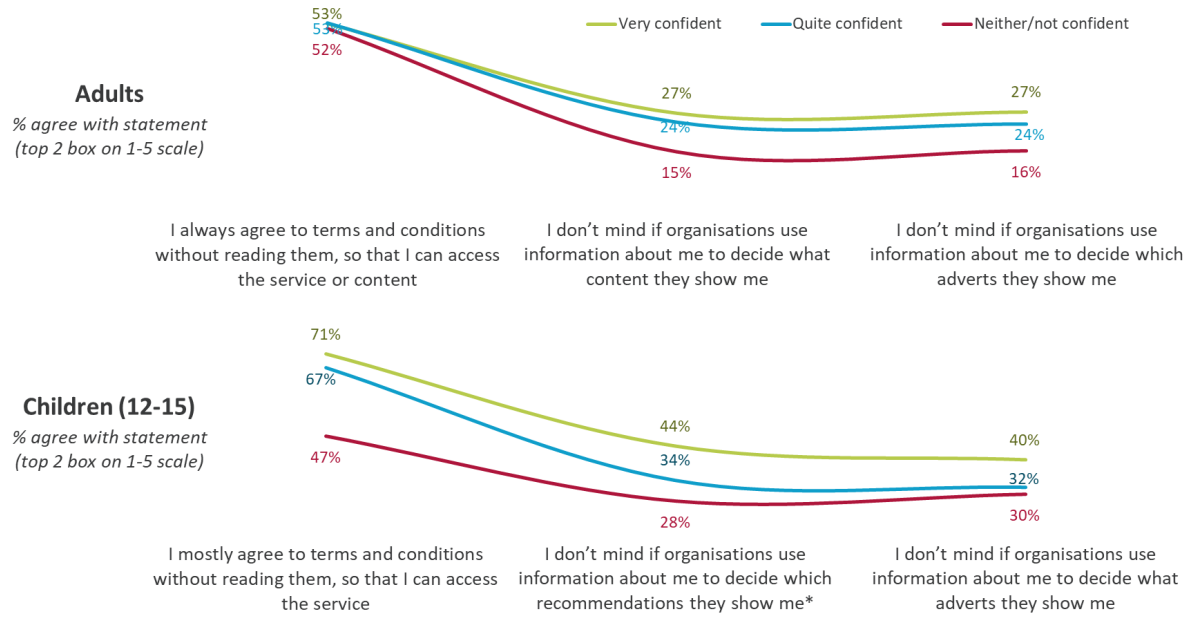


*Source: Ofcom Adults' Media Literacy Tracker 2019. IN53. Please read the full list of statements on this card about how people feel about online companies collecting and using their personal information (e.g. their name, address, telephone number etc.). If you agree with any of these statements please 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 between 2018 and 2019. Base: All adults aged 16+ who go online (1570 in 2017, 1602 in 2018, 1601 in 2019). Arrows show significant changes (95% level) between 2018 and 2019.*

Our online harms research, covered in more detail below, suggests some correlation between a user's level of confidence online and their attitude towards the use of their data. Those who say they are more confident using the internet are more likely not to mind if organisations use their data for content or ad personalisation.

[66] Ofcom Adults' Media Literacy Tracker 2019

Figure 1.25: Attitudes to use of personal data, by stated confidence online: 2020



Source: Ofcom-ICO research 2020. Adults: Question: E1) On a scale of 1 to 5, where 1 means strongly disagree and 5 means strongly agree, please tell me how much you agree or disagree with the following statements.

Base: All adults (2080). Very confident internet users (751), quite confident (457), neither/not confident (163).

*Children's: QE1) On a scale of 1 to 5, where 1 means Strongly disagree and 5 means Strongly agree, please tell me how much you agree or disagree with the following statements. *Wording changed in 2020.*

Base: All children 12-15 (2001). Very confident internet users (907), Fairly confident (982), Neither/not confident (104).

When it comes to recognising the role of advertising in online services, our research shows a mixed picture

Our adults' media literacy research suggests that the majority of adults are aware of personalised advertising online: three in five (61%) say they are aware that advertising may be personalised, while 20% think everyone sees the same adverts online, and 19% are unsure.[67]

Only about half (53%) of adult search engine users identified advertising as the main source of funding for search engines, while 43% were aware that YouTube's main source of funding is advertising. These figures have remained broadly stable since 2018.[68] The level of understanding is similar among 12-15 year-olds, with over half of both YouTube and Google users in this age group (54%) understanding that these platforms are primarily funded by advertising. This is also unchanged since 2018.[69]

[67] Ofcom Adults' Media Literacy Tracker 2019
[68] Ofcom Adults' Media Literacy Tracker 2019
[69] Ofcom Parents' and Children's Media Literacy Tracker 2019

When shown search engine results, 60% of adults identified that the first results, marked with 'Ad' labels, were sponsored links or paid placements, while 23% said they were the most popular results and 23% that they were the most relevant results. Respondents were able to choose multiple answers, and 49% only gave the correct response.[70] Among children, 34% of 12-15s and 18% of 8-11s stated only the correct response.[71]

Online harms and attitudes to regulation

This section draws on data from our 2020 quantitative and qualitative research into internet users' concerns about and experiences of potential online harms (referred to as our "online harms research" throughout this report), commissioned with advice on the research design provided by the Information Commissioner's Office (ICO). This is the second year in which we have run this survey and the results are covered in more detail here. The fieldwork took place from January to mid-February 2020.

Nine in ten children aged 12-15 and more than eight in ten adults say they have at least one concern about going online

As in 2019, most UK internet users recognise the benefits of the internet; most 12-15-year olds agree that the internet makes their lives better (57%) and most adults agree that the benefits of going online outweigh the risks (66%).

Nevertheless, the majority say they have concerns about going online (89% of 12-15s and 86% of adults, after prompting) and report having had a potentially harmful experience online in the past year (81% of 12-15s and 62% of adults).

Compared to 2019, adults were less likely to say they were concerned about many of the potential online harms we asked about in the survey (falling from an average of 6.7 individual concerns in 2019 to 5.6 in 2020), while concerns among 12-15-year-olds remained broadly stable (average 8.2 in 2019, 8.6 in 2020). The decline in adults' concerns may be related to differences in the media environment around the time of fieldwork in 2019 and 2020. In 2019, fieldwork took place at the same time as high-profile stories including the coverage of Molly Russell's suicide and the Christchurch Mosque shooting on 15 March. In addition to there being fewer high-profile stories in the news this year, platforms have been publicly discussing the steps they plan to take or are taking to prevent or mitigate the harms their users experience, and the UK government has made several announcements around Online Harms regulation.[72]

When considering potential harm encountered by children online, both 12-15 year-olds and adults are most concerned about harms related to content and interaction with other users

Eighty-six per cent of children aged 12-15 indicate concern around harm related to content and interaction with others, and are less likely to express concerns relating to hacking and security (70%)

[70] Ofcom Adults' Media Literacy Tracker 2019
[71] Ofcom Parents' and Children's Media Literacy Tracker 2019
[72] UK Government, Online Harms White Paper, last updated 12 February 2020

or data/privacy (56%). When asked about their concerns in relation to children, adults are also most likely to cite potential harms related to content/contact (76%, compared to 38% for hacking/security).

Among 12-to-15 year olds, the highest level of concern relates to interaction with other users, with more than half (53%) saying they are concerned about bullying, abusive behaviour or threats online, while interacting with someone who is pretending to be someone else (48%) ranks as the second most common concern.

Figure 1.26: Unprompted quotes from 12-15 year-olds on concerns they have about going online

Source: Ofcom-ICO research 2020. Question: C1a. Do you have any concerns about the internet ? Base: All children 12-15 (2001). C1b. What concerns do you have? UNPROMPTED, open-ended and verbatim comments coded. Base: all expressing concern n=532.

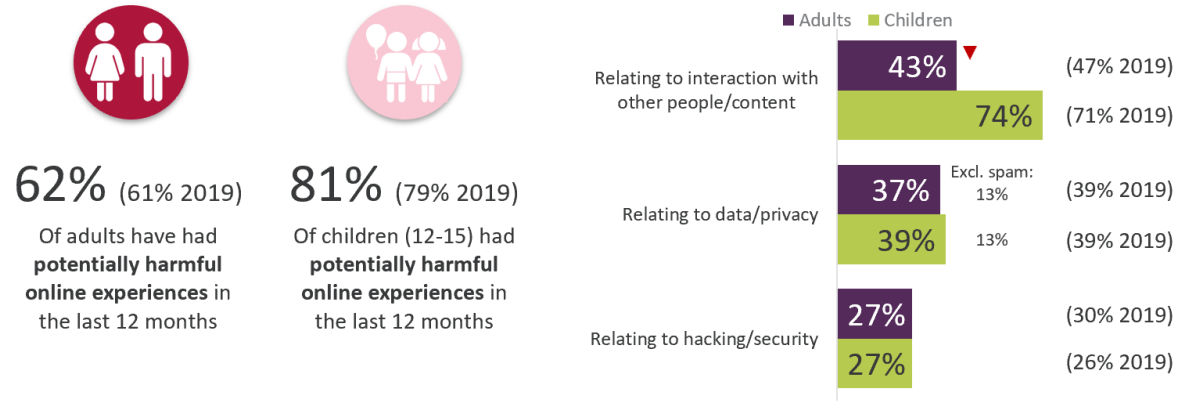
Girls tend to be more worried about harmful content and conduct than boys (88% girls, 83% boys). Girls are significantly more likely than boys to be concerned about harms such as bullying, abusive behaviour or threats (59% girls, 46% boys), trolling (47% girls, 39% boys), unwanted friend/follow requests (45% girls, 36% boys) and content encouraging self-harm (35% girls, 23% boys).

Children aged 12-15 are more likely than adults to say they have experienced potential harms related to content and interaction

Eighty-one per cent of 12-15 year olds said they had had a potentially harmful experience online in the past year, significantly higher than the 62% of adults who said the same.[73] Both adults and children are more likely to report experiences of harm relating to content and interaction than in relation to privacy or security.

[73] In the questionnaire, respondents define for themselves what they consider to be a "potentially harmful experience". We do not provide a definition of "harm" in the questionnaire.

Figure 1.27: reported experiences of potential online harm, adults and children: 2020



Source: Ofcom-ICO research 2020. Question: C4) Which, if any, of the following things have you come across on the internet in the last year? PROMPTED. Base: All adult internet users 2020 (2080) 2019 (2057) All children 12-15 2020 (2001), 2019 (1002). Arrows show significant changes since last year.

Looking in more detail into these figures, 26% of 12-15s said that in the past year they had come across bullying, abusive behaviour or threats online, 29% unwanted contact online, 24% trolling, 19% someone pretending to be someone else and 10% stalking or harassment. Nearly one in ten (9%) said they had come across content promoting self-harm. Regarding content and conduct, adults were most likely to report seeing fake news (16%), offensive language (11%) and violent or disturbing content (11%). Six per cent of adults reported experiencing bullying, abusive behaviour or threats, 3% reported stalking or harassment and 4% had come across content encouraging self-harm.

12-15s are also more likely to experience harms that they say have a high negative impact. While adults found issues around data, privacy and security to be the most impactful harms, 12-15 year olds cited viruses (74%), hate speech (73%), seeing content encouraging self-harm (72%), personal information being stolen (70%) and bullying, abusive behaviour or threats (69%) as having the most impact on them.[74] Both adults and children said that going online too much was the harm they experienced most often (53% of 12-15s and 78% of adults said this happened weekly), but they believed that this had the lowest negative impact on them of all the potential harms included in our survey.

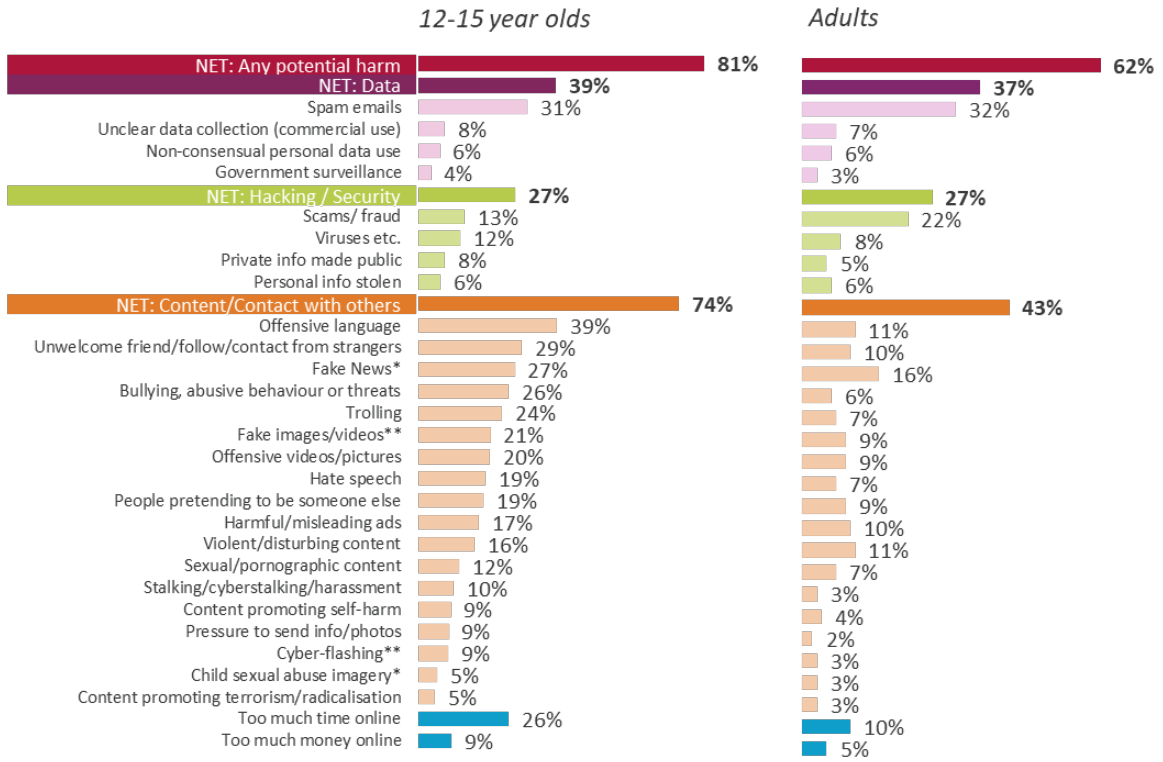
Four in ten are concerned about use of their personal data without consent

Fifty-three per cent of adults are concerned about potential harm related to data and privacy, while 56% of children report concern in this area. The most prominent of these individual concerns relate to the non-consensual use of personal data, with 40% of 12-15s and 37% of adults saying they are concerned about this.

Thirty-seven per cent of adults and 39% of children reported having experience of potential harm related to data and privacy. The most common experiences in this category were spam emails.

[74] Based on respondents who had both expressed concern about and experienced the issues.

Figure 1.28: Reported experience of harm: 2020



Source: Ofcom-ICO research 2020. Question: C4) Which, if any, of the following things have you come across on the internet in the last year? PROMPTED. Base: all adults (2080), all children 12-15 (2001).

Setting aside concerns in relation to children, adults' most common concerns relate to security, such as being hacked or having personal information compromised

Being hacked and having personal information compromised are the most common causes of concern for adult internet users when asked to think generally; forty-three per cent say they have concerns about personal information theft and 42% are concerned about online scams and fraud. There is a similar level of concern about these harms among 12-15s, with 42% identifying concerns about personal information theft, 39% having concerns about viruses and 38% having concerns about online scams or fraud.

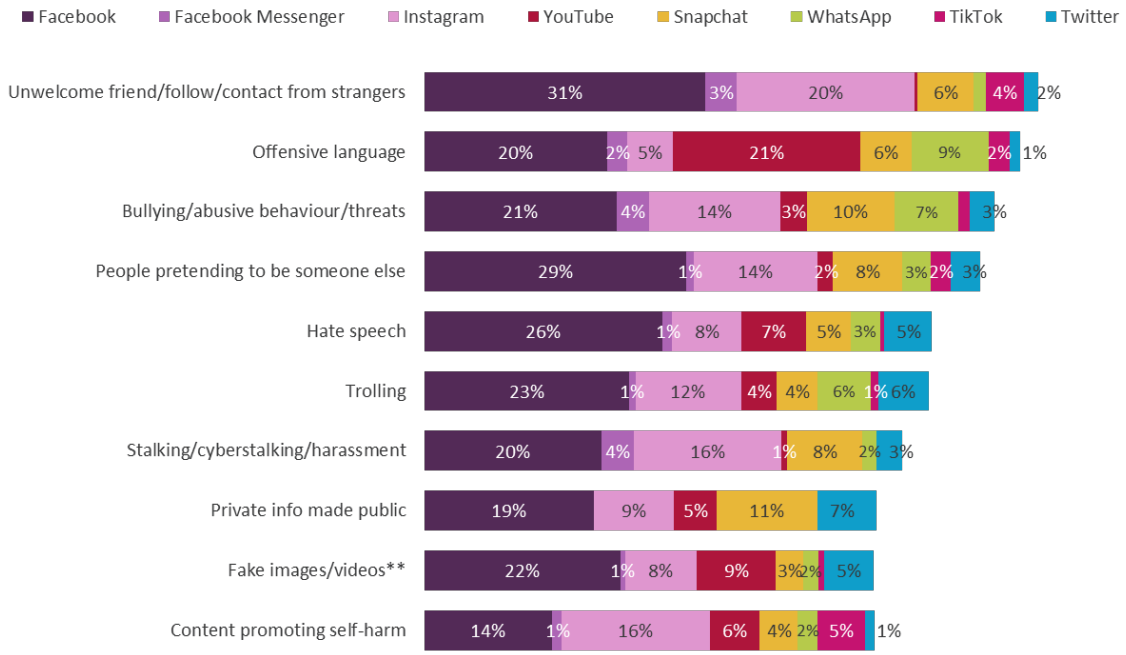
In terms of experiencing harm, scams and fraud (22%) are the most common security-related harms that adults reported experiencing in the past year. The most common cause of concern among adults; having personal information stolen, was reported by 6%. Among those who had experienced it, the theft of personal information was the most annoying, upsetting or frustrating harm (59% said it had a high impact).

12-15s are less likely than adults to say they have experienced scams or fraud (13%), but are more likely to say they have experienced viruses or malware on their devices in the past year (12% of 12-15s, 8% of adults). Among those who had experienced scams and fraud, 16% of 12-15s cited social media and 13% cited email as a source, while 46% of adults cited email as a source.

Social media sites remain the most commonly-cited source of potential harm online

Among both adults and children, social media sites and apps appear as the most commonly reported source of potential harm online, cited by 20% of adults and 30% of children as the source of their most recent experience of harm. These findings are probably related to more time being spent per user on social media sites in comparison to other types of sites, as well as the fact that these sites host content that is mostly user-generated. The figure below breaks down the social media sites most commonly cited by 12-15 year-old respondents as the source of the potential harm they have most recently experienced.

Figure 1.29: Recent sources of online harm among 12-15 year-olds (abbreviated)



Source: Ofcom-ICO research 2020. Question: C7 Which site or service were you using when you came across your most recent experience of (XXX)? Base: All children 12-15 who have experienced and are concerned about X (bases 27-377). Smaller other sources and 'don't knows' are not shown in this figure. This figure is abbreviated to the ten harms where sources are most commonly cited (in aggregate). A fuller figure covering the full 28 harms we asked about can be found in our Internet users' concerns about and experience of potential online harms – 2020 chart pack.*

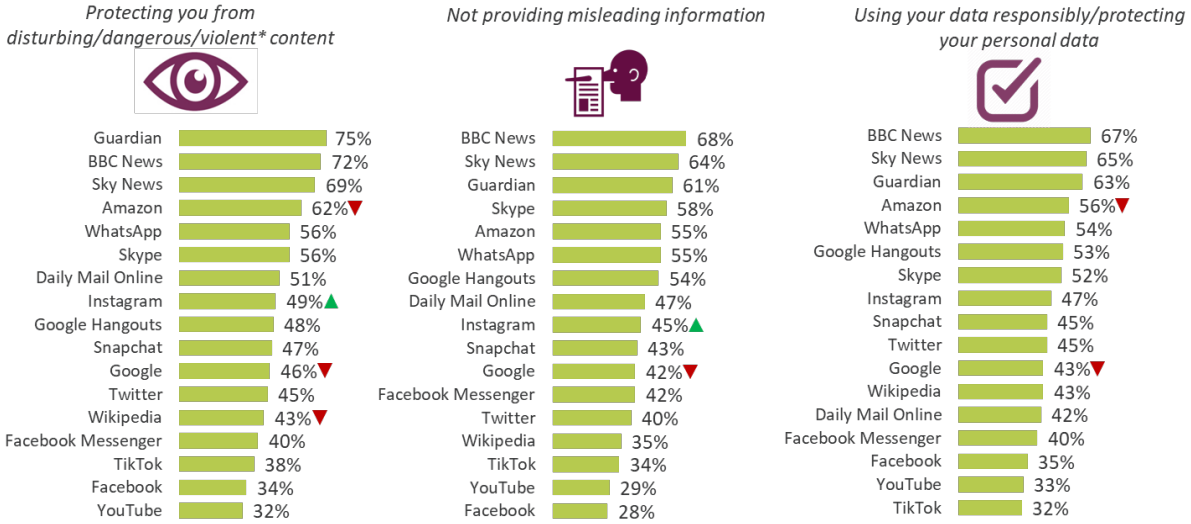
After social media sites, email services were next most likely to be cited as a source of their most recent experience of potential harm: by 16% of adults and 13% of 12-15s, followed by instant messaging (8% of adults, 12% of 12-15 year-olds) and video-sharing sites (5% of adults, 8% of children). Adults are more likely than children to cite search engines as a source of potential harm (8% adults, 3% children).

Social media sites appear among some of the least trusted sites in regard to protecting users from dangerous content, not providing misleading information and using data responsibly. Awareness of news stories about social media platforms is another factor likely to be driving these results; when asked if they could remember a bad news story they had heard about a platform in the last year from a list of 14 websites and apps, Facebook was cited the most. 26% of adults said they had seen a

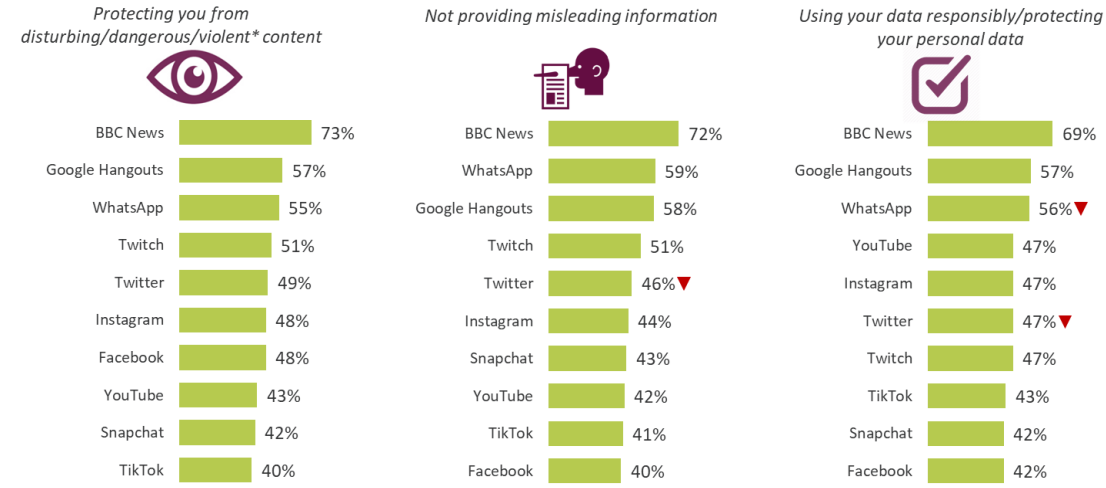
bad news story about Facebook, with stories about data harvesting or misuse (15%), data leaks (12%) and hacking (10%) being recalled.

Figure 1.30: Level of trust among selected brands

% of adults agreeing they trust each brand (top 2 box responses on 1-5 scale) for all users answering about each brand



% of 12-15 year olds agreeing they trust each brand (top 2 box responses on 1-5 scale) for all users answering about each brand



Source: Ofcom-ICO research 2020. Question: E5) Using a scale of 1 to 5, where 1 means you "do not trust it at all" and 5 means you "trust it a great deal", please tell me how much you trust (brand) when it comes to…
*Base (adults): all adults randomly selected to answer about brand and using that brand: Facebook (1192), Instagram (490), Wikipedia (272), Snapchat (312), Google (1131), BBC News (475), Amazon (788), Sky News (138), Twitter (257), Mail Online (167), Guardian (73), YouTube (817), WhatsApp (1032), TikTok (59), Skype (174), Google Hangouts (44**), Facebook Messenger (762). Base (12-15s):all children randomly selected to answer about brand and using that brand: Facebook (962), Instagram (1148), Twitch (224), Snapchat (1075), Twitter (500), TikTok (746), You Tube (1153), WhatsApp (1151), Google Hangouts (125), BBC News (304).*
**Statement wording changed in 2020. Question asked differently in 2020 (random allocation of users. 2019 was asked regardless of usage). **Low base: apply caution. Arrows show significant changes since 2019.*

Almost a third of 12-15s and a fifth of adult internet users say they have reported harmful content seen online

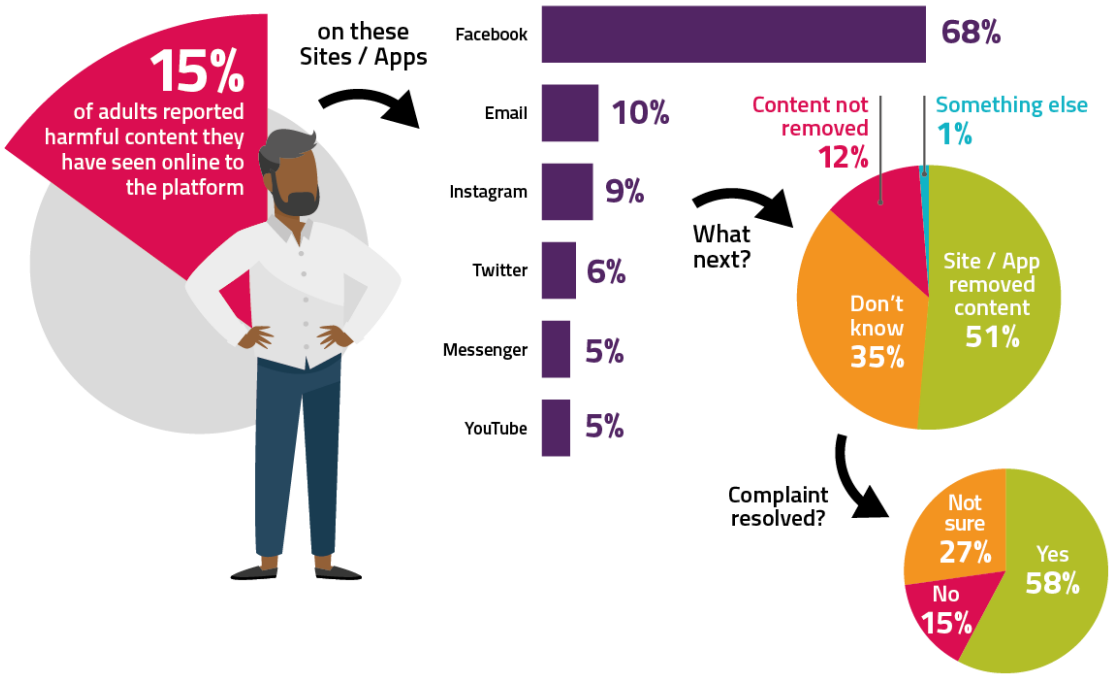
Among those who have experienced a potential harm online, 12-15 year-olds were more likely than adults to do something to report it, with 29% saying they had done something about harmful content they had seen. They were most likely to act by telling a parent (50%), clicking a report button (39%) or blocking or unfollowing accounts (25%). Among children who did not report harmful content they had seen online, 12% said this was because they didn't know what to do.

Of the 19% of adult internet users who said they had reported harmful content online, 69% said they were most likely to report it by clicking on report buttons, a 6-percentage point increase on last year. 16-34 year-olds, females, those with children in the household, and confident or heavy internet users were more likely than others to take reporting action.

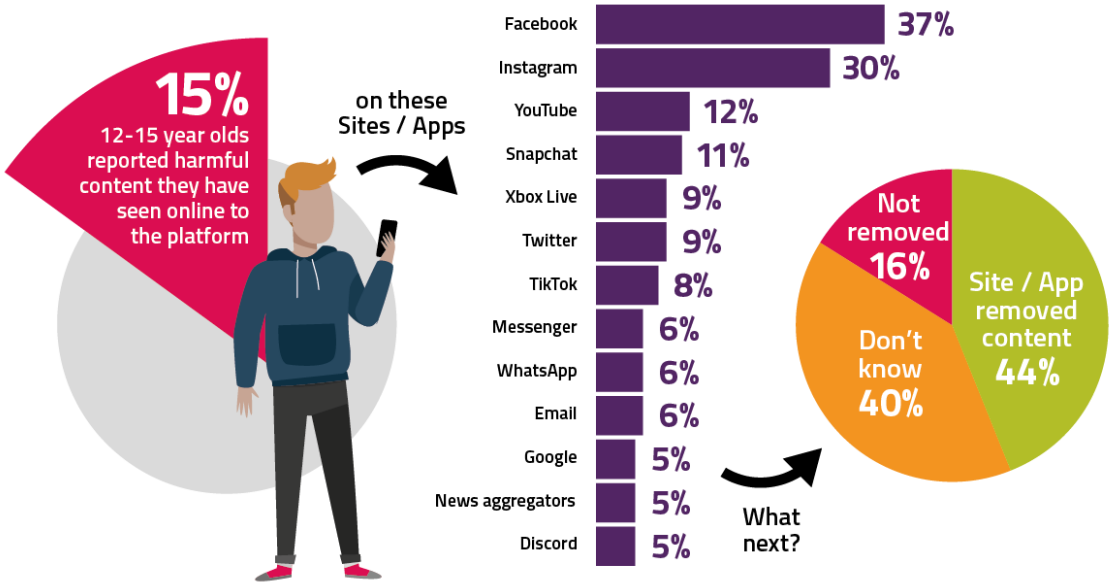
A third (33%) of adults who said they have not reported harm said it was because they hadn't seen anything to report (a 7 percentage point fall year-on-year); 13% 'couldn't be bothered'; and 8% 'didn't think it would help'.

Overall, 15% of adults and 12-15-year-olds said they had reported content to a particular site, either by using reporting buttons or another route. Among these, 51% of adults said the content was removed, as did 44% of 12-15s. More than a third of both said they did not know what happened to the content.[75]

Figure 1.31: Reporting outcomes on online services



[75] Ofcom-ICO research 2020



Source: Ofcom-ICO research 2020. Base: All that have taken action and reported the offensive, disturbing or harmful content by clicking on the report button or by Informing the website or social media site or gaming service in another way (adults = 374, 12-15s = 292). Only reporting above 5% shown.

A majority of adults and children say they take steps themselves to prevent potential harm

Apart from the reporting tools and other features offered by platforms, most parents take pre-emptive action to help protect their children online, with 89% of parents of 12-15s who go online saying they have spoken to their child about staying safe online. Three-quarters (74%) of parents of 12-15s "feel I know enough to help my child stay safe online", although more than one in ten (14%) said they did not.[76]

Looking at misleading information online, Ofcom's adults' media literacy research suggests that most internet users consider whether the information they find online is true, but, as in 2018, one in ten adult internet users continue not to think about the truthfulness of online content, and 2% think everything is truthful, while 25% think most is and 59% think only some is. The most popular checks made by those adults who do think about this are: cross-checking websites (44%) and checking whether the site address is genuine (32%). A third (33%) don't make any checks, up from 27% in 2018.[77] Meanwhile, 44% of children aged 12-15 say they often, or always, think about whether a news story on social media is accurate, up from 36% in 2018.[78]

Research by Intuit & Norstat suggests that 55% of adults have ever shared an item or news story they suspect, or know, to be fake. Their research suggests that 58% of adults at least sometimes check the facts to confirm the truth of a news story, with young people being more likely to say they do this (78%) and over-54s less likely to do so (46%).[79]

[76] Ofcom Parents' and Children's Media Literacy Tracker 2019
[77] Ofcom Adults' Media Literacy Tracker 2019
[78] Ofcom News Consumption Survey 2019 (children's)
[79] Attitudes to News Research; Intuit & Norstat, November 2019

79% of adults want websites to do more to keep people safe online

In 2020, compared to last year, a higher proportion of adult internet users said they believe online platforms are regulated in the UK. Three-quarters (74%) of adults believe social media sites are subject to some form of regulation, a 15 percentage point increase on 2019. This can perhaps be explained by social media platforms publicly communicating their efforts to tackle online harms over the last 12 months, and UK government announcements about plans for regulation in the future. Our research also finds that 45% of adults and 59% of children agree that social media sites provide them with the tools and features to stay safe online.[80]

Despite some misunderstanding about current levels of regulation, there is support for more regulation online.[81] Two-thirds (66%) of adults support more regulation of social media sites (compared to 70% in 2019), and more than half (57%) support more regulation of video-sharing platforms (64% in 2019).[82] Eight in ten (79%) adult internet users say they want the most-used websites and social media platforms to do more to keep people safe online.[83] Research from technology think-tank Doteveryone shows that 19% of people believe that tech companies design products and services with their best interests in mind.[84]

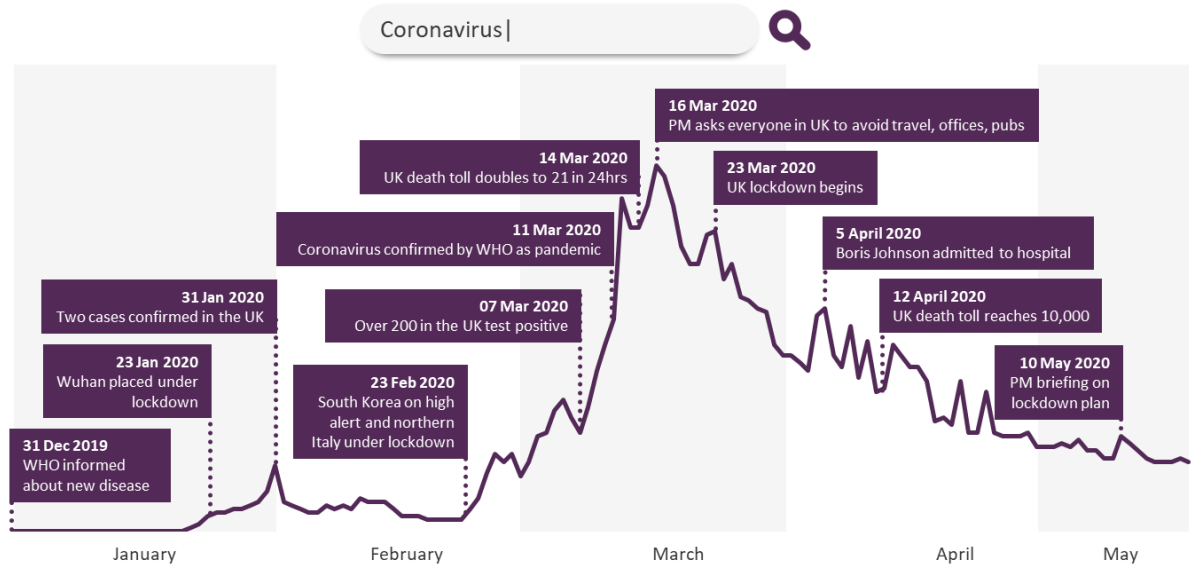
Online behaviour in the UK during the coronavirus pandemic

Online behaviour has shifted since the coronavirus outbreak

The coronavirus pandemic has had a significant impact on life in the UK, including behaviour online. Since the emergence of the disease on the world stage early in 2020, information about its nature, spread and impact has emerged rapidly and restrictions on normal life have been imposed in many countries. The figure below sets out some of the key developments and headlines in this period, mapped against UK search interest in the term 'coronavirus'. This section of the report was written in May 2020; while the coronavirus' long-term impact will take much longer to unfold, this section provides some initial insights on online behaviours up to the end of April 2020.

[80] Ofcom-ICO research 2020
[81] Question E3: And for each type of media, do you think that there should be more, less or about the same amount of regulation as there is today? Answers: Don't know, Should be less regulation, Same amount, Should be more regulation.
[82] We did not ask our 12-15 year-old respondents questions about their understanding of current levels of regulation, nor about their support for more regulation in the online space.
[83] This question was not asked in our survey with 12-15 year-old respondents.
[84] Miller, C., Kitcher, H., Perera, K., Abiola, A., (2020) People, Power and Technology: The 2020 Digital Attitudes Report. London: Doteveryone.

Figure 1.32: Google searches for 'coronavirus' – UK trend



Source: Google Trends, UK search interest in 'coronavirus' (normalised), 31/12/2019-20/05/2020.

In March and April 2020, people in the UK spent more time at home, in line with government advice, to help reduce the spread of the virus. People have been using online services to stay in touch with friends and family, to keep themselves entertained at home, to do work and schooling from home, and to keep themselves informed about the disease. The data shows that average time spent online reached record levels in April 2020.

Figure 1.33: Summary table: UK reach and average daily time spent per visitor: January and April 2020

	Jan 2020		April 2020		% diff in time
Social media	**99%**	49m 59s	**98%**	1hr 8 m	+36%
News	**99%**	12m 22s	**99%**	15m 32s	+26%
Retail	**99%**	10m 21s	**98%**	12m 9s	+17%
Travel	**94%**	2m 2s	**78%**	45s	-63%
Health	**88%**	2m 48s	**93%**	2m 49s	+0%
Government	**65%**	18s	**70%**	20s	+10%

Source: Comscore MMX Multi-Platform, Adults 18+, Jan 2020 and Apr 2020, UK.

Changing use of internet services

Network traffic has seen a dramatic surge during the lockdown

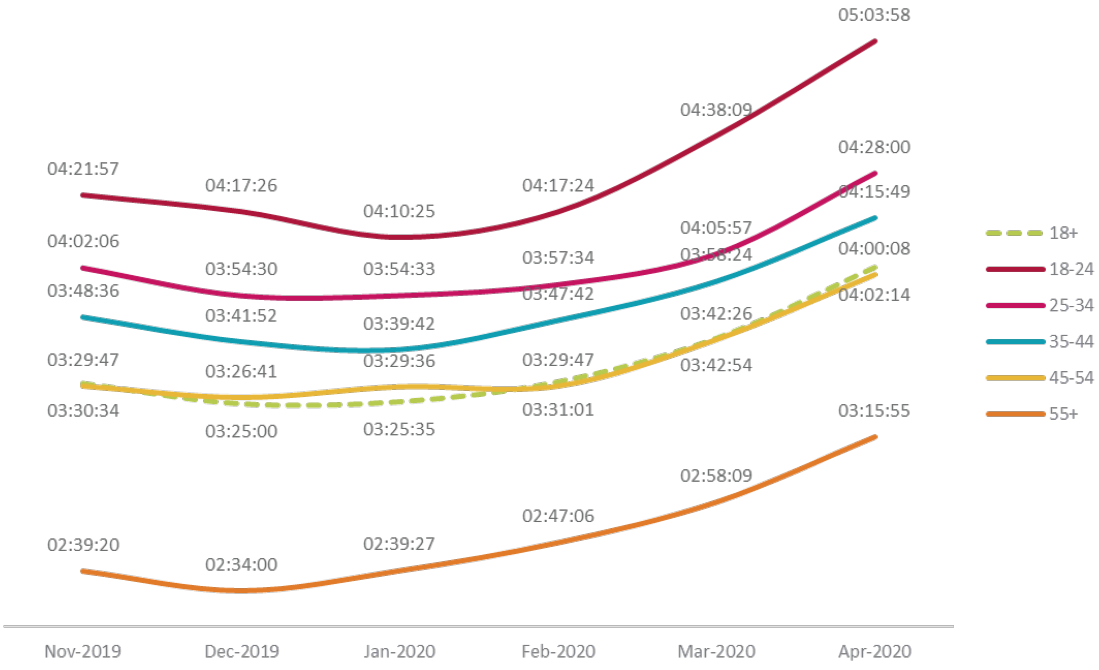
During the first week of the UK government's lockdown, network traffic across the UK's fixed broadband networks increased on average by 20%; this increase remained unaltered throughout April despite major platforms including Netflix, Amazon, YouTube and Apple reducing bitrate speeds

for video streaming in order to reduce the strain on broadband networks.[85] Although there has been a slight decrease in mobile data use and increased use of home wi-fi networks, the evening peak typically seen in network traffic remains unaltered, reflecting that the overall increases in network traffic have been driven by increased online activity from home during daytime hours. Mobile voice traffic has also increased; since the lockdown this has risen by 30%. Average call lengths that typically last two to three minutes have increased to an average of six to seven minutes since the lockdown.[86]

On average, online adults in the UK in April 2020 each spent 37 more minutes online each day than at the start of 2020

Across computers, tablets and smartphones time spent online in April 2020 has increased significantly since the start of the year, with online adults aged 18+ each spending 4 hours 2 mins online each day on average, a record figure, and 37 minutes more each day per online adult compared with January 2020. This is the first time Comscore has recorded an average time spent per user per day surpassing four hours since June 2015 (a change in methodology means that we cannot compare April 2020 results with results prior to 2015).[87] 18-24s continued to be the group spending the most time online (averaging 5 hours 4 minutes online per day in April 2020), although the percentage increase was highest among over-54s (3 hours 15 minutes in April 2020, 23% more than in January).

Figure 1.34: Average time spent online per visitor per day, by age: November 2019 to April 2020 (hh:mm:ss)



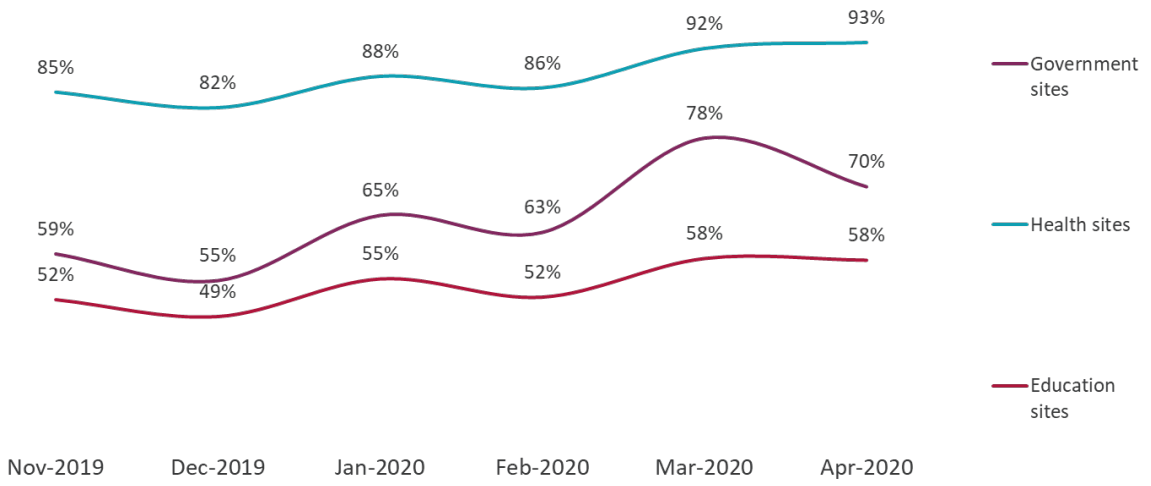
[85] The Verge, Amazon and Apple are reducing streaming quality to lessen broadband strain in Europe, 20 March 2020
[86] Ofcom analysis of public information from network providers, March, April, May 2020
[87] Comscore MMX Multi-Platform, Total Internet, Adults 18+, Jun 2015 – Apr 2020, UK.

Source: Comscore MMX Multi-Platform, Total Internet, Adults 18+, Nov 2019 - Apr 2020, UK.

The importance of access to information online is demonstrated by the increased reach of education, health and government sites between January and April 2020

Reach across education (+3 percentage points), health (+5pp) and government (+5pp) sites increased between January and April 2020. In March 2020, the number of people accessing government sites rose particularly strongly, by 13pp since January, although it fell again in April. Adults accessing a government site each spent 20 seconds on these sites per day on average in April, two seconds more than the average in January. Although health sites have increased in reach in April 2020 since January, time spent on these each day per adult user in April has remained steady since the start of the year. The average time spent on education sites each day increased from 1 minute 6 seconds in January to 1 minute 25 seconds in March and to 2 minutes in April 2020.

Figure 1.35: UK reach of government, education and health sites: November 2019 to April 2020



Source: Comscore MMX Multi-Platform, Adults 18+, Nov 2019 – Apr 2020, UK.

Data on use by under-18s are not available, although the top five education sites in April 2020 all increased their reach among adult internet users since January 2020. The top-ranking sites shifted away from supplementary resources such as Quizlet (which provides study resources for students) and ParentPay (a schools' payment processor), towards educational content. BBC Bitesize almost doubled its reach among adults, compared to January 2020, and was the most-accessed education site in April 2020, at 7%. Lesson-planner and resource pack site Twinkl.com entered into the top five most-accessed sites this year, probably because Twinkl made all of its teaching and learning materials free for teachers, schools and parents to support learning at home during the coronavirus outbreak. Language-teaching app Duolingo also increased both reach and average time spent per user per day, as adult internet users looked for activities to do at home during the lockdown.

Figure 1.36: Top five UK education sites, by reach and time spent per visitor per day: January 2020 vs. April 2020

January 2020	Reach	Avg. Time		April 2020	Reach	Avg. Time
Quizlet.com	4%	33s	1	BBC Bitesize	7%	21s
Parentpay.com	4%	23s	2	Guardian Education	5%	5s
BBC Bitesize	3%	15s	3	Open University	4%	55s
DuoLingo.com	2%	4m 14s	4	Twinkl.com	4%	51s
Guardian Education	2%	6s	5	DuoLingo.com	3%	6m 43s

Source: Comscore MMX Multi-Platform, Adults 18+, Jan 2020 and Apr 2020, UK.

Among the top five government sites, rankings remained broadly the same between January 2020 and April 2020, although the official site of the American Center for Disease Control, CDC.gov, features as a notable entry into the top five government sites by reach. In April 2020, more users accessed the UK government's website, Gov.uk, and spent longer on average on the site than in January 2020, perhaps due to people looking for official information on the coronavirus during the lockdown.

Figure 1.37: Top five government sites, by reach and time spent per visitor per day: January 2020 vs. April 2020

January 2020	Reach	Avg. Time		April 2020	Reach	Avg. Time
www.Gov.uk	44%	10s	1	www.Gov.uk	53%	13s
NIH	8%	6s	2	NIH	8%	8s
CompaniesHouse.gov.uk	6%	12s	3	Parliament.uk	5%	4s
HMRC.gov.uk	3%	8s	4	CompaniesHouse.gov.uk	5%	14s
MoneyAdviceService.org.uk	2%	5s	5	CDC.gov	3%	3s

Source: Comscore MMX Multi-Platform, Adults 18+, Jan 2020 and Apr 2020, UK.

As with the top five government sites, the rankings of the top five health sites remained broadly similar between January 2020 and April 2020. The NHS and BBC sites had greater increases in reach between January and April in comparison with commercial health sites. In March 2020, the NHS site increased its reach by 16pp to 50% since January, although reach declined to 40% in April.

Figure 1.38: Top five health sites, by reach and time spent per visitor each day: January 2020 vs. April 2020

January 2020	Reach	Avg. Time		April 2020	Reach	Avg. Time
Nhs.uk	34%	14s	1	Nhs.uk	40%	15s
Healthline.com	30%	8s	2	Healthline.com	33%	8s
Webmd.com	17%	8s	3	BBC News Health	21%	10s
Medicalnewstoday.com	15%	6s	4	Webmd.com	16%	6s

BBC News Health	10%	6s	5	**Medicalnewstoday.com**	13%	5s

Source: Comscore MMX Multi-Platform, Adults 18+, Jan 2020 and Apr 2020, UK.

Users each spent around 2 minutes more on average on retail sites during the lockdown

The reach of retail sites remained broadly stable between January 2020 and April 2020, collectively reaching around 98% of all UK adults went online in April 2020. However, average time spent per user per day increased, from 10 mins 21 seconds at the beginning of the year to 12 mins 9 seconds in April.

The top ten retail sites based on reach are largely the same in April 2020 as at the start of the year and are mostly sites selling groceries, household goods and electronics. Nine of the top ten retail sites increased reach to their sites in April 2020 compared with January, while Amazon maintained its reach.

The average daily time spent by users of Amazon increased by more than a minute in April 2020, compared with January. Research by SimilarWeb suggests that increased interest in fitness products and video games products on Amazon has driven traffic to the platform; both categories had an 85% change in conversions (purchases) between H1 2019 and H1 2020.[88]

With the Prime Minister encouraging UK citizens to shop for groceries online wherever possible, grocery sites have had notable increases in traffic. For instance, Sainsbury's website moved into the top ten in April 2020, with one in five adult internet users in the UK visting it in April 2020, up 5pp since January 2020. Queue-it.com provides a virtual queue for oversubscribed sites – in March 2020, the UK was the country sending the second highest amount of traffic to the site (20.7%), behind France (30.9%).[89]

A YouGov daily poll in April 2020 suggested that most adults in Great Britain felt it was still acceptable (24% definitely acceptable, 43% probably acceptable) for people to buy non-essential items online during the coronavirus outbreak.[90] Perhaps in line with this, there was increased traffic to sites like Wayfair (which did not appear in the top ten in January 2020), Wish.com, eBay and Argos, as internet users in the UK browsed for clothes, electronics, furniture and deals.

Figure 1.39: Top ten retail sites, by reach and time spent per visitor per day: January 2020 vs. April 2020

January 2020	Reach	Avg. Time		April 2020	Reach	Avg. Time
Amazon	88%	3m 13s	1	**Amazon**	88%	4m 19s
eBay	69%	3m 45s	2	**eBay**	70%	3m 29s
Argos	33%	25s	3	**Argos**	36%	27s
Tesco	21%	17s	4	**Tesco**	30%	31s
Wish.com	20%	1m 6s	5	**Wish.com**	25%	1m 1s

[88] SimilarWeb (via YouTube), Webinar: The New Normal: COVID-19's Business and Consumer Impact in Europe, April 2020
[89] SimilarWeb, The New Normal Webinar
[90] YouGov, Do you think it's acceptable or not for people to buy non-essential items online during the coronavirus outbreak?, 7 April 2020

Asda	17%	28s	**6**	**Asda**	25%	48s
Apple	17%	6s	**7**	**Wayfair**	20%	21s
Just-Eat	16%	31s	**8**	**Just-Eat**	20%	38s
Boots	16%	17s	**9**	**Sainsbury's**	20%	54s
John Lewis	15%	17s	**10**	**Apple**	18%	8s

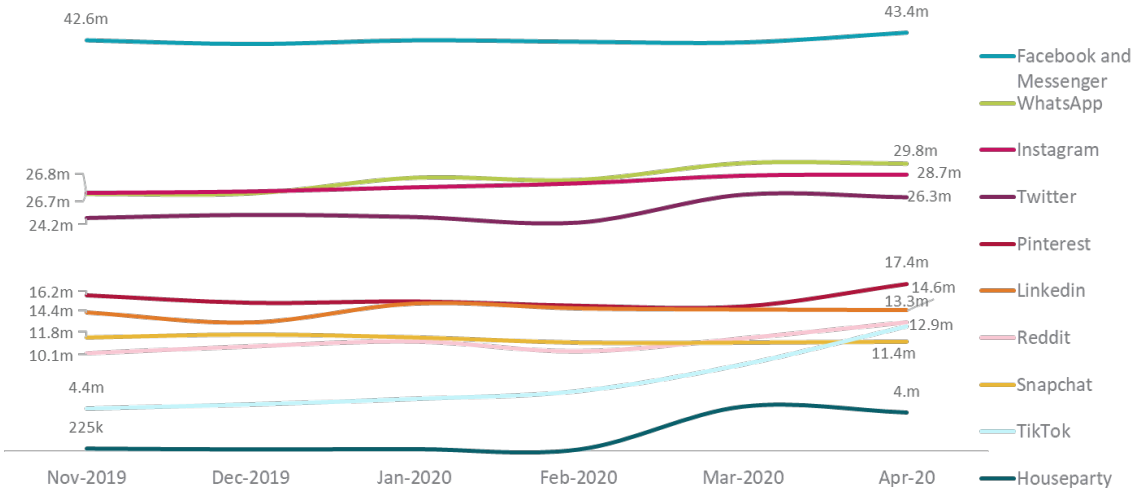
Source: Comscore MMX Multi-Platform, Adults 18+, Jan 2020 and Apr 2020, UK.

In April 2020, adult social media users spent 18 minutes more on average each day on social media than at the beginning of the year

Average time spent on social media and messaging sites increased significantly; from 50 minutes in January 2020 to an hour and 8 minutes in April per user aged 18+ each day. These 18 extra minutes represent a 36% increase in time spent on social media sites. The difference was most evident among 18-24 year-old users, who registered 1 hour 36 mins on social media sites in April 2020, up 21 minutes compared with January. But social media users aged 55+, who spent the lowest amount of time on social media sites compared with other age groups, had the biggest percentage increase in April 2020; a 55% increase compared with January 2020. Over 54s each spent 50 minutes on social media sites each day on average in April 2020 compared with 32 minutes in January.

Some services have seen very steep increases in reach. TikTok had 12.9 million adult users in the UK in April, up from 5.4 million in January. Social networking and video-calling site Houseparty reached 4 million adults in April 2020, 22 times as many as in January. Increases in the use of video-calling during the Coronavirus pandemic is explored further in our online communication services chapter.

Figure 1.40: Total digital audience of selected* social media sites: November 2019 to April 2020



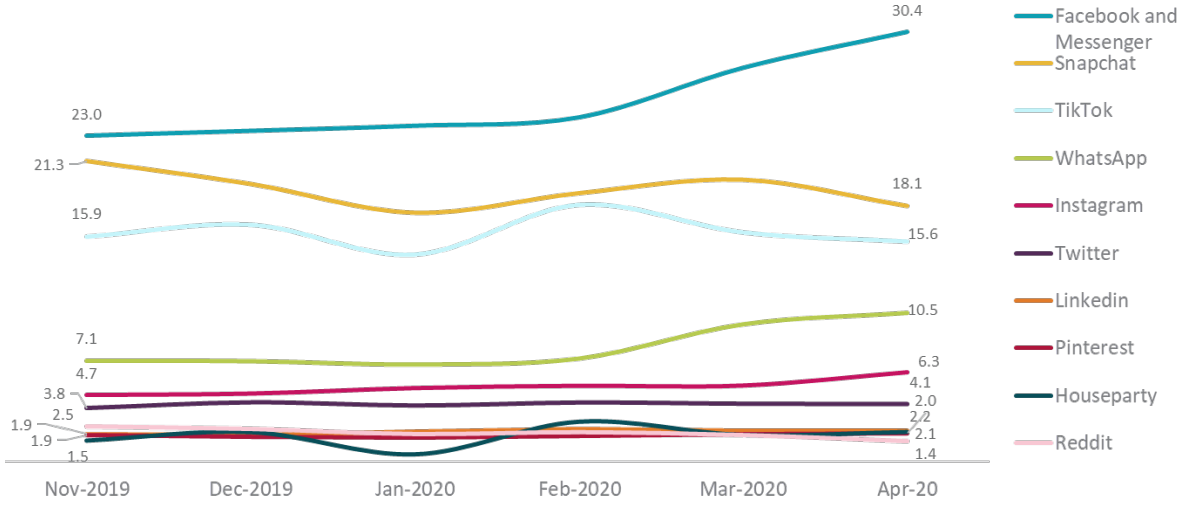
*Source: Comscore MMX Multi-Platform, Adults 18+, Nov 2019 - Apr 2020, UK. *Custom list of entities defined by Ofcom.*

While some of the larger companies have not had such large increases in their user base, many have seen activity on their platforms grow. Facebook, for instance, said in March that in many of the countries hit hardest by the coronavirus, total messaging had increased by more than 50% in the

past month. Similarly, voice and video calling have more than doubled on Messenger and WhatsApp.[91]

Among the social media sites which drew the most visitors, Facebook and Messenger remain the highest social media site based on time spent, with users aged 18+ each registering 31 minutes per person each day in April 2020 on average, up from 24 minutes in January. Snapchat (18 minutes) and TikTok (16 minutes) are second and third, based on time spent per user per day in April 2020 among the sites looked at, and WhatsApp users each spent 10 minutes per day on average in April 2020, four minutes more than in January.

Figure 1.41: Average minutes per day spent by adult visitors to selected* social media sites and apps: November 2019 to April 2020



*Source: Comscore MMX Multi-Platform, Adults 18+, Nov 2019 - Apr 2020, UK. *Custom list of entities defined by Ofcom.*

In April 2020, adult internet users spent three minutes more on average on news sites than at the beginning of the year

On average, adult internet users in the UK spent more than three minutes longer on news sites in both March and April 2020 than at the start of the year. Average time spent on news sites per adult user reached its peak in March, at 15 minutes 43 seconds a day, higher than both January (12m 22s) and April (15m 32s). In April, daily time spent on news sites varied significantly by age group, with time spent increasing with age. 18-24 year olds each spent an average 5 minutes 26 seconds each day on average, rising to 11 minutes 42 seconds among 25-34 year-olds, 16 minutes 6 seconds among 35-44s, 18 minutes 56 seconds among 45-54s and 19 minutes 25 seconds for over-54s.

All sites across the top ten increased their reach between January and April 2020 as users' appetites for news, information and updates increased during the lockdown. While The Sun Online continued to reach the largest proportion of internet users in the UK, adult users spent the longest average time on the BBC News site. Interest in news during the lockdown period appeared to peak in March;

[91] Facebook Newsroom, Keeping Our Services Stable and Reliable During the COVID-19 Outbreak, 24 March 2020

this is explored further in the next section on consumer attitudes to news during the coronavirus pandemic.

Figure 1.42: Top ten news sites, by reach and time spent per visitor per day: January 2020 vs. April 2020

January 2020	Reach	Avg. Time		April 2020	Reach	Avg. Time
The Sun Online	79%	54s	1	The Sun Online	86%	59s
Daily Mail	66%	1m 29s	2	Daily Mail	78%	1m 22s
Mirror Online	62%	37s	3	The Guardian	76%	57s
Independent	54%	14s	4	Express	70%	27s
The Guardian	53%	51s	5	Independent	70%	18s
Express	51%	33s	6	BBC News	69%	2m 43s
BBC News	50%	2m 20s	7	Mirror Online	68%	39s
Telegraph	43%	24s	8	Sky News	65%	1m 10s
Daily Star	15%	14s	9	Telegraph	59%	25s
i News	14%	4s	10	Daily Star	25%	16s

Source: Comscore MMX Multi-Platform, Adults 18+, Jan 2020 and Apr 2020, UK.

During the pandemic news providers have branched out into providing updates about the coronavirus through other platforms and channels, such as Twitter updates, YouTube videos (e.g. the Guardian Explainers series) and WhatsApp updates (e.g. the Telegraph's Politics WhatsApp group). According to Tubular Labs, views in the UK to news and politics creators on YouTube reached a three-year record at 347 million between 16 March and 22 March. People have also turned more to established news brands: media brands accounted for 85% of views to news on YouTube in the month to 10 April 2020, compared to an average of 72% over the last 365 days.[92]

Attitudes towards news and information about the coronavirus

This section draws on data from our weekly tracker survey looking at how people are getting news and information about the coronavirus outbreak. The fieldwork for the tracker has run each weekend since 27 March, with the first eight weeks (27-March-17 May) covered here.

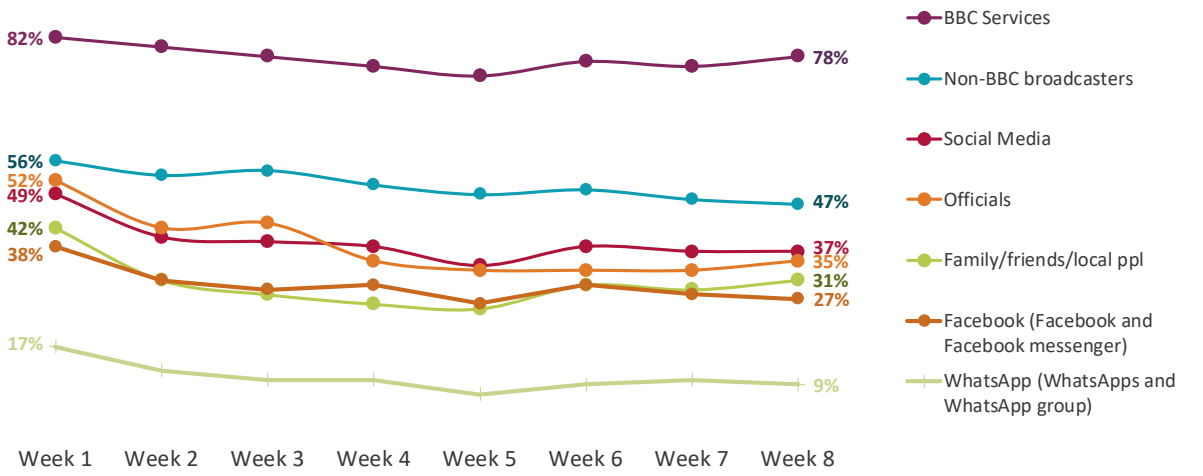
Broadcasters, especially the BBC, are the most used, and considered the most important, sources of information about the coronavirus

BBC services were the most-used source of information about the coronavirus. BBC TV was the most-used source, but a consistent three in ten people used BBC Online for news on the coronavirus during the eight-week period. Social media remains an important source of news, but its use for news about the coronavirus among all adults fell from 49% to 37% over the first eight weeks of the survey. In the first two weeks, the proportion of 18-24s using social media for news about the

[92] Tubular Labs, Covid_19: Know what the world is watching. News in the UK.

coronavirus (week one, 75%, and week two, 69%), was in line with the proportion using BBC services (week one, 74%, and week two, 74%). As the lockdown period has continued, the proportion of 18-24s using BBC services as a source of news on the coronavirus has remained high (75% in week 8), while their use of social media as a source has fallen to 61%.

Figure 1.43: Proportion of all adults using each source for information about the coronavirus



Source: Ofcom Covid-19 news and information: consumption and attitudes. Q3a. Which, if any of the following sources have you used to get information/news about the Coronavirus outbreak in the LAST WEEK? Please select all that apply. Base: All respondents getting information/news about the Coronavirus outbreak – Week 1 (2226), Week 2 (2110), Week 3 (2105), Week 4 (2122), Week 5 (2077), Week 6 (2121), Week 7 (2104), Week 8 (2092).

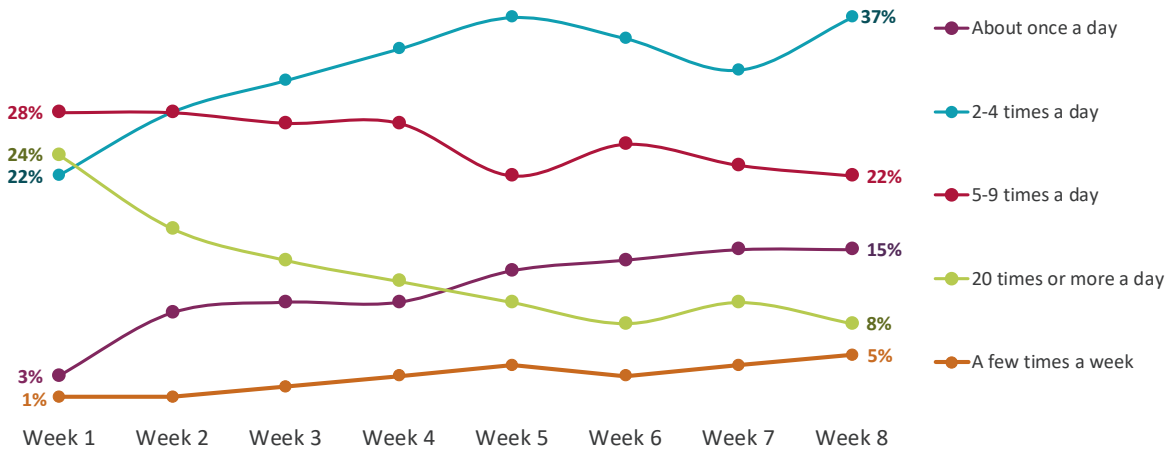
While there have been some changes in the levels of use of different news sources over the eight-week period, the perception of the relative importance of each source has remained consistent. Half of all respondents consider a BBC service to be their most important source,[93] higher than non-BBC broadcasters (13%) and official sources (12%), and far higher than social media, which just 4% of people consider to be their most important source. 18-24s were more likely than other adults to nominate social media as their most important source of news (8% in week 8) and less likely to nominate broadcasters (55% vs. 65% overall in week 8).

Fatigue around news about the coronavirus appears to have increased over the lockdown period

Appetite for news on the coronavirus has decreased, with respondents to our survey generally accessing news about the coronavirus less frequently over the course of the eight weeks. This was compounded with the fact that respondents started to avoid news about the coronavirus. In week 1, one in five (22%) agreed that they were trying to avoid news about the coronavirus; by week 5, about a third (34%) of people agreed with this sentiment, staying at the same level into week 8 (33%).

[93] 36% BBC TV, 12%% BBC Online

Figure 1.44: Frequency of getting information about the coronavirus

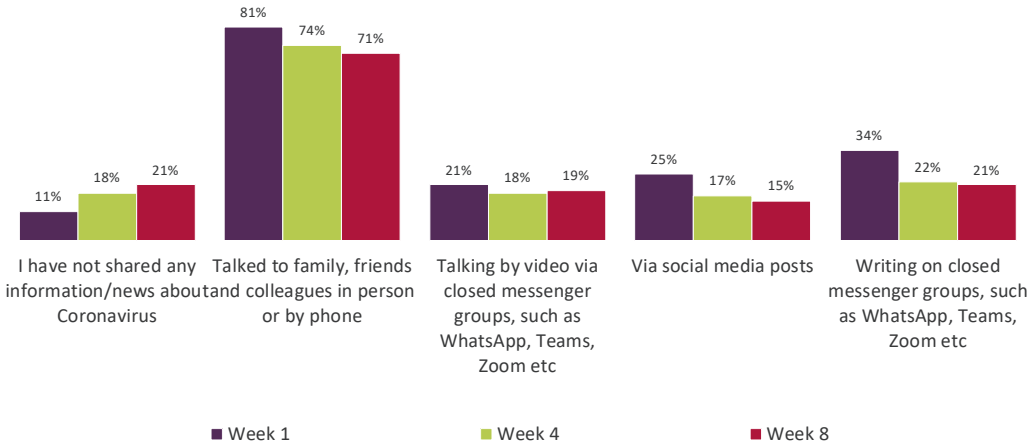


Source: Ofcom Covid-19 news and information: consumption and attitudes. Q2. In the LAST WEEK, on average how often would you say you are getting information/news about the Coronavirus outbreak? Base: All respondents, Week 1 (2232), Week 2 (2125), Week 3 (2127), Week 4 (2136), Week 5 (2106), Week 6 (2150), Week 7 (2127), Week 8 (2105).

Sharing news and information about the coronavirus is more likely to happen offline than online

As well as accessing news about the virus less frequently across the lockdown period, people are sharing news less frequently. In week 8, four in five (79%) people said they shared information about the coronavirus, down from nine in ten (89%) at the beginning of the survey. People are much more likely to share information about the coronavirus in person or by phone than via the online services that we asked about.

Figure 1.45: Proportion of people sharing information about the coronavirus



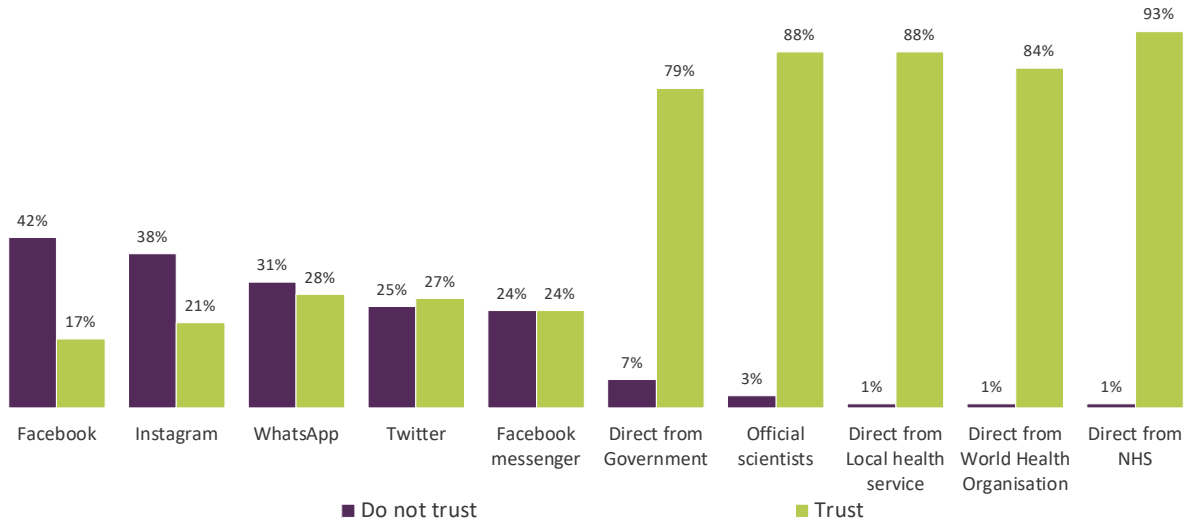
Source: Ofcom Covid-19 news and information: consumption and attitudes. Q7. In the LAST WEEK, how have you shared information/news about Coronavirus? Base: All respondents getting news/information about the Coronavirus outbreak, Week 1 (2226), Week 4 (2122), Week 8 (2092).

Social media sites are more likely to be distrusted as sources of news about the coronavirus

Social media sites were the most likely to be regarded as untrustworthy among their users, with around four in ten users of Facebook and Instagram saying that they did not trust these as a source

of information about the coronavirus. The most trusted sites are all official sources, which are trusted by a significant majority of users; for example, 93% of people trust information about the coronavirus direct from the NHS. In the first eight weeks of the survey, some sources have seen a declining proportion of users who rate them highly as trustworthy. Trust in government sources, for example, while still high, has fallen by 10 percentage points. Trust in broadcasters, including the BBC, Sky, ITV and Channel 4 has also declined by a similar amount.

Figure 1.46: Proportion of users who trust (4-5 ratings) and do not trust (1-2 ratings) sources of information about the coronavirus (week 8)

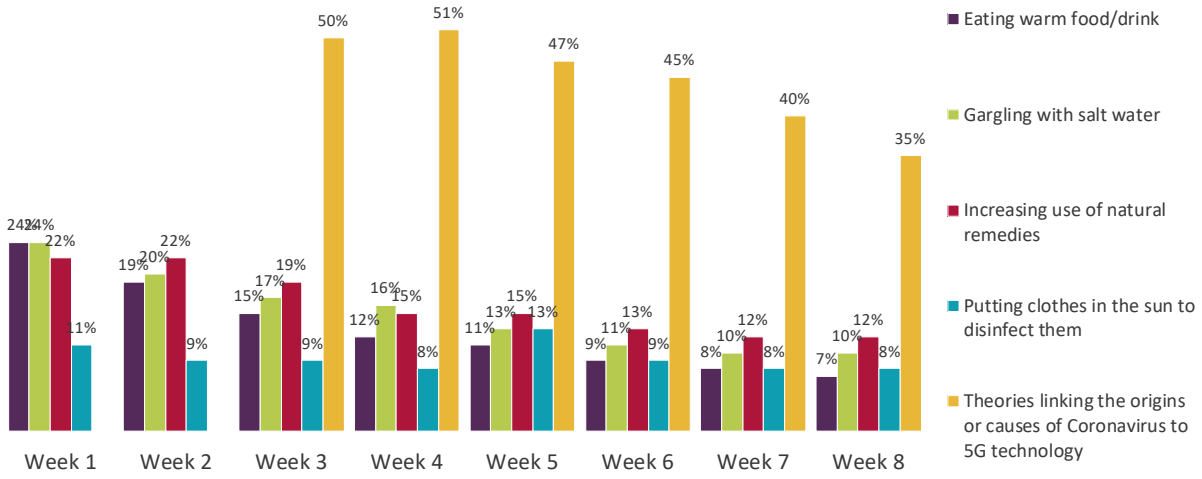


Source: Ofcom Covid-19 news and information: consumption and attitudes. Trust scores from week 8 of the survey, top 5 most trusted and top 5 most distrusted sources. Q5. Using the scale from 1 to 5, where 1 is do not trust at all and 5 is trust completely, how much do you trust the following sources for information/news about Coronavirus? Base: All respondents getting information/news about Coronavirus from source used in Week 8 – Facebook (564), Instagram (121), WhatsApp (131), Twitter (264), Facebook Messenger (104), Direct from Government website/email/text/post (464), Official scientists (123), Direct from local health service website/email/text/post (126), Direct from World Health Organisation website/email/text/post (110), Direct from NHS website/email/text/post (322).

Two in five people say they have seen false or misleading information about the coronavirus

In week 1 of our survey, 46% of people said they had come across false or misleading information about the coronavirus in the past week, rising to 50% in week 5 and falling back to 43% in week 8. In week 8, people aged 18-24 and 25-34 were more likely to say that they had come across false news (49% and 48% respectively) compared to over-64s (37%). In week 8, just 4% of those who had seen misleading information in the past week said they had forwarded or shared it (vs. 7% in week 1). Some of the most common misleading stories cited by respondents (from a selected list) are mapped below.

Figure 1.47: Proportion of people who have seen selected types of misinformation on the coronavirus



*Source: Ofcom Covid-19 news and information: consumption and attitudes. Q10. Have you come across any of these false or misleading information about aspects of the coronavirus in the **LAST WEEK**? Base: All respondents getting information/news about the Coronavirus outbreak – Week 1 (2226), Week 2 (2110), Week 3 (2105), Week 4 (2122), Week 5 (2077), Week 6 (2121), Week 7 (2104), Week 8 (2092).*

Over the eight weeks, just over half of the respondents seeing misinformation said they did nothing about it (55% in week 1 and 56% in week 8). Among those who did act, the most commonly reported responses in week 8 were using a fact-checking source (16%) and checking with family and friends whether it was misleading (14%).

2. The online industry

Introduction

We cover eight sectors in this report: search, social media and messaging, free video,[94] news, shopping, entertainment, gaming and online directories. Oliver & Ohlbaum (O&O) was commissioned to research these sectors and to estimate UK and other countries' revenues.

Combined, these sectors continued the long-term trend of double-digit, high-margin revenue growth in 2019 and for the first quarter of 2020. The coronavirus pandemic has since changed consumer and company behaviours as well as national priorities. The impacts on the online industry have been both negative and positive. Microsoft stated: "we've seen two years' worth of digital transformation in two months."[95] Google expects this to be a long-term trend,[96] and Facebook announced that in five to ten years half of the company's employees will be working remotely.[97] At the same time, brands are slashing advertising budgets, with the effects already visible in March and significant reductions expected from April onwards.[98]

Consumer adoption trends have been boosted in 2020 due to the coronavirus, especially the adoption of online entertainment, shopping, education, social media and online communication services. Zoom and Houseparty are commonly quoted examples,[99] but time spent and reach increased across a broad range of categories in March and April. Many of these companies will need to deal with levels of increased use at the same time as their advertising revenues are falling.

Google, Apple, Facebook, Amazon and Microsoft (GAFAM), have over $450bn in combined cash reserves and appear well placed to ride an economic downturn. Apart from Facebook, all have more diverse revenue streams than pure advertising. They are unlike start-ups and even some larger private companies who are reliant on private equity investments which have decreased significantly since the coronavirus pandemic.[100] GAFAM have been very active in both acquisition and investment and now regulators are giving increased consideration to business continuity as well as competition.

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[94] Oliver & Ohlbaum used a broad definition for this analysis. It includes video services carrying short-form, user-generated and/or other video content, as well as video advertising revenues from social media services. It excludes revenues associated with 'native' video and outstreaming advertising (such as that which might be embedded in a news article) – but includes revenues from social infeed. Revenues from broadcaster video-on-demand services (BVoD) and subscription video-on-demand (SVoD) are excluded.

[95] Microsoft Earnings Release FY20 Q3: Press Release & Webcast, 29 April 2020

[96] Alphabet's Q1 2020 earnings call, 28 April 2020. Alphabet and Google CEO Sundar Pichai: "we'll see a long-term acceleration of movement from businesses to digital services…".

[97] Facebook CEO Mark Zuckerberg quoted in The Verge, Mark Zuckerberg on taking his massive workforce remote, 21 May 2020

[98] Advertising Association/WARC Expenditure Report (press release), 30 April 2020.

[99] See: Forbes, Welcome To My Houseparty, Zoom's New Competition, 16 April 2020; FT.com, How the viral app Houseparty is entertaining a generation in lockdown, 24 March 2020; FT.com, Zoom rides working from home trend to forecast-beating quarter, 3 June 2020

[100] Beauhurst, The effect of coronavirus on UK investment: Q1 2020, 2 April 2020. "Only 95 deals were announced in March 2020, which totalled £595m, compared to 174 in March 2019, which totalled £1.46b. In the past week a meagre 14 rounds were announced. This is the lowest number of deals in a week outside of a Christmas period since August 2014."

For example, Amazon's bid for Deliveroo has been provisionally approved on the basis that Deliveroo would otherwise be likely to exit the market.[101]

Platforms are also taking action to support consumers, smaller companies and the hardest-hit sectors like news. These include Amazon prioritising the delivery of essentials, hiring 170,000 people in two months and supporting smaller merchants with financial initiatives. Facebook has a $100m grant programme for small companies, and another $100m of investments for the news industry. Video-sharing platforms, and others such as games publishers, are actively managing bandwidth by reducing video bitrates and issuing high-volume updates outside peak times to cope with increased use. Before the coronavirus pandemic, the primary harms reduction actions were improving automated detection, tagging posts to fact-checker sites, promoting trustworthy news sources and banning deep fakes – these remain priority areas, given renewed focus with concerns about misinformation about the coronavirus.

Online sector summary

Overview

Total online revenue per head of UK population is three times the global average[102]

The online sectors in the UK are some of the most advanced in the world. Online revenue per capita in the UK reached £1,382 in 2019, almost three times the global average of £467.[103] While global online revenue grew by 17% year on year, for the UK this was 8%. The UK market is relatively more mature than most countries and is therefore growing from a larger base; the compound annual growth rate over the past five years is 11%. Many emerging markets are still at the earlier growth phase of adoption.

Particularly relevant is the largest sector by revenue, online shopping, where the UK has long been a global leader and spend per capita is among the highest in the world. The fulfilment of physical online orders requires supply and distribution chains which means that global service roll-out takes longer than with purely digital services. Many companies, including Amazon, included the UK early in their global expansion and are now expanding into emerging markets, especially India for Amazon. Globally, the online shopping sector grew by 17% in 2019, compared to 5% growth for the UK.

As we set out in the online consumer chapter, people are spending more time online, hitting record levels in April 2020. In revenue terms, all eight sectors that we focus on grew in 2019. Free video and social media benefited the most, with 26% and 21% year-on-year revenue growth respectively, while news and online directories grew by only 3% and 5% respectively.

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[101] Gov.uk: Competition and Markets Authority cases, Amazon / Deliveroo merger inquiry, last updated 10 June 2020

[102] Total online is defined here as the sum of the eight sectors included in this report.

[103] Ofcom calculation, using estimated revenue data provided by Oliver & Ohlbaum (drawing on data from the eCommerce Foundation and Statista).

Figure 2.1: UK share of global online sectors, year-on-year growth and per-capita revenue

Key Sector	Primary business model	2019 Global revenue (£m)	% Global revenue change y-o-y	% UK revenue change y-o-y	2019 UK share of global market (%)	2019 Estimated UK revenue per capita	Example key companies
Search	Advertising	97,656	13%	16%	8.2%	£120	Google search, Bing
Social media & messaging	Advertising	69,653	20%	21%	5.6%	£58	Facebook, Twitter
Free video	Advertising	30,977	30%	26%	8.1%	£38	YouTube
News	Advertising	17,524	6%	3%	4.4%	£12	Guardian Group, Sky news
Shopping	Transaction	1,652,769	17%	5%	4.1%	£1,024	Amazon, eBay
Entertainment	Subscription	67,994	16%	11%	4.9%	£50	Netflix, Spotify, BBC
Gaming	Transaction	88,516	10%	7%	4.4%	£58	Zynga
Online directories	Advertising	15,035	6%	5%	9.7%	£22	Rightmove, Gumtree
Combined sectors		**2,040,124**	**17%**	**8%**	**4.5%**	**£1,382**	

Source: Oliver & Ohlbaum estimates and analysis, based on data from AA/WARC, PwC Global Entertainment and Media Outlook, Enders Analysis (based on company data and AA/WARC), Zenith, Statista, the e-Commerce Foundation, company reporting and public filings. UK adjusted for CPI at 2019 prices by Ofcom. Figures are indicative only, with overlapping categories – and, as such, data presented may differ from other industry sources due to differences in sectoral definition or other methodological differences.

The UK online advertising sector has a 5-year compound annual growth rate of 20%

Advertising is the primary revenue source for most online properties. Brands have been continually moving advertising budgets online, shifting away from traditional media. Granular targeting using customer data, pay-per-view billing for advertisers and measurement of conversion rates are features of online advertising that other media cannot offer, driving growth and helping the total UK online advertising revenue reach around £15.7bn in 2019.[104]

Figure 2.2: Estimated share of UK online sectors by revenue stream: 2014-2019

Combined UK online sector revenue by revenue stream % share	2014	2015	2016	2017	2018	2019	Est. CAGR 2014-19
Total UK revenue - £m	55,420	63,431	72,506	80,833	85,549	92,009	11%
Advertising	12%	13%	14%	15%	17%	18%	20%
Subscription	2%	2%	2%	3%	3%	3%	23%
Transactional	86%	85%	83%	82%	80%	79%	9%
Public funding	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	2%

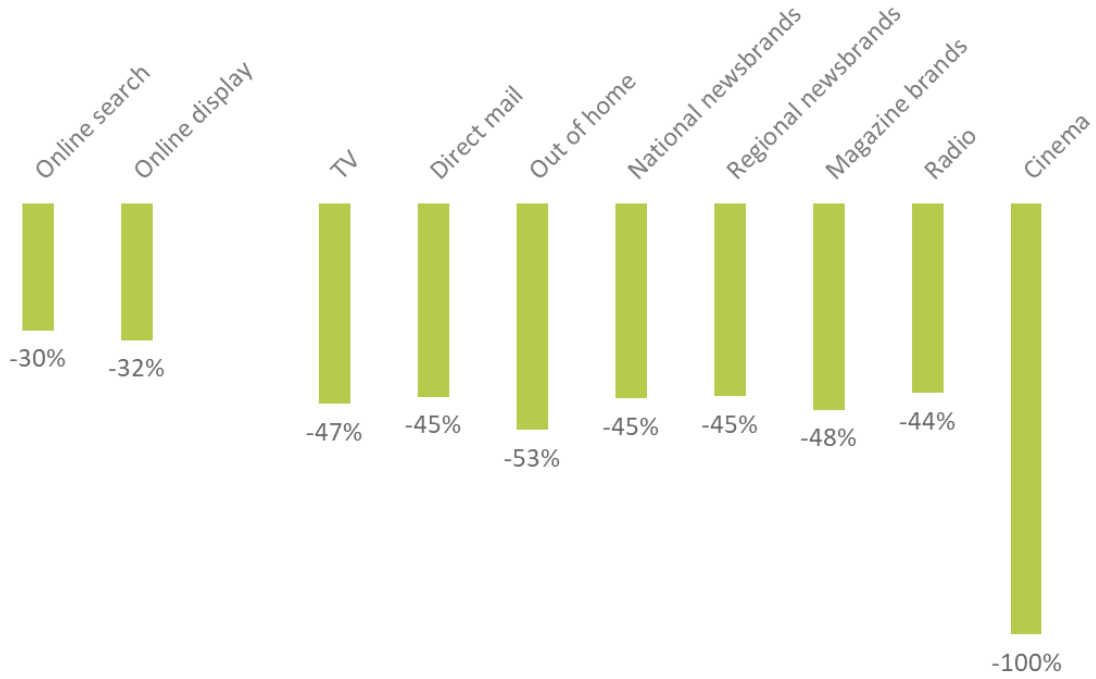
[104] 2019 IAB UK & PwC, Digital Adspend Study; AA/WARC Expenditure Report, 30 April 2020

Source: Oliver & Ohlbaum estimates and analysis, based on data from AA/WARC, PwC Global Entertainment and Media Outlook, Enders Analysis (based on company data and AA/WARC), Zenith, Statista, the e-Commerce Foundation, company reporting and public filings. UK adjusted for CPI at 2019 prices by Ofcom. Figures are indicative only, with overlapping categories – and, as such, data presented may differ from other industry sources due to differences in sectoral definition or other methodological differences.

Online advertising revenues forecast to decline less than offline in Q2 (and full year) 2020

While 2019 was another year of growth for online advertising, AA/WARC forecasts that the impacts of the coronavirus pandemic in 2020 will result in year-on-year declines for the first time. However, online advertising is forecast to decline less than offline advertising in 2020 and recover faster in 2021.[105]

Figure 2.3: Forecast advertising revenue change by channel: Q2 2020 % year-on-year revenue change



Source: AA/WARC advertising forecast, 30 April 2020. Note: WARC advertising figures include agency commissions. Sector advertising revenues are net of commission.

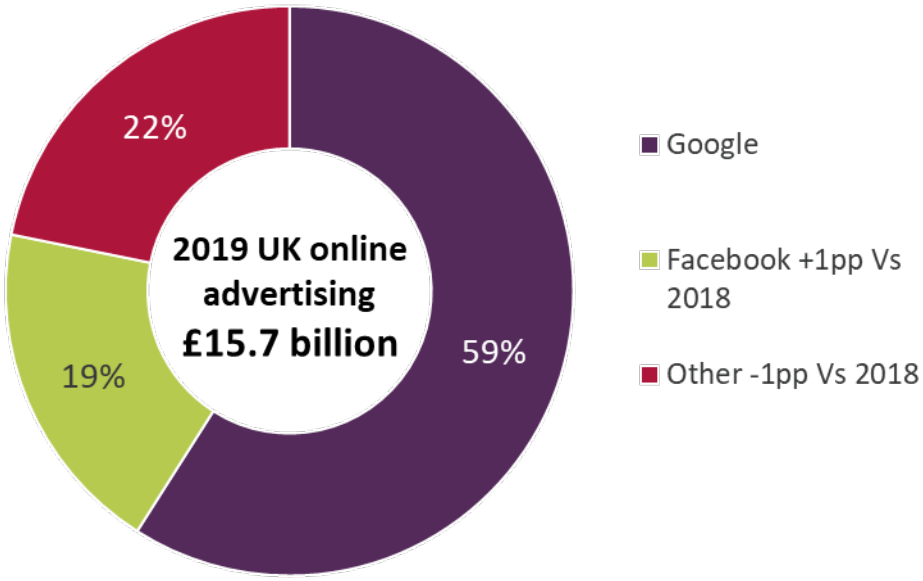
Google and Facebook properties had 78% of UK online advertising revenue in 2019, up 1pp since 2018

As outlined in our online consumer chapter, more than a third of measured time online was spent on Google-owned and Facebook-owned sites (39% in September 2019).[106] Their share of online advertising revenue is much higher – 78% combined share in 2019, up 1 percentage point since

[105] AA/WARC Expenditure Report, 30 April 2020
[106] Comscore MMX Multi-Platform, Age 18+, Sep 2018 and 2019, UK

2018.[107] Online advertising is typically segmented into search, display and classified. The CMA has found that Google accounts for 90% or more of total UK search advertising revenues, reflecting the high use of its Google search engine in comparison to other search providers. In the same report, the CMA noted that Facebook accounted for almost half of online display advertising revenues, again reflecting its high reach across its products.[108]

Figure 2.4: Estimated share of UK online advertising revenue



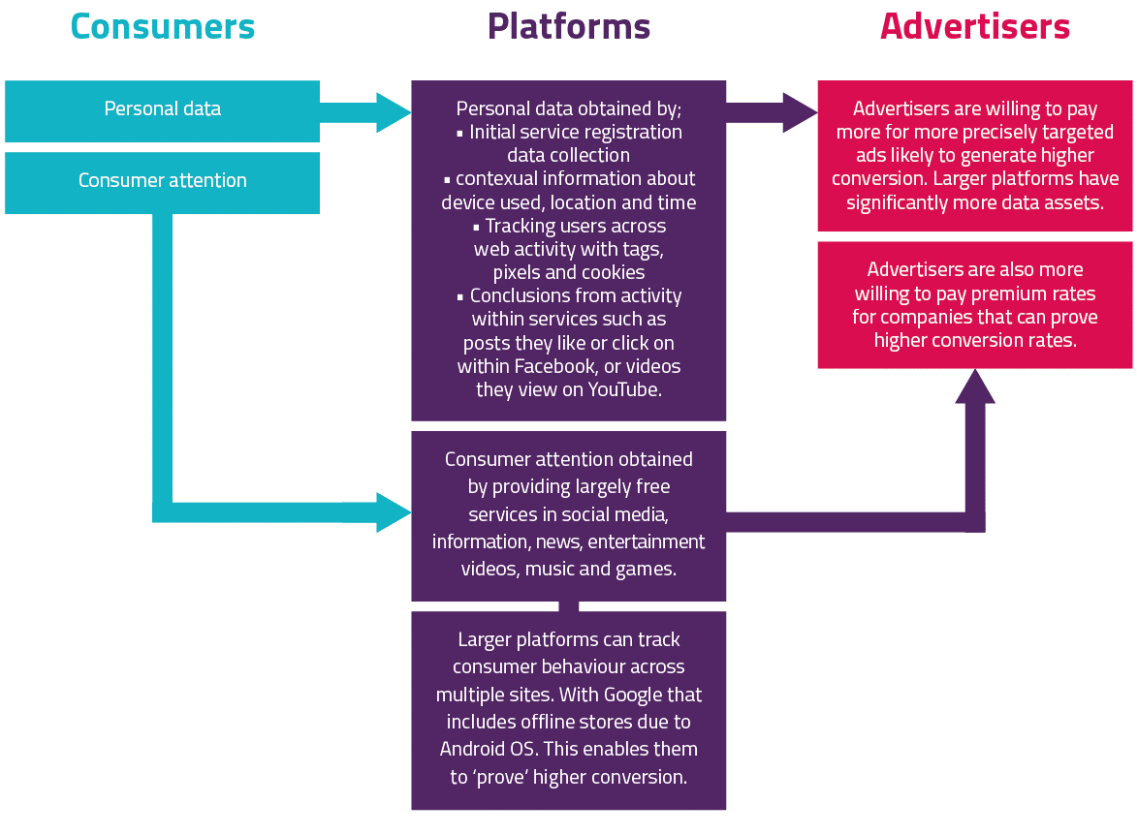
Source: Ofcom calculation, based on gross revenue data from AA/WARC and Oliver & Ohlbaum analysis and estimates as to company advertising revenues (informed by company reporting and public filings).

Personalised, targeted advertising can be sold at rates twice that of non-personalised advertising

The data that advertising platforms like Google and Facebook hold and collect on the users of its services, both through signed-in users engaging with their platforms and through cookies on third-party sites, provide opportunities for targeting consumers, as well as a mechanism for assessing the effectiveness of an advertising campaign. This is considered as highly valuable to advertisers and to publishers, with the CMA considering the results of a trial conducted by Google in 2019, indicating that non-personalised advertisements were sold for typically 50-65% less than personalised ones.[109] However, as outlined in the online consumer chapter, only 13% of UK adults are happy for companies to collect and use personal information for this purpose.

[107] In our 2018 report, we reported estimates of a combined 2018 share of 61%. We have updated our historical estimates due to improved methodologies in estimating company shares with the CMA providing more accurate insights (see next footnote).
[108] Competition & Markets Authority (CMA), Online platforms and digital advertising: Market study interim report, December 2019 (CMA, Interim report). The CMA will be publishing its final report on digital advertising in summer 2020. This will include information it has gathered from providers using its statutory powers and may differ from the estimates included here.
[109] CMA, Interim report: Annex E: The role of data, p.E38

Figure 2.5: Data and advertising value chain



Source: Ofcom analysis based on CMA interim market study report.

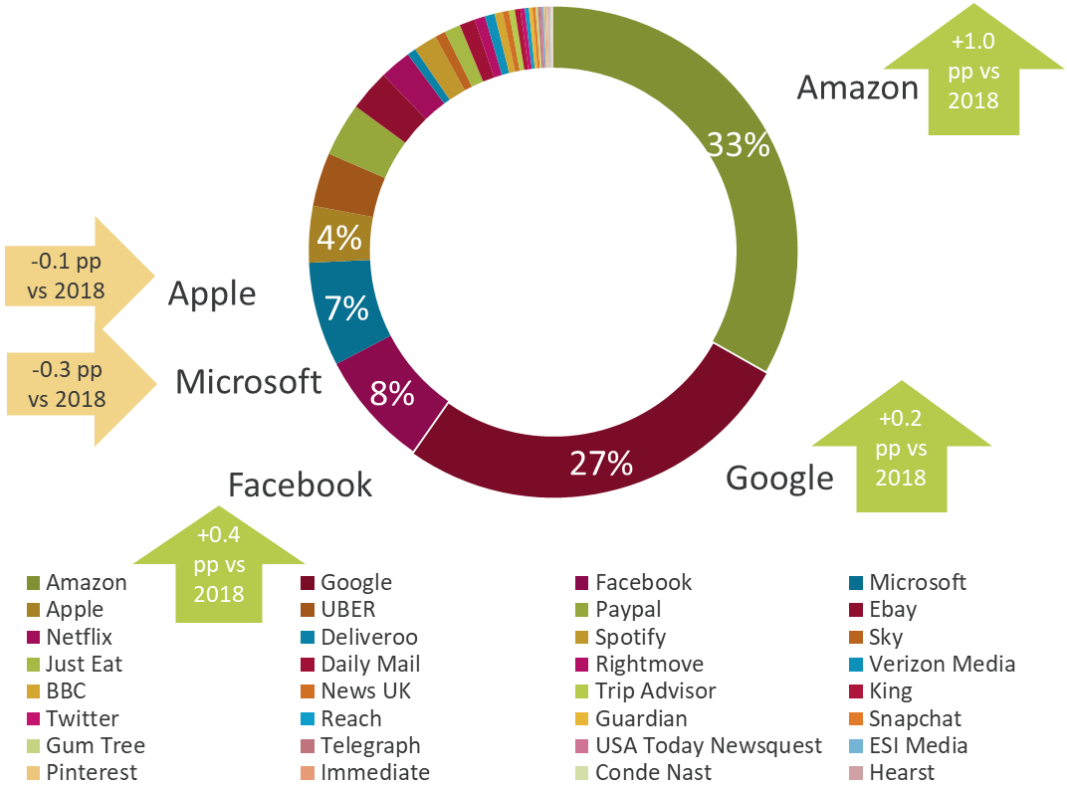
The five largest properties in the UK online market by revenue are Google, Amazon, Facebook, Apple and Microsoft (GAFAM)

Collectively, the GAFAM companies accounted for an estimated 76% of the total UK revenues from our top 40 online companies, up from 74% in 2018. Excluding GAFAM, the next 15 companies have a combined 22% revenue share. Each of these companies made over £100m in UK online revenues in 2019, though 11 of them lost share versus the previous year. Netflix, Deliveroo and Spotify each gained 0.1pp share.

The next 20 companies make up the last 2 percentage points of revenue for the top 40. Although TikTok started with almost no UK revenues in 2019, strong subscriber growth in late 2019 and the introduction of an advertising revenue stream, in addition to the existing in-app purchase revenue stream, makes further growth in 2020 very likely. ByteDance (TikTok's owner) plans to recruit an additional 10,000 people globally, due to growth.[110]

[110] FT.com, ByteDance looks to hire 10,000 thanks to TikTok boom, 15 April 2020

Figure 2.6: Estimated UK online revenue share of top 40 UK online properties: 2019



Source: Oliver & Ohlbaum analysis based on reported company revenues (via company reporting and/or public filings) and estimates of UK-derived revenue.

Notes: Top 40 companies chosen based on size and relevance to online consumer services revenues. To ensure comparability of solely online revenues, hardware sales are excluded (e.g. for Apple, Google, Microsoft, Samsung) and only online revenues are included for Amazon.

Larger companies typically generate more revenue per user than smaller ones

Although there have been successful launches, at least in user adoption terms, over the past two years, the revenues of the entrants to individual sectors remain far smaller than the established operators. TikTok, which launched in the UK in August 2018, reached 5.4 million users in January 2020, rising to 12.9 million in April 2020,[111] although it has only recently launched an advertising platform, [112] so historical revenues remain negligible.[113]

Disney+ brought forward its UK launch to March 2020 and was downloaded 5 million times on the first day. As outlined in our online communication services chapter, use of video conferencing service Zoom has increased dramatically, and in the first quarter this year, total revenues were $328.2m (£257m), up 169% year on year.[114]

[111] Comscore MMX Multi-Platform, TikTok.com, Age: 18+, Apr 2020, UK
[112] Forbes, TikTok is Preparing for An Ad War, 5 May 2020
[113] Oliver & Ohlbaum estimate UK online 2019 revenues for TikTok at £3m, Facebook at £3bn.
[114] Zoom Reports First Quarter Results for Fiscal Year 2021, 2 June 2020

Figure 2.7: Estimated 2019 UK revenues of market leaders and challengers in social media, shopping and search

Source: Oliver & Ohlbaum analysis based on reported company revenues and estimates of UK-derived revenues (drawing on company information and/or public filings). Ofcom estimate of Bing's revenue, calculated by applying UK share of total Bing searches to global Bing revenue, $7.6bn. [115]

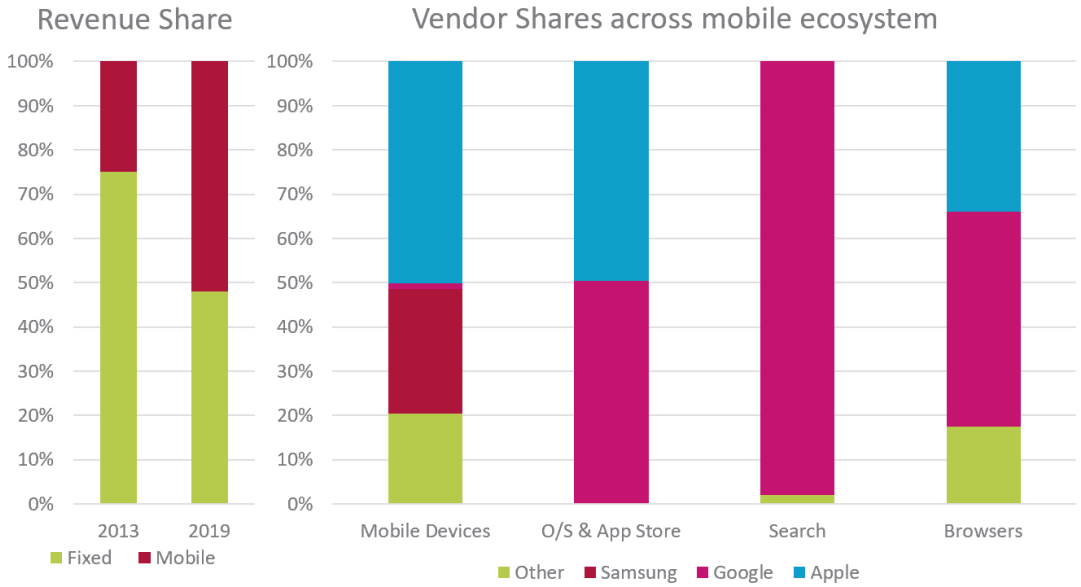
Mobile online access now generates the majority of the UK's online revenue

With the proliferation of high-performance smartphones, mobile has steadily grown its share of online revenues reaching 52% of total online revenues. [116]

[115] UK Bing share of total visits from SimilarWeb cited in Bloomberg, Bing's Not the Laughing stock of Technology Anymore, 30 May 2019

[116] 'Total' refers to the combined total of the eight sectors included in this report.

Figure 2.8: Fixed and mobile revenue shares of combined UK online sector revenues for 2013, 2019; 2019 UK vendor shares across the mobile ecosystem



Source: Oliver & Ohlbaum, fixed and mobile revenue shares and search. StatCounter for mobile device, Appstore and browsers.

We consider four main aspects to the mobile ecosystem:

Mobile Devices: Measured by device share of smartphones, Apple leads with about 50% share. Samsung is the second placed competitor, with numerous smaller players thereafter. Overall, the UK smartphone market is relatively saturated and concentrated in the high-end segment which enables widespread and early adoption of new mobile services. There has been no significant challenge to Apple and Samsung in recent years with the nearest challenger being Huawei at 10%.[117]

Mobile O/S and app stores: Apple and Google each have around 50% market share,[118] and their two app stores covering each customer base entirely. The emergence of a third mobile operating system appears unlikely given the consumer need for apps to realise the value of the device. For app providers it is very difficult to reach consumers or provide an easy consumer payment experience without going through these two stores.

Search: Measured by revenue share of mobile search, Google has 98%.[119] Bing maintains a small market presence and some search engines offer differing features, such as privacy with DuckDuckGo. Ultimately the scale enjoyed by Google enables better learned search responses and greater monetisation options.

Browsers: Measured by browser share of total search visits, Google leads with 49%, Apple has 34%.[120] Safari, Apple's browser, is pre-installed on Apple smartphones which encourages consumer

[117] Statcounter Global Stats, Mobile Vendor Market Share United Kingdom May 2019 – May 2020 (accessed June 2020)
[118] Statcounter Global Stats, Mobile Operating System Market Share United Kingdom May 2019 – May 2020 (accessed June 2020)
[119] Ofcom commissioned research from O&O: search sector analysis
[120] Statcounter Global Stats, Browser Market Share United Kingdom May 2019 – May 2020 (accessed June 2020)

adoption. Even so, Apple's share of the browser market is less than its share of the device market which implies that Apple users who prefer Google Chrome will download and use the app rather than Safari.

Expansion and diversification

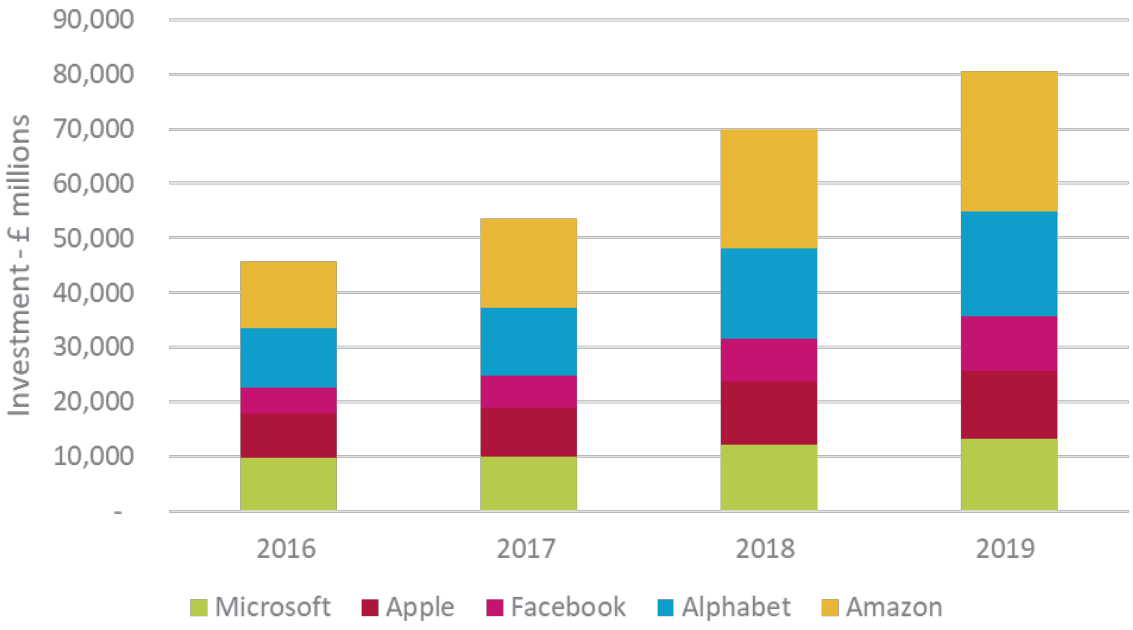
Established online companies are taking steps to provide products and services in sectors other than their core sectors, or the ones that they are best known for.

This section looks at the steps that the largest internet firms have taken in research and development, and through acquisitions of smaller companies. It then highlights some of the areas that they are now operating in, including health and financial services.

The five GAFAM companies invested record levels of R&D in 2019, exceeding £80bn globally

£80bn, for context, is more than twice the annual income of all universities in the UK in 2018/19.[121] In many cases, investment is focused on entering new sectors, whether that be existing sectors but new to the company, or emerging new sectors.

Figure 2.9: Global R&D investment by GAFAM companies



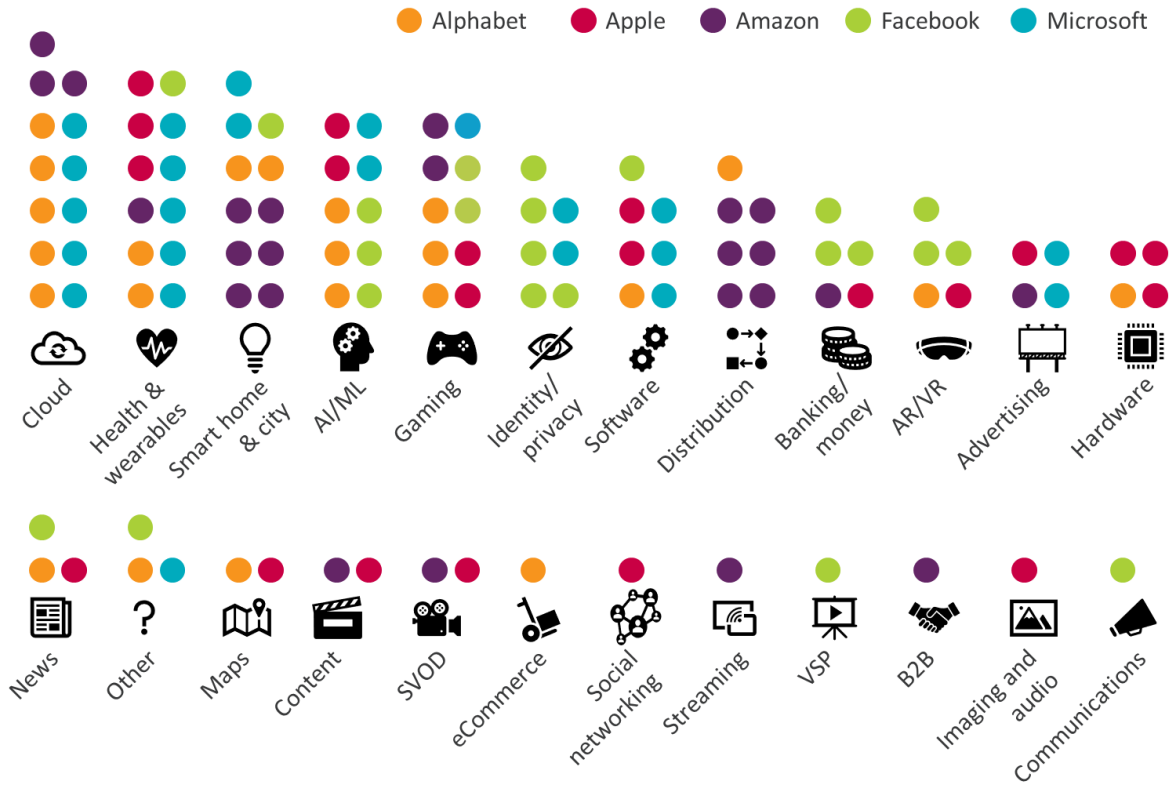
Source: Company financial reports sourced via CapitalIQ Service, 2020 S&P Global Market Intelligence LLC. Ofcom conversion to from US$ to GBP£.

[121] £38bn UK University income for 2018. HESA, Income of HE providers by location and category 2014/15 to 2018/19, April 2020.

Core business revenue is funding acquisitions into other areas of the online landscape

The major platforms announced 55 deals in 2019, up by two since 2018. Cloud, health and wearables, smart home and city, artificial intelligence and machine learning, and gaming are the top five areas of investment, accounting for more than half the total number of deals and major product announcements.

Figure 2.10: Number of companies' acquisitions and product launches, by sector: 2019 and Q1 2020



Source: M&A deals sourced via CapitalIQ Service, 2020 S&P Global Market Intelligence LLC. R&D based product announcements from company press releases. Ofcom allocation into categories.
Notes: Category allocations are subjective and open to interpretation. E.g. most AI/ML deals are cloud based. Each deal is assigned to one category only.

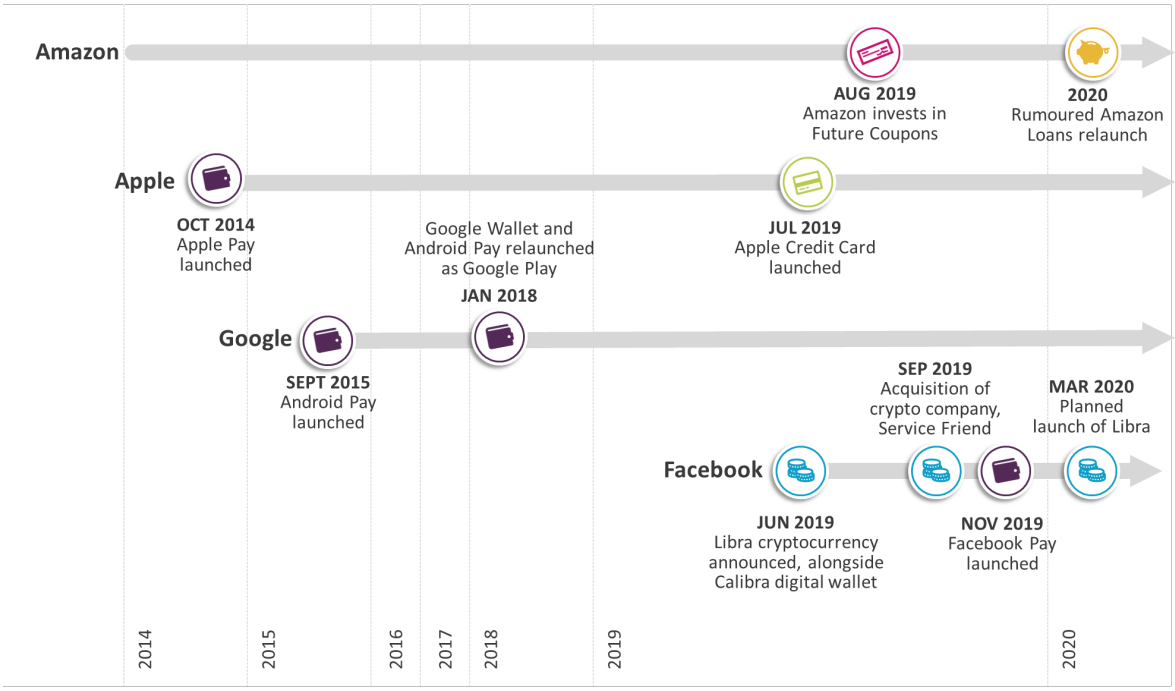
Online companies are increasing their interest in financial services and payments

Apple and Google have been offering payment products for the past five years, their Apple Pay and Google Pay products being pre-installed on mobile devices using these companies' iOS and Android platforms. Apple and Google services allow users to store their credit card details and use their mobile devices as a payment card, or to use the details stored at the point of purchases on online platforms. Facebook has announced that it intends to launch a crypto-currency called Libra that

would be a digital version of established currencies, like the US dollar, rather than being entirely separate from currencies, as most crypto-currencies are.

New online-only banks are becoming more established in the UK. Companies such as Monzo and Starling, which offer banking services entirely through mobile apps without physical outlets, are converting customers from traditional banking. Data from the Current Account Switch Service for 2019 shows that 20,000 current accounts were switched to Monzo and Starling through its service in Q3 2019.[122]

Figure 2.11: Expansion of platforms into financial transactions



Source: Company Press Releases and news sourced via CapitalIQ Service, 2020 S&P Global Market Intelligence LLC.

Amazon's emerging advertising business grew by over 40% in 2019 to reach £11bn globally

As highlighted earlier, Google and Facebook increased their revenue share of UK online advertising in 2019, up by 1 percentage point to 78%. However, Amazon is making inroads into this sector, growing faster than the market from a very low base and reaching £11bn global advertising revenues in 2019 which is a 4% share of global online advertising.[123]

Amazon's advertising is mainly paid search, which merchants need to invest in to improve visibility on the platform. As the business grows, the type of advertising available is expanding to include brand awareness and storytelling campaigns.[124]

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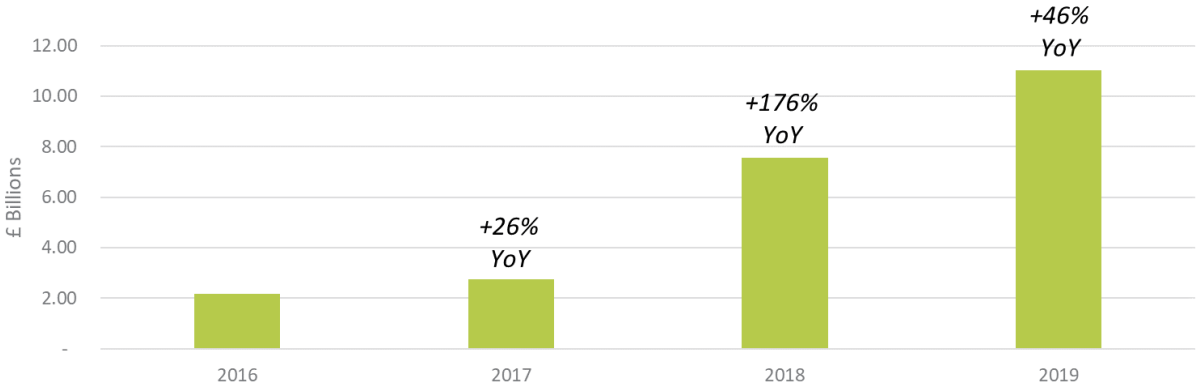
[122] Pay.UK, Current Account Switch Service Dashboard (Issue 25)
[123] Amazon.com, Inc.'s 2019 10-K, converted from US$ to GBP£ by Oliver & Ohlbaum.
[124] Digiday, 'Increasingly an awareness platform': Amazon advertising is moving beyond search, 3 February 2020

Figure 2.12: Amazon's global other revenue (mainly advertising) converted to GBP



Source: Amazon financials. Ofcom currency conversion and graphing

Notes: in US$ basis, year-on-year growth in 2019 is 40%, compared to the GBP£ growth of 46%.

Google revamped Shopping in 2019 focusing on 'Buy on Google' to boost online retailing revenues

Google Shopping, formerly Google Product Search, Google Products and Froogle, was revamped in 2019 with Google Express, the delivery service, also folded into the new service. It is building its e-commerce revenue stream by leveraging search advertising. The ability for users to 'Buy on Google' is indicated by a shopping cart on shopping ads. There is little visibility of revenue, but Google cited "a 4x uptick in the number of US merchants participating in our Shopping Actions program" in Q4 2019.[125] A removal of listing fees in April to support merchants in response to the coronavirus pandemic further strengthens Google's newest e-commerce platform play.[126]

Google, Amazon and Microsoft are also active in cloud computing, which is rapidly becoming the backbone supporting the online world and businesses generally

Cloud computing is a technology-based change within the IT sector, leading to firms across many sectors moving their IT to a third-party supplier. By hosting computer systems' resources remotely, cloud computing gives companies access to higher levels of computing power and greater volumes of data storage, with lower levels of investment, than if they were to build the capabilities themselves, because capex investment shifts to opex. The market is continuing to grow strongly, with increases in the number of companies adopting it, and in the number of applications used by each company. The UK is a leading adopter of cloud computing, with the domestic market estimated at over £21bn in 2019.[127]

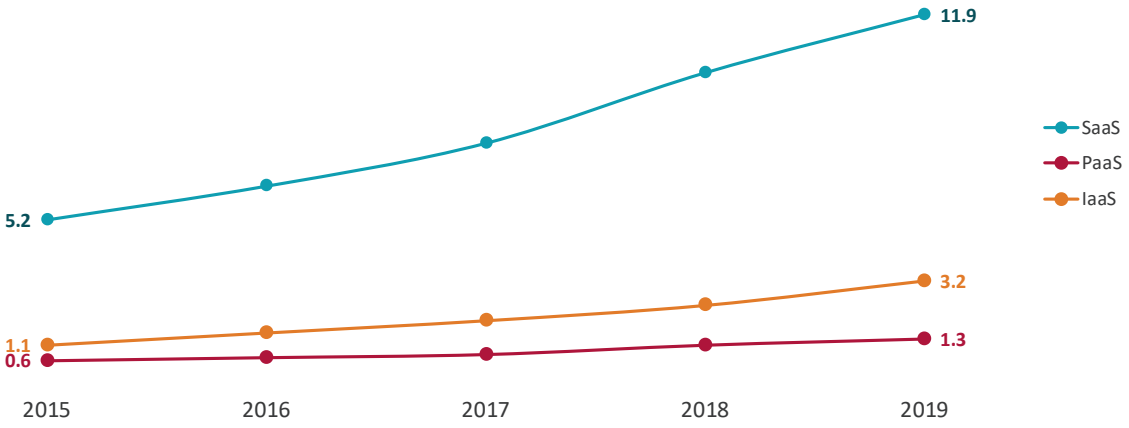
The market can be broken down into three main segments:

[125] Alphabet Q4 2019 Earnings Call, 3 February 2020
[126] Bloomberg, Google Makes Listing Products on Its Shopping Service Free, 21 April 2020
[127] Mintel, Cloud Computing – UK – August 2019 report

- **SaaS:** Software as a Service. An application where the management of software resources and/or data is done by a third-party hosted on cloud infrastructure. The application is typically supplied on a subscription or per-use basis. For example: Office365, Salesforce, SAP Concur.
- **PaaS:** Platform as a Service. A virtual environment that enables the development, management and running of applications. For example: Google App Engine.
- **IaaS:** Infrastructure as a Service. The provision of virtualised computing resources; typically used for analytics and large data storage. For example: Amazon Elastic Compute Cloud.

Software as a Service (SaaS) is the segment generating the highest revenue in the UK, and revenue from these services increased by 19% in 2019. Microsoft's UK-generated subscription revenues, which includes its Office 365 Commercial SaaS product, grew by 12% year on year in 2019, contributing to this growth.[128]

Figure 2.13: UK cloud revenue streams (£bn)



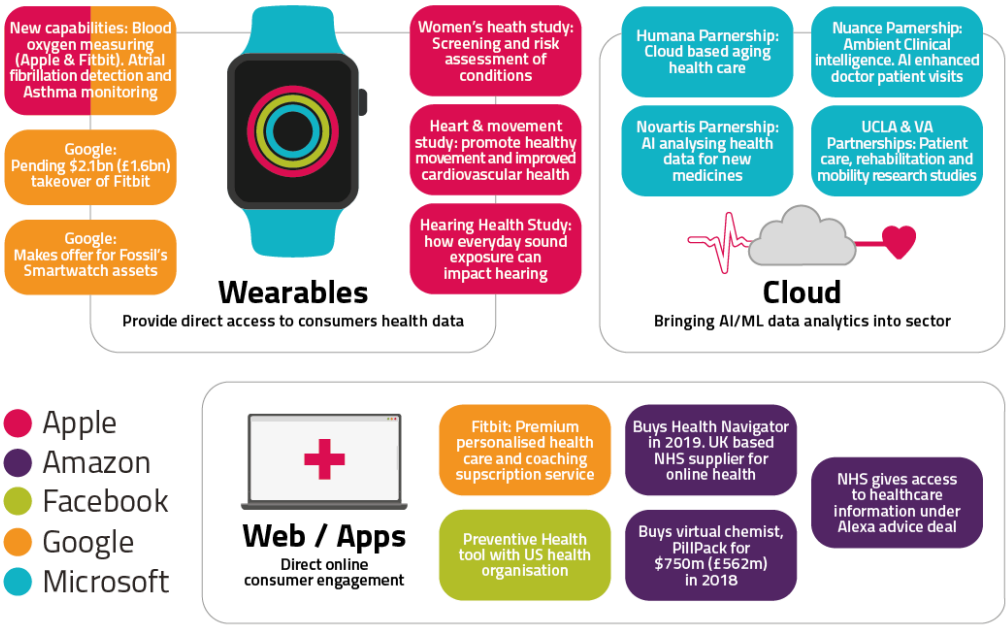
Source: MBD Estimates via Mintel.

The health sector is also seeing increased interest from the major platforms

With cloud computing allowing for deeper analysis of larger datasets, health services are also an increasing area of interest for major platforms, including through Apple Watch, Fitbit and partnerships with health services in the UK, as outlined in the graphic below. As covered in our Consumer chapter, smart watches, which can process biometric data, are used by around one in five adults in the UK. More recently, the relationship between health services and platforms has been played out in negotiations around the terms for processing user data through coronavirus contact-tracing apps.[129]

[128] Source: O&O UK estimates for calendar year 2019
[129] BBC News, NHS rejects Apple-Google coronavirus app plan, 27 April 2020

Figure 2.14: Platform expansion into health sector, 2018 to March 2020



Source: Ofcom analysis of M&A, partnership, product developments, sourced via CapitalIQ Service, 2020 S&P Global Market Intelligence LLC.

Sector overviews

Overview of our methodology

Throughout this report, we present a range of industry data, including global revenue figures and an estimate of the UK share of the global market, as well as company revenues for the top UK online properties in eight key online sectors. These are: search, social media and messaging, free video, news, shopping, entertainment, gaming and online directories. Estimates of company revenues for the top UK online properties are also provided.

Their selection, and the top 40, are guided by their relevance to communications markets, levels of UK consumer adoption and UK market size, and potential to impact other sectors regulated by Ofcom. Top-line sectoral revenue data is broken down by device type and revenue segment.

Ofcom engaged strategy consultants Oliver and Ohlbaum ('O&O') to provide estimates of revenues derived in selected sectors, by device type and business model, and to provide high-level comparisons of the UK market with other key international markets.

Data presented may differ from other estimates in the industry due to differences in sector definition or other methodological differences. This is not intended to act as an economic analysis exercise, and the categories in this report are subjective and often overlapping.

Underlying UK revenue figures have been adjusted for CPI (2019) in accordance with standard Ofcom practice. All advertising revenue data is presented net of agency commission, unless stated otherwise. More details on methodology are available in the annex.

Figure 2.15: Estimated UK online market revenue, with leading online sectors' share of revenue and growth rates: 2014-2019

	2014	2015	2016	2017	2018	2019	Est. CAGR 2014-19	As a % global market (2019)
Total UK revenue - £m	55,420	63,431	72,506	80,833	85,549	92,009	11%	5%
Search	7%	7%	8%	8%	8%	9%	15%	8%
Social media & messaging	2%	2%	3%	3%	4%	4%	32%	6%
Free video	1%	1%	1%	2%	2%	3%	49%	8%
News	1%	1%	1%	1%	1%	1%	4%	4%
Shopping	81%	80%	78%	77%	76%	74%	9%	4%
Entertainment	3%	3%	3%	3%	4%	4%	16%	5%
Gaming	4%	4%	4%	4%	4%	4%	10%	4%
Online directories	1%	2%	2%	2%	2%	2%	13%	10%
Total	100%	100%	100%	100%	100%	100%	11%	5%

Source: Oliver & Ohlbaum estimates and analysis, based on data from AA/WARC, PwC Global Entertainment and Media Outlook, Enders Analysis (based on company data and AA/WARC), Zenith, Statista, the e-Commerce Foundation, company reporting and public filings. UK adjusted for CPI at 2019 prices by Ofcom. Figures are indicative only, with overlapping categories – and, as such, data presented may differ from other industry sources due to differences in sectoral definition or other methodological differences.

Search sector

The UK has one of the largest search advertising markets in Western Europe

The UK accounted for a 7% share of the global search market, significantly larger than other online sectors which average 4% share of the global market.[130] This reflects relatively high advertising spend in the UK and high levels of online shopping. Mobile revenues overtook desktop in 2018 and increased their lead in 2019, with mobile generating £3.8bn and desktop £3bn.[131]

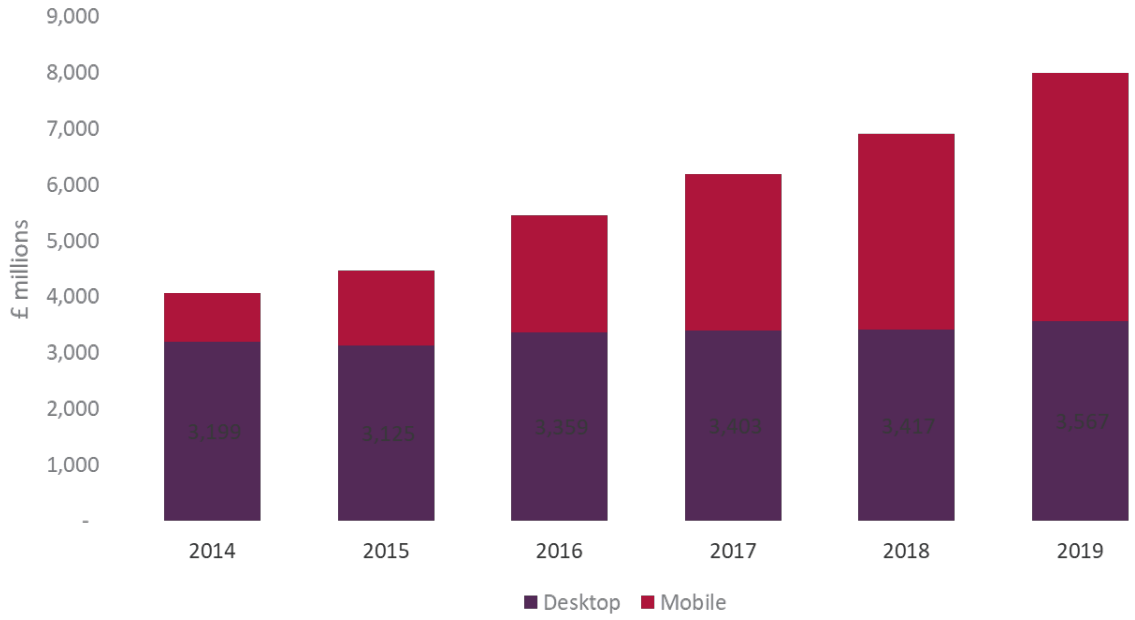
Google has maintained a 90% share of search market revenues in 2019

Other search engines have limited UK use or revenue generation. Bing's UK reach is 47% to Google's 86%, and in UK revenue terms, Google is twenty times bigger. DuckDuckGo, the privacy-based search engine, is outside the UK top ten search engines,[132] but it shows privacy-based search can

[130] Ofcom calculation, based on analysis and estimates provided by Oliver & Ohlbaum
[131] Oliver & Ohlbaum estimates and analysis (based on data from AA/WARC)
[132] See use of search in the online consumer chapter

work via an affiliate programme with Amazon and eBay. When users access these platforms via the DuckDuckGo search engine, and then make a purchase, DuckDuckGo receives a commission.[133]

Figure 2.16: Estimated net UK online search sector revenues, by device type: 2014-2019



Source: Oliver & Ohlbaum analysis and estimates (based on revenue data from AA/WARC). Adjusted for CPI at 2019 prices by Ofcom.

Social media and messaging sector

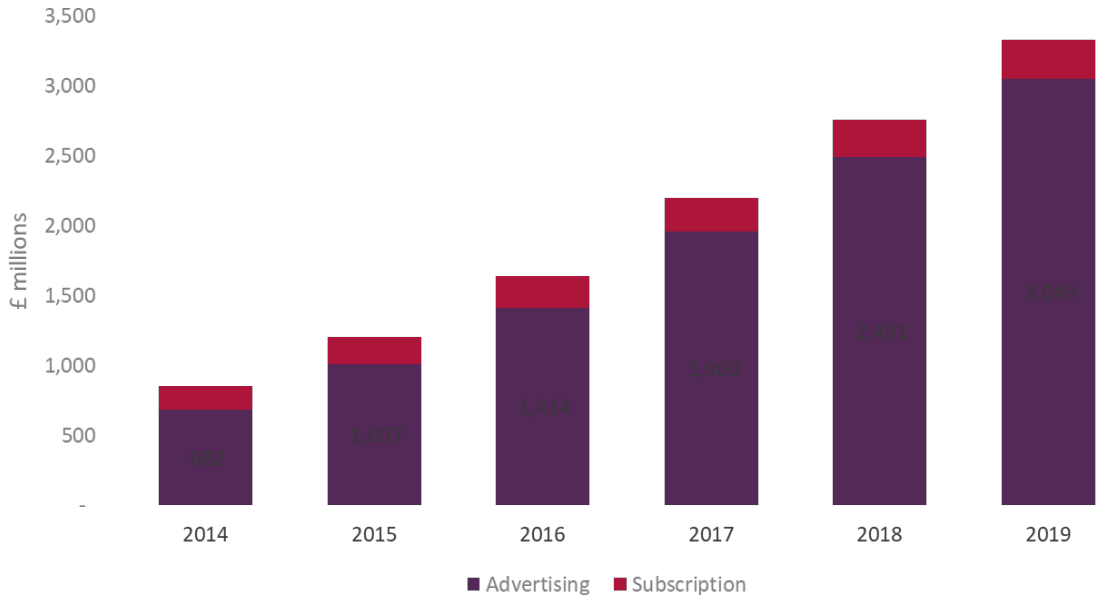
Social media continues long-term growth trend in 2019, with 21% year-on-year growth

Social media in 2019 continued to show strong growth with revenues up 21% year on year. The number of users, time online per user,[134] and revenues per capita are all increasing.[135] This growth continued into early March this year when impacts of the coronavirus pandemic on brands, reducing advertising spend, began affecting pricing and volumes.

A key underlying driver of this sustained growth is that brands continue to increase advertising budgets in this channel due to higher returns from more targeted advertising.

[133] DuckDuckGo Help, Advertising and Affiliates as of June 2020
[134] See use of social media in the online consumer chapter
[135] Ofcom calculation, based on analysis provided by Oliver & Ohlbaum. 2019 per capita revenue £50 vs. £41 for 2018

Figure 2.17: Estimated net UK online social media and messaging sector revenues by revenue stream



Source: Oliver & Ohlbaum analysis and estimates (based on revenue data from AA/WARC). Adjusted for CPI at 2019 prices by Ofcom.

Free video sector

The UK has the largest free video sector by revenue in Western Europe, with France second and Germany third

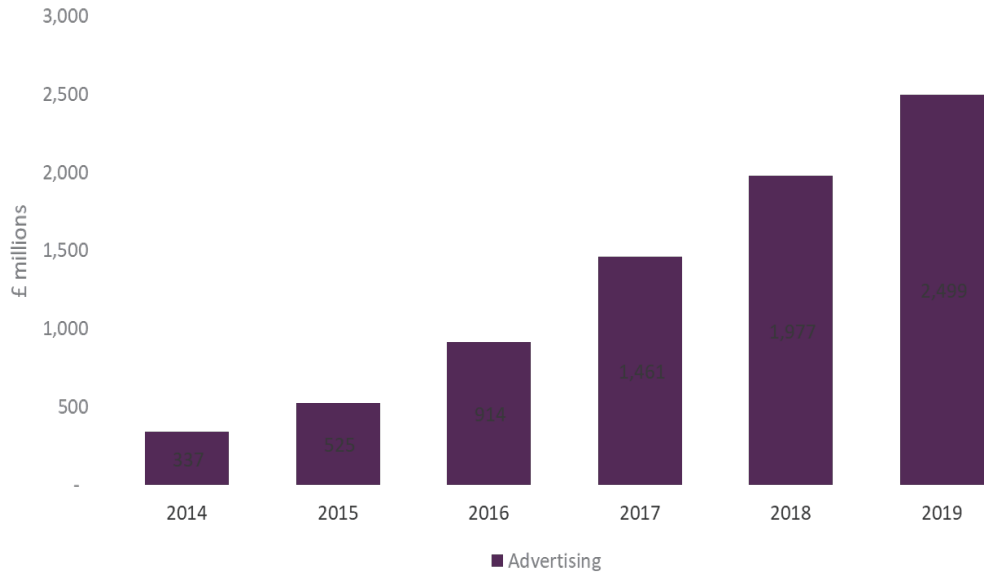
Free video platforms are a category of online video service where users can upload and share videos. They carry short-form, user-generated and/or other video content, excluding BVOD, SVOD and EST video services.[136]

The free video sector was the fastest-growing UK sector in 2019 (up 26% year on year) and over the past five years (49% CAGR). YouTube is by far the largest example in this sector; new entrants such as TikTok come with innovative service offerings attracting diverse consumer segments and retaining users' attention. A fuller examination of these kinds of services is available in our chapter on video-sharing platforms.

Free video platforms are primarily reliant on online display advertising, which according to AA/WARC is forecast to reduce by over 30% in Q2 2020. It is forecast to be 13% down in 2020, compared to 2019, though expected to return to growth in 2021.[137]

[136] EST refers to 'Electronic sell-through', a type of TVoD (transaction video-on-demand) service, where consumers can pay to download a piece of content to own.
[137] Advertising Association/WARC Expenditure Report, April 2020

Figure 2.18: Estimated UK-generated free video revenues: 2014-2019



Source: Oliver & Ohlbaum estimates and analysis, based on data from PwC Global Entertainment and Media Outlook. UK revenue data adjusted for CPI at 2019 prices by Ofcom. Full definition provided above. Data presented may differ from other industry sources due to differences in sectoral definition or other methodological differences.

An increasingly prominent means of monetisation for users and platforms, although still very small compared to advertising revenues, are tipping and donations, where platform members award favoured content and influencers with virtual accolades. These accolades can be purchased for cash, earned via certain activities or be allocated in limited quantities by the platform host. The recipients can then exchange them for virtual or physical goods, and often for cash. Examples include coins and diamonds on TikTok, and donations and cheers on Twitch.

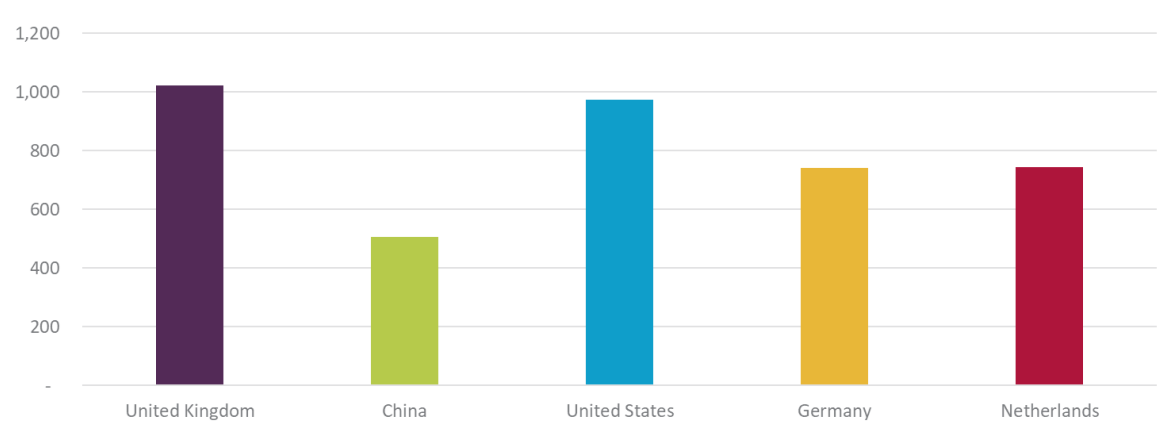
Shopping sector

On average, over £1,000 for every adult in the UK was spent on online shopping in 2019

The UK has the largest e-commerce market in Western Europe and is higher than China and the US in per capita terms. The online share of total UK retail sales is among the highest internationally, generally just under 20% in 2019, though as a result of the coronavirus pandemic, at 30% in April 2020;[138] the biggest spend category is fashion, followed by electronics and media.[139] The reach of online shopping increased to 99% of online adults in March 2020, and year-on-year per-capita spend increased in 2019 by 5% to £1024.

[138] Office for National Statistics, Internet sales as a percentage of total retail sales (ratio) (%), last updated 22 May 2020
[139] Oliver & Ohlbaum analysis and estimates (based on data from the eCommerce Foundation and Statista)

Figure 2.19: Estimated 2019 online shopping per capita spend, by selected country (£)



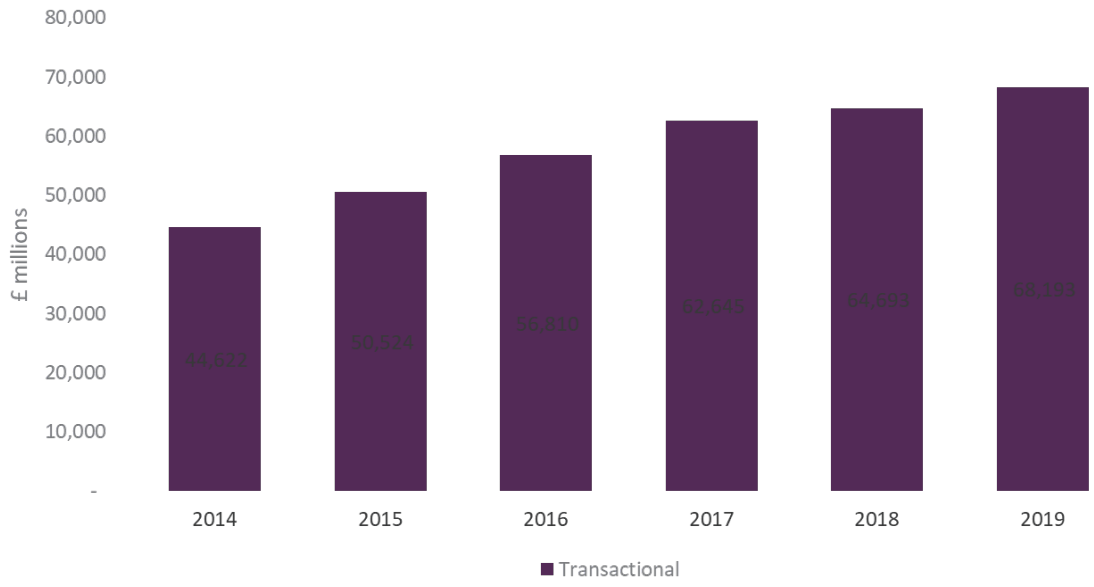
Source: Ofcom calculation, using estimated revenue data provided by Oliver & Ohlbaum (drawing on data from the eCommerce Foundation and Statista), United Nations population data.

Amazon has by far the largest revenues, with one-day shipping underpinning its Amazon Prime service and acting as a key source of competitive advantage. It has committed billions more in investment to enhance its delivery capabilities[140], investing across the supply chain with recent examples including the takeover of Two Pinnacle logistics[141] to strengthen air freight supply, and investment in warehouses in Ireland to prepare for Brexit,[142] among other initiatives.

Amazon is expanding its financial capabilities beyond Amazon Pay to generate an additional revenue stream on top of sales commissions. These include merchants' shops for loans,[143] investments in bricks and mortar retailing,[144] a new payment functionality with Alexa, corporate loyalty cards and palm readers.[145]

[140] PYMNTS.com, Amazon Hits 150M Prime Users And Commits Billions To One-Day Shipping, 31 January 2020
[141] Yahoo! Finance, Amazon Plans Takeover Of Two Pinnacle Logistics Air Cargo Operations, 20 January 2020
[142] Benzinga, Amazon Searching For Ireland Warehouse As Brexit Threatens Open Border With UK, 19 December 2019
[143] Yahoo! Finance, Amazon Testing Online Platform To Let Merchants Shop For Loans: Report, 4 February 2020
[144] Yahoo! Finance, Amazon To Offer Hot Food, Espresso, Fountain Soda In California Convenience Store, 30 January 2020; S&P Global, Amazon Fresh grocery delivery picks up steam going into 2020, 29 January 2020; Chemist and Druggist, Amazon files trademark application for 'Amazon Pharmacy' in Australia, 27 January 2020
[145] Business Today, Amazon gets anti-trust nod in India for Future Coupons investment, 29 November 2019; Benzinga Amazon Alexa To Enable Fuel Payments At Gas Stations, 13 January 2020; S&P Global, Report: Amazon developing palm-scanning payment method, 20 January 2020

Figure 2.20: Estimated UK online shopping revenue: 2014-2019

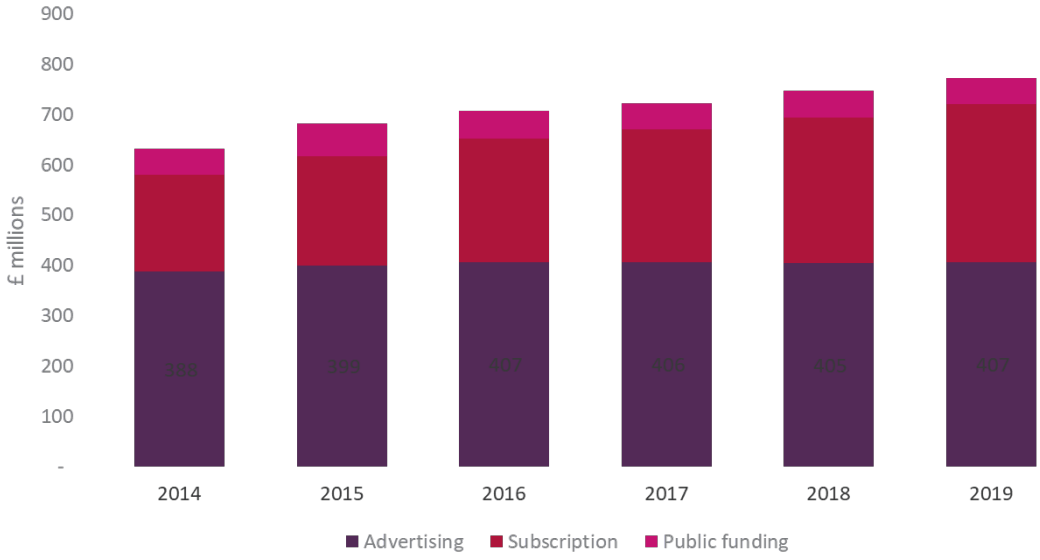


Source: Oliver & Ohlbaum analysis and estimates (based on data from the eCommerce Foundation and Statista). Adjusted for CPI at 2019 prices by Ofcom. Data presented may differ from other industry sources due to differences in sectoral definition or other methodological differences.

News sector

The news sector is defined here as including digital activity and revenues of news brands and display advertising carried on broadcasters' news websites. It excludes consumer digital magazine publishing activity, which is captured in the entertainment sector.

Figure 2.21: Estimated online news sector revenues, by revenue stream: 2014-2019



Source: Oliver & Ohlbaum estimates and analysis. Based on data from PwC Global Entertainment and Media Outlook, though PwC not the sole provider of data (O&O's estimates are included above). Adjusted for CPI at 2019 prices by Ofcom.

Data presented may differ from other industry sources due to differences in sectoral definition or other methodological differences.

The impacts of the coronavirus are felt more strongly by offline revenue sources for news companies

Advertisers have increasingly shifted marketing spend away from print publications to their digital counterparts. This shift will accelerate due to the coronavirus outbreak as offline channels are more impacted than online channels.

All traditional news companies have some form of online presence and must evaluate their optimum strategy for co-existing with GAFAM companies and their plans for online news. As detailed in last year's Online Nation report, platforms are a major source of traffic;[146] however, by offering free aggregated news services they limit publisher revenue options.

News companies are looking to retain revenues that have migrated online

As well as exploring revenue opportunities within platforms' ecosystems, publishers are looking to compete for a greater share of the advertising that their content generates, and news publishers are developing joint ventures to offer a single platform from which to buy advertising inventory across multiple publications and to offer advertisers greater levels of reach. An example of this is the Ozone Project in the UK, involving The Guardian, News UK, broadcasters' and magazine sites. In 2019, the Project unveiled a partnership with OpenX – a programmatic advertising platform – to enhance its data and targeting capabilities.

The Cairncross review states that online evolution has "begun to have a serious impact on the main sources of high-quality news".[147] Facebook, Google and Apple have responded by expanding their news services, and while they approach it differently, each claims that these new approaches will be beneficial for content owners. Some publishers report that the new approaches have had no or minimal benefit.[148]

Subscription services are the primary driver of online news sector revenue growth

Subscription services grew at a 12% compound annual growth rate (CAGR) between 2014 and 2019, significantly more than advertising's 2.5% CAGR.[149] In November, the Association for Online Publishing (AOP) and Deloitte found that digital advertising revenues had declined, but non-advertising revenues had increased. Online video and subscriptions increased by 20% and 14% respectively. In Q2 2019, responding to a sample survey of 21 UK digital publishers, comprising 15

[146] Online Nation 2019, pp.46-47
[147] The Cairncross Review: A Sustainable Future for Journalism, 12 February 2019
[148] Digiday, 'Hard to back out': Publishers grow frustrated by the lack of revenue from Apple News, 25 February 2019; Digiday, Six months in, Facebook News remains a question mark to publishers, 11 May 2020
[149] O&O sector analysis

B2C publishers and six B2B publishers, 88% of respondents reported non-advertising revenue growth as a high-priority focus.[150]

One option is to have a full paywall where a publication's content is available only through payment, either on a per-article or subscription basis, e.g. The Times (UK). Another is the metered paywall ('freemium'): where a publication offers access to a limited number of articles (or only certain sections of an online publication) before a user must take out a paying subscription, e.g. The New York Times.

Other revenue streams continue to be trialled with varying degrees of success

Donations: The Guardian is a primary example, with donations from over a million readers in 2018 forecast to grow to 2 million in 2022. The drivers for donations are investigative stories, emotional political moments, and campaigning issues such as climate change. Emotional reader stories such as the Thailand cave rescue can drive double or triple the usual number of conversions.[151]

Micropayments: Archant, the UK-based news publisher, has introduced micropayments on a trial basis across some of its titles (although it dropped them from its publication The New European after a year). City AM has also introduced micro-payments, working with micro-payments provider Satoshipay. Blendle, the Dutch news aggregation service launched in 2014, differentiates itself by offering users the chance to purchase on a per-article basis from a variety of news publications. Users have a digital wallet from which micropayments are deducted. It is currently available in Germany, the Netherlands and the United States (in BETA). Nevertheless, in 2019 Blendle announced a shift to focus on premium subscriptions, as the micropayment model had failed to generate a profit for the aggregator.[152]

Syndication: This is where one publisher receives payment from another when its content is featured in a third-party publication, although it is not a significant revenue stream. A prominent example is PA Media (formerly the Press Association)

[150] Association for Online Publishing – AOP, AOP data finds digital advertising revenues are in decline, but non-advertising revenues are increasing, 20 November 2019
[151] Digiday, Reader payments now make up 12 percent of The Guardian's revenue, 18 October 2018
[152] Ofcom commissioned research from O&O on 2019 news sector analysis

Platform news services and the differing monetisation models for news producers

Figure 2.22: 'Premium' News services in addition to existing free services

	Apple News+	Google News App	Facebook News
Existing free service	Apple News	Google News	News Feed
UK pricing for 'premium' service	£9.99 per month	App is free. 'Subscribe with Google' or directly with each publisher.	Still in trial stage, US only.
Publishers involved (sample not full list)	*The Times* and *The Sunday Times, Cosmopolitan UK, Elle UK, Esquire UK, FourFourTwo, Empire, Hello*	All publishers who comply with Google News content policies	Must be part of Facebook's News Page Index and abide by the company's Publisher Guidelines, e.g. *The Telegraph*
News company revenue source	50% of the subscription revenue shared based on 'dwell'* time.	Google does not pay but users may subscribe directly to news company.	Facebook pays for content supplied. (Other content remains behind publisher's firewall.)
How are articles selected	Picked by humans	Algorithm	Curation team primarily + some AI
Important features	Privacy: Apple and advertisers do not track articles that users read.	Newscasts are like Instagram Stories. Full Coverage section is identical for all users (no AI).	Curation team select stories independently.

Source: Company press releases and Ofcom desk research.
** Note: Dwell time, Apple's term for measure of consumer attention, time spent on a page.*

Apple News+ launched in UK in October 2019. No subscriber information has been released since it announced that 200k signed up on the first day of the US launch which happened six months earlier. Qualitative publisher feedback is that it provides a very small source of referral traffic and Apple's retention of 50% of the revenues was a cause for complaint.[153] Apple News (the pre-existing free service) exceeded 100 million subscribers in January 2020, up from 85 million the year before. There has been speculation that Apple could soon offer consumers a bundle combining News+ with Apple Music and Apple TV+ as part of its broader strategy to use services as a driver of revenue.[154]

The Google News app has a 'Subscribe with Google' button allowing users to subscribe in two clicks, with publishers keeping 85 to 95% of the revenue. Google provides publishers with subscribers' names and email addresses, but holds on to the customer's credit card information, making it harder

[153] Digiday, Nine months in, Apple News+ isn't wowing publishers, 17 December 2019
[154] New York Post, Apple News hits 100 million users, 8 January 2020

for publishers to upsell other products like events or additional subscriptions. It also does not support donations or memberships. The 'Full coverage' feature brings up other views and articles focused on the same topic — an approach that delivers a broader view of the story. All users receive the same feed as, unlike many aggregation services, there is no AI filtering based on user preferences which potentially gives more balanced coverage and can mitigate some issues like 'echo chambers'. Google announced a £235m global news initiative in 2018. It has one UK trial with Archant, the Norwich-based publisher for 'several million dollars' within a wider publishing market that has seen 245 local news outlets close in the UK between 2005 and 2018.[155]

Facebook News is still at the trial stage with fewer than 20 publishers, including Bild, The Boston Globe and The Telegraph. Publishers supply the full articles for some of their premium content with the rest remaining behind their firewall. For full access, users can sign up for publisher subscriptions directly inside its platform; publishers keep all the revenue and reader data. Facebook also announced a Local News Subscriptions Accelerator, a three-month project to help publishers grow digital consumer revenue.

Entertainment sector

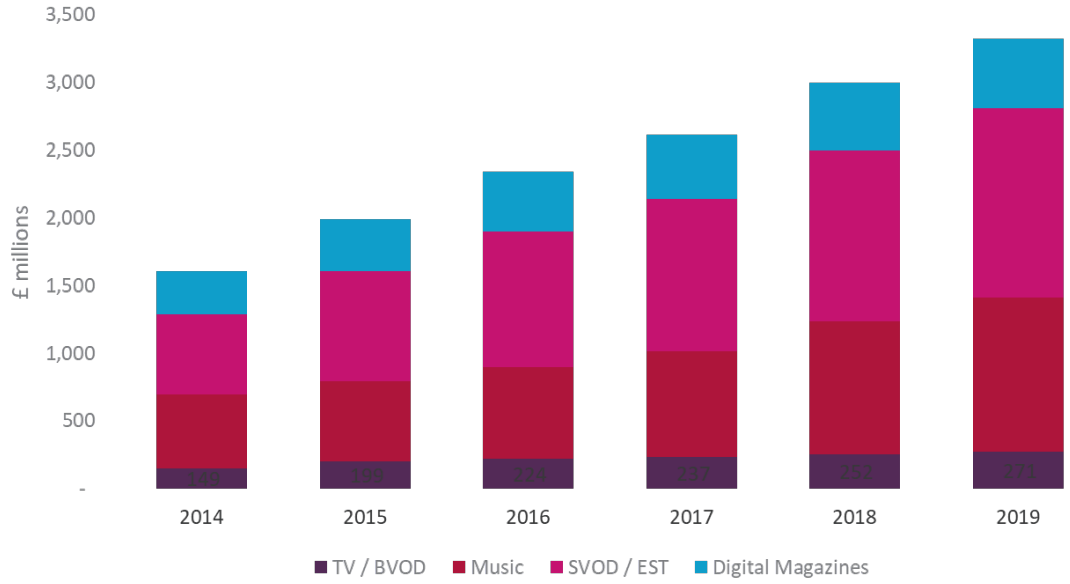
SVoD & EST has the highest five-year revenue CAGR in entertainment, at 19%

For the purposes of this section, the information presented as part of the entertainment sector does not include information on gaming or free video platforms, as they are covered in this report in separate chapters.

Here, entertainment includes online-only revenue elements of the following segments: advertising and broadcaster video on demand (AVoD/BVoD), streaming video on demand (SVoD), music streaming and digital magazine publishing.

[155] FT.com, Google to invest millions in UK news group, 19 September 2019

Figure 2.23: Estimated UK online entertainment sector, overall market by segment: 2014-2019



Source: Oliver & Ohlbaum analysis and estimates. Based on data from PwC Global Entertainment and Media Outlook, though PwC not the sole provider of data (O&O's estimates are included above). Adjusted for CPI at 2019 prices by Ofcom. Data presented may differ from other industry sources due to differences in sectoral definition or other methodological differences.

Subscription services continue to drive UK entertainment sector growth

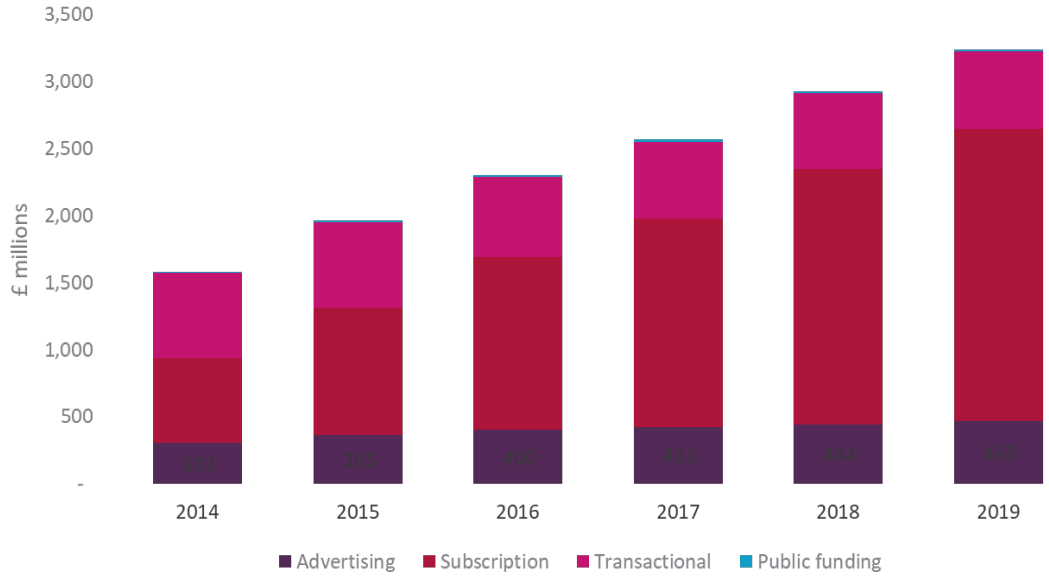
Subscription revenues have grown from less than 40% of revenues in 2014 to two-thirds of revenues in 2019. This growth has primarily been driven by subscription video on demand (SVoD) services such as Netflix and Amazon Prime Video.

Amazon Prime video registered a 35% year-on-year growth in UK subscribers in the fourth quarter of 2019, following its exclusive live streaming of ten Premier League matches. According to BARB's Establishment Survey, it also grew 32% year on year in Q1 this year, suggesting that there have not been significant cancellations by the record number of new subscribers from the previous quarter after their free trial period ends.[156]

Music has seen a shift away from the ownership model, with subscription services from providers such as Spotify generating a large majority of online revenues: subscription services increased their share of total online music to 85% in 2019. Generalist services (covering all major music genres) dominate this space, with Spotify comfortably the largest service in in the UK and globally.[157]

[156] BARB Establishment survey
[157] O&O analysis for Ofcom

Figure 2.24: Estimated UK online entertainment sector, totals by revenue stream: 2014-2019



Source: Oliver & Ohlbaum analysis and estimates. Based on data from PwC Global Entertainment and Media Outlook, though PwC not the sole provider of data (O&O's estimates are included above). Data presented may differ from other industry sources due to differences in sectoral definition or other methodological differences.

3. Online games

Introduction

Key metrics

Figure 3.1: UK online video games key metrics

	2015	2016	2017	2018	2019
UK adults who play games	44%	41%	36%	38%	39%
UK adults who play online	N/A	N/A	16%	17%	16%
UK 5-15s who play games	80%	78%	75%	72%	75%
UK 5-15s who play online	48%	48%	49%	53%	59%
UK games consumer expenditure	£3.2bn	£3.5bn	£3.8bn	£4bn	£3.8bn
% digital	37%	43%	46%	50%	51%

Source: Ofcom Adults' Media Literacy tracker, Ofcom Children's Media Literacy tracker, Ukie.

Games are a distinctive form of content

Video games have been an established interactive digital medium for many decades.[158] While there is no universally accepted definition of what a video game is, at a high level they are pieces of audio-visual software which offer interactivity and rules of play that direct the actions of a player towards achieving a particular goal or overcoming a challenge. These attributes may help to distinguish video games from other media such as interactive video or interactive audio games played on smart speakers (which lack a visual component).

The games market is broad, both in terms of the range of devices on which people play games (dedicated hardware such as games consoles and devices including smartphones, tablet computers and PCs/laptops), and in the ways in which people interact with and control the game. For example, a puzzle game such as *Candy Crush,* designed to be played on a mobile device, offers the player a different experience to a predominantly narrative-driven console game such as *Resident Evil 2*, which in turn is different to a fast-paced multiplayer game such as *Fortnite*, which can be played on a wide range of devices. While games are most often played for entertainment, they can also be developed for educational or therapeutic purposes,[159] and some games (such as flight and driving simulators) and gaming devices share similarities with simulations used in other industries.[160]

[158] Throughout this chapter we use the term video game / game / computer game interchangeably. References to gaming in the chapter relate to the playing of such games.
[159] The term 'serious game' is sometimes applied to games developed with purposes beyond simply entertainment.
[160] For example, virtual reality ('VR') headsets used for immersive games may also be used to present immersive interactive schematics by designers and engineers. See also: CNET, Ford's designers are learning to create 3D cars in virtual reality, 29 January 2019.

Ofcom does not regulate games, although there are many links between games and the areas in which Ofcom does have statutory duties. For example, broadband networks are central to people's game experience; games make specific demands on these networks that differ from the demands made by other types of online content. Games and gaming-related services also increasingly offer integration with communications services, such as real-time text, voice and video-calling and messaging services. Under our media literacy programme, we have continued to undertake and publish research on take-up, attitudes towards and experiences of games (including potential online harms) to understand UK consumers' use of communications and content services. Games are an established media and online activity, directly as well as in driving other forms of online content such as livestreaming and video-sharing (e.g. Twitch.tv and Mixer), social networks and online forums focused on games-related topics.

With the increasing take-up and availability of high-speed data networks and connected devices, online functionality has enabled new routes to market and given rise to new business models and consumer experiences in the games industry, including:

- **As a way of allowing in-game interaction and communication** between people playing on different devices or in different locations – often referred to as online multiplayer.
- **As a way of distributing the underlying game software** when a player downloads a game from an online store such as Steam or the iOS app store, which they then install and run on their device. In this case, the digital download is an alternative to physical media such as DVDs, Blu-rays or cartridges.
- **As a way of allowing someone to access and play a game that is being run on a remote device,** usually called 'cloud gaming' or 'remote gaming'. These services allow users to play games run by machines in a different location which stream the game's video and sound over the internet to their local device. This provides an experience similar to running a game locally.

In practice, a game may use communications networks for more than one of the above purposes. A user can download a game from an online store, install it to their console or device and then communicate with other users via the game's multiplayer service. Likewise, while games (especially console games) are often distributed through physical media in the first instance, updates (to improve or add functionality) and additional content might only be available over the internet.[161]

In this chapter, we look at take-up of online games among adults and children, the games people play, how and why they play, and how they communicate with each other through them. We look at how games today make use of communications networks, as well as business models in the industry and the wider links between games and related sectors. We conclude by looking at people's experiences with interactive games, including a consideration of our online harms research in relation to games, and current industry responses.

[161] Although distribution of games via electronic communications networks and online multiplayer functionality has been available in some forms for several decades, the widespread availability of high-speed broadband networks, and powerful easy-to use connected devices and online services have been key drivers of take-up of online gaming among consumers today.

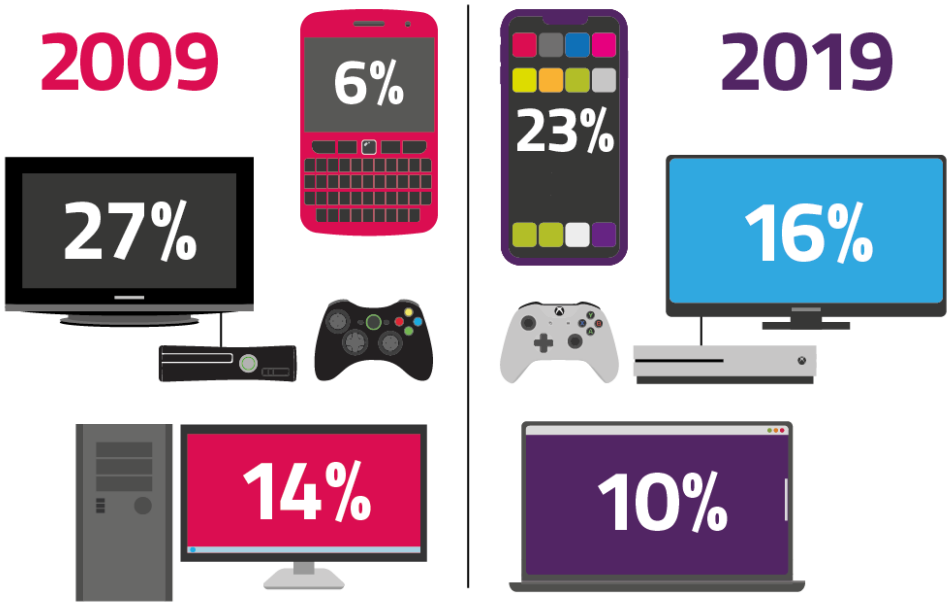
Take-up and use

The proportion of adults who play games remains stable, but how they play has shifted over the last decade

Four in ten UK adults play video games

Ofcom's media literacy research indicates that four in ten (39%) UK adults and three-quarters of children (75%) played video games of some kind in 2019. The proportion of adults who play games was relatively stable in the decade to 2019 (36% to 39%). Since 2009, fewer people are playing games on a home console (27% to 16%) or PC (14% to 10%), while playing on mobile phones has increased fourfold, to 23% of UK adults in 2019. The growth in smartphone take-up, the increased computing power of these devices, and the growing volume of games available on mobiles, many of them free or very low cost, are all likely to be contributing to this shift away from consoles.

Figure 3.2: Change in the proportion of UK consumers who play games, by device type



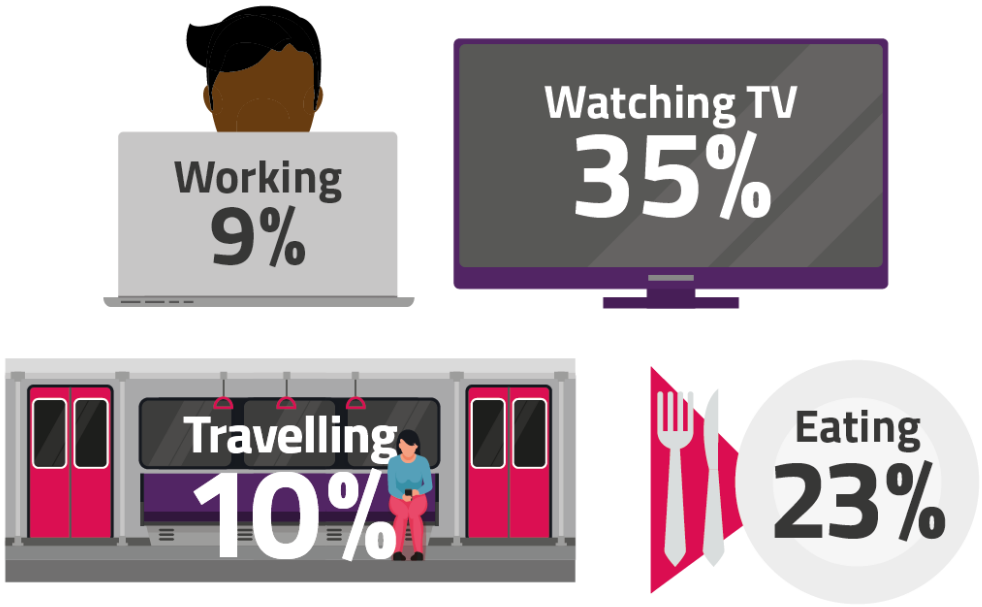
Source: Adults' Media Literacy research 2010 (fieldwork carried out 2009) "G2 Do you ever play games at home or elsewhere in any of these ways?" Base: UK adults 16+ (1824) 2019 "G1. Do you ever play games at home or elsewhere in any of these ways?" Base: UK adults 16+ (1883).

One in ten video game players play while working

Mobile gaming has shifted consumer behaviour away from dedicated gaming sessions towards more spread-out play throughout the day, whether during work, during a commute or while watching TV. In 2019 one in ten GB game players said they played games while working (9.5%). Mobile gaming

took up more than a third of game-playing time for UK players (36%) in 2019, increasing to over half (54%) when combined with tablet play.[162]

Figure 3.3: Percentage of adult video game players who play games while doing other things



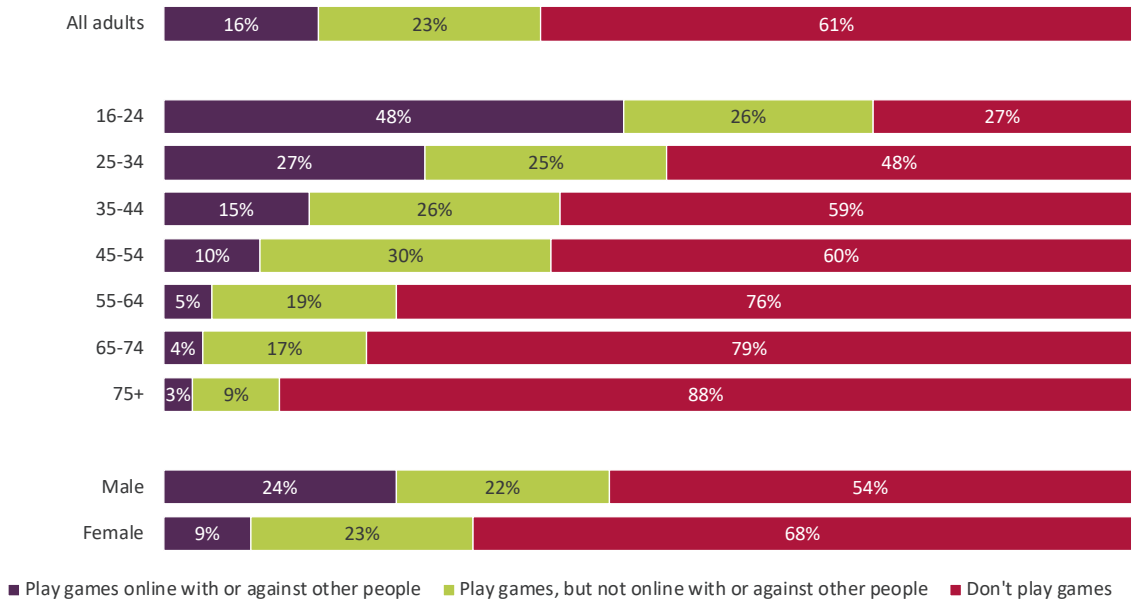
Source: TouchPoints GB 2019. Base: all adults (15+) who played any game on any device in the last 12 months. Base: all those who played any game on any device in the past 12 months.

While the proportion of adult online game players has been stable over the past three years, online gaming among children has grown

Games were played online by 16% of adults in the UK, compared to 59% of 5-15s in 2019. While the proportion of adults playing online has been stable since 2016, the proportion of children doing so increased between 2018 and 2019. Among adults, 16-24s are most likely to play online and among children, 12-15s are more likely to do so, indicating that online gaming is most prevalent between the ages of 12 and 24.[163]

[162] TouchPoints GB 2019. Base: all adults (15+) who played any game on any device in the last 12 months
[163] Ofcom Adults' Media Literacy Tracker 2018-2019 and Ofcom Parents' and Children's Media Literacy Tracker 2018-2019.

Figure 3.4: Playing games online, with or against other people (adults)



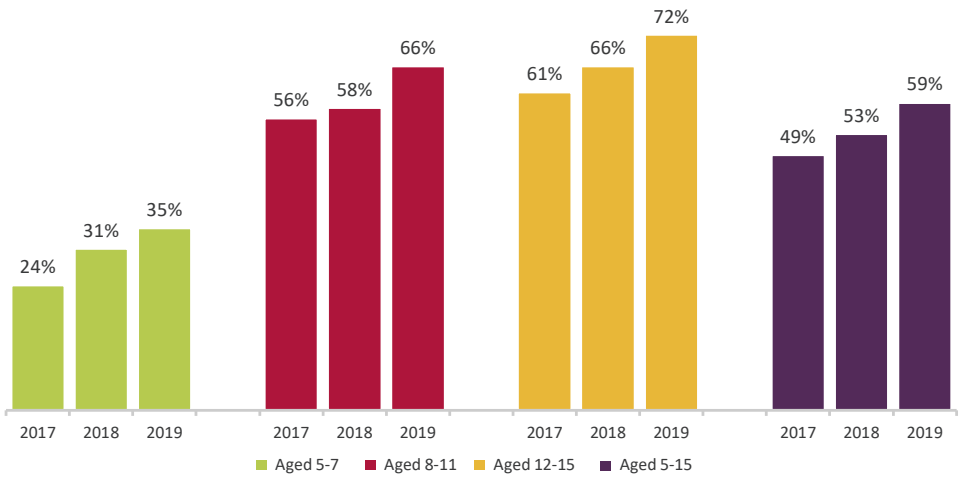
Source: Ofcom Adult Media Literacy Tracker 2019. G3. Many games can be played online. Do you ever play games online with or against other people? (unprompted responses, single coded). Base: All adults aged 16+ (1883, varies by demographic).

As children get older, more of them play games online. Among 12-15s, seven in ten (72%) played games online in 2019. A greater proportion of children of all ages played games online in 2019 (59%) than in 2017 (49%). For both adults and children who play games, online gaming is more popular among males (52% of men and 71% of boys) than females (28% of women and 48% of girls).[164] Boys spend more time playing online than girls; boys aged 12-15 spend twice as long (14 hours 36 minutes vs. 7 hours 30 minutes).

Among UK adult online game players, playing online with friends (42%) is about as popular as playing online with strangers (45%), although UK adult game players are more likely to play with friends in the same room (52%) than to play online multiplayer with friends (42%) or strangers (45%). UK child game players are more likely to play online with friends (78%) and to play with friends in the same room (81%) than to play online with strangers (62%).[165] The online interactions in some games are accompanied by live communication features and, although controls and safeguards are often integrated with online games, these communications may be a source of online harms, as discussed later in this chapter.

[164] Ofcom Adults' Media Literacy Tracker 2019 and Ofcom Parents' and Children's Media Literacy Tracker 2019
[165] Ofcom online games research 2020.

Figure 3.5: Playing games online (children)



Source: Ofcom Parents' and Children's Media Literacy Tracker 2019. QC42 – Many games can now be played online, either through games consoles, other games players or through other things like computers, laptops, tablets, mobile phones and smart TVs. Examples of popular games that can be played online include FIFA football games, Minecraft, Fortnite, and Roblox. Do you ever play online games? Base: Parents of children aged 5-7 (764) and children aged 8-15 (817 aged 8-11, 762 aged 12-15).

While mobile is the most popular game platform for all players, female players are especially likely to play mobile games

Among all UK consumers who play games of any kind, slightly more adult men than women play games (70% to 64%) but this gender difference is not seen in children. Regardless of gender, mobile is the platform with the highest reach, but adult male players are most likely to choose consoles (39%) as their preferred way to play, whereas female players are more likely to choose mobile phones (39%). Among children who play games, mobile is also the platform with the highest reach (88%) followed by TV-connected games consoles (83%) and tablets (80%). Boys are more likely than girls to play games on either a games console or PC, while use of a mobile or tablet to play games is similar for boys and girls.[166]

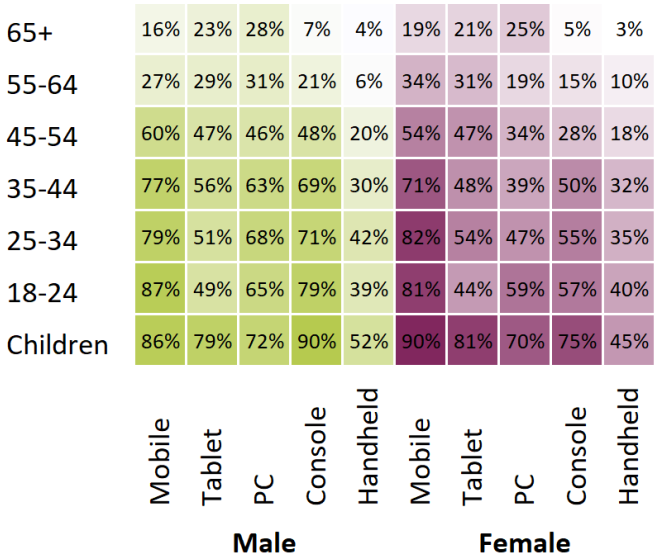
Between 2009 and 2019, the proportion of consumers playing games on a home console decreased, especially among women. The proportion of women playing games on a console has fallen by half, both among adult women (from 22% to 9%) and among girls aged 5-15 (from 65% to 32%). Over the same time period the proportion of girls who play games on a mobile more than doubled, to two-fifths of 5-15s (from 14% to 39%) and quadrupled to 20% of adult women.[167]

Both male and female adult game players are equally likely to play games on both mobiles and tablets, but men are more likely to play games on other devices including desktops or laptops (48% vs.36%) and consoles (46% vs. 32%). Almost all UK children who play games play on mobiles or

[166] Ofcom online games research, 2020. 'Children' referred to in Ofcom games research are 8-15.
[167] Ofcom Adults' Media Literacy Tracker, 2009-2019; and Ofcom Children's Media Literacy Tracker, 2009-2019. 'Children' referred to in Children's Media Literacy research are 5-15.

tablets (80%) or PCs or consoles (71%), with more than half (52%) playing mobile games every day. Game players over 65 are more likely to play games on a PC than on a mobile, with a quarter (27%) playing on a PC.[168]

Figure 3.6: Percentage of the UK adult and 8-15 game-playing population who play games, by device, age and gender: 2020

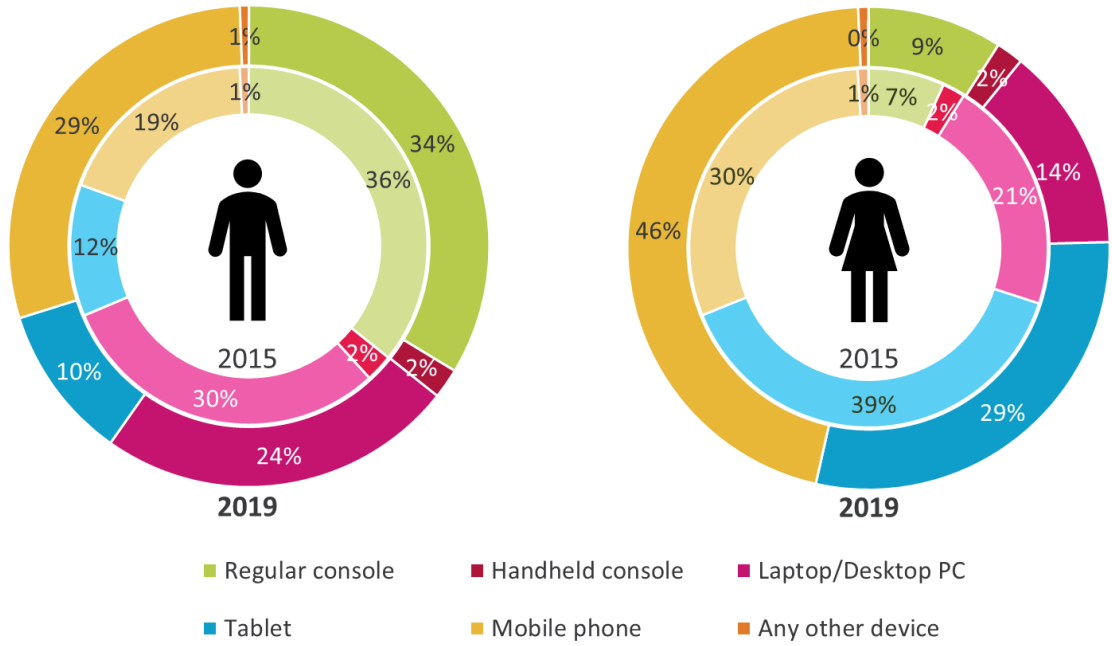


Source: Ofcom online games research, 2020. Q.1 How often, if at all, do you play video games at home or elsewhere on each of the following devices? Base: UK game-playing adults aged 18+ (1391). Q1. How often do you play video games at home or elsewhere on each of the following devices? Base: UK game-playing children aged [8-15 years old] (1051).

Female game players in Great Britain (GB, UK excluding Northern Ireland) also spend much more of their playing time than male players on mobiles and tablets (75% vs. 40%). In 2015 tablet gaming among female players held the largest share of playing time, and in 2019 mobile devices held the largest share of playing time, at 46%. Male GB game players in 2019 spent significantly more of their game-playing time on mobile devices in 2019 than in 2015, although the majority of GB males' game-playing time is still on consoles.[169]

[168] Ofcom online games research 2020.
[169] TouchPoints GB 2019 and 2015 (note that TouchPoints research covers England, Scotland and Wales but not Northern Ireland). Base: all adults (15+) who played any game on any device in the last 12 months.

Figure 3.7: Share of video game playing time, by device and gender: 2015 and 2019



Source: TouchPoints GB 2019 and 2015. Base: all adults (15+) who played any game on any device in the last 12 months.

Puzzle games are the most popular game type among UK players, with story games a distant second

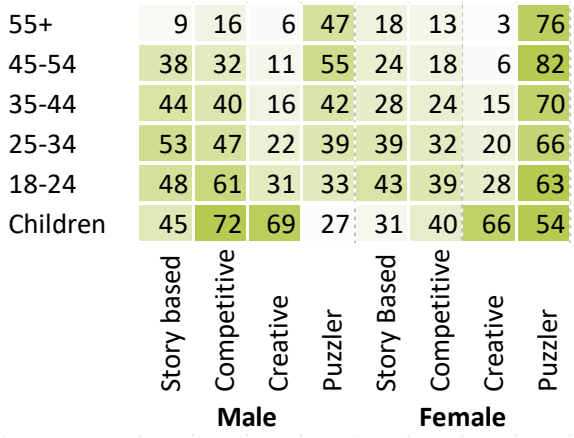
Six in ten (58%) UK adult game players play puzzle or quiz games such as *Candy Crush*; proportionally more female than male UK adult players play these games (72% vs. 44%) as well as games that are controlled by movement such as *Wii Fit* (15% vs. 11%). Male adult players are more likely to play story-driven games (35% vs. 23%), games that simulate a real-life experience such as *Forza Horizon 4* (25% vs. 7%) and games that take place in persistent virtual worlds such as *Runescape* (16% vs. 10%).[170] These differences in preference are likely to influence, or be influenced by, consumer decisions about the devices they play games on. Puzzle games are the most popular genre on mobile phones whereas story-driven games are the most popular kind played on consoles.

Among UK game-playing children, creative games are the most popular type of game among girls, with almost seven in ten (66%) playing this type of game; among boys, competitive games (72%) and creative games (69%) are the most popular. Creative games such as *Minecraft* and *Roblox* are much more popular among children than they are among adults, with 67% of children playing them compared to 15% of adults.[171]

Competitive games are played by a third of adult game players and can be played locally with friends or online, with and against friends and strangers. One-on-one games (17%) and games where multiple people or teams compete (17%) such as *Fortnite: Battle Royale* are more popular than games where two teams compete (9%) such as *League of Legends*.

[170] Ofcom online games research 2020.
[171] Ofcom online games research 2020.

Figure 3.8: Percentage of the UK adult and child population who play games, by type of game, age and gender: 2020



Source: Ofcom online games research, 2020. Q.3 Which, if any, of the following types of video games do you play? Base: UK game-playing adults aged 18+ (1391) Q.3 Which, if any, of the following types of video games do you play? Base: UK game-playing children aged 8-15 (1051).

Market context and business models

The UK retail market for games is one of the largest media markets in the UK

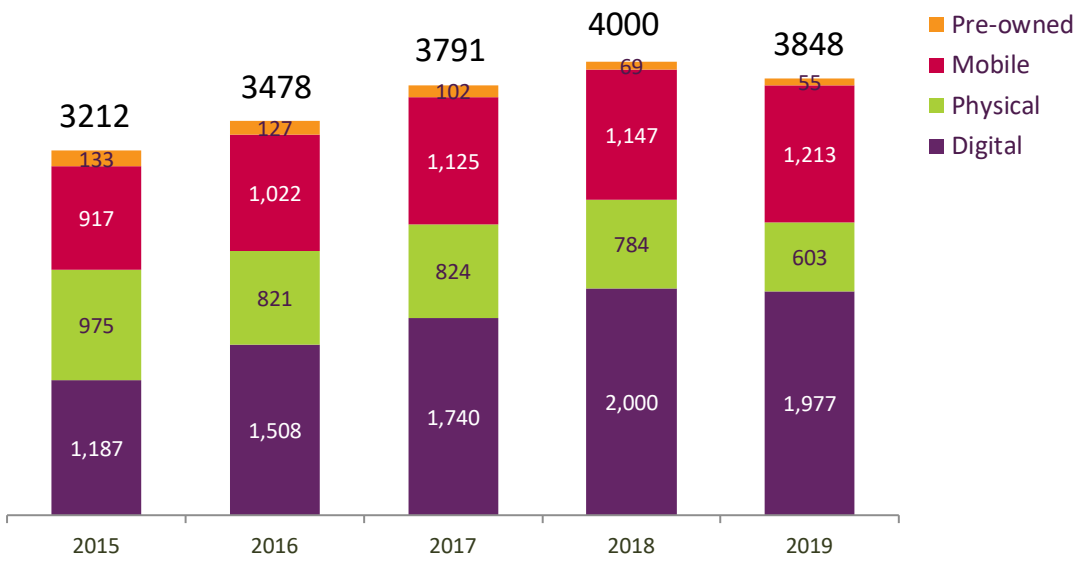
Digitally distributed content forms an increasing share of expenditure on games by consumers in the UK

UK revenue for game software exceeded £3.8bn in 2019, compared to £2.6bn for video and £1.4bn for music.[172] This was a decline of 4% on the previous year's total; the 5% growth in mobile games expenditure was not sufficient to offset declines of 1% in digital and 23% in physical games revenues, the latter reflecting the ongoing decline in physical sales, especially in a year not dominated by any single large game release at the tail-end of the multi-year cycle of new consoles.[173]

Overall total consumer expenditure on games software, gaming hardware and culture was £5.3bn in 2019, a decline of 6% on 2018. Hardware revenue fell by 15% in 2019 to £1.4bn in 2019, reflecting declines in console hardware revenue. However, a small component of overall video game-related expenditure, on games culture (merchandise, events, books, magazines and events) was up by 26% to £146m, said to be driven in part by *Fortnite* toys.[174]

[172] Entertainment Retailers Association, 2020 Yearbook Statistics
[173] Ukie, UK Consumer Games Market Valuation, 2019. Adjusted to CPI at 2019 prices by Ofcom.
[174] Ukie, UK Consumer Games Market Valuation, 2019. Adjusted to CPI at 2019 prices by Ofcom.

Figure 3.9: UK consumer games software market consumer expenditure (£m)



Source: Ukie. Data includes restatements after initial publication; category definitions and methodologies may vary over time. Adjusted for CPI at 2019 prices by Ofcom.

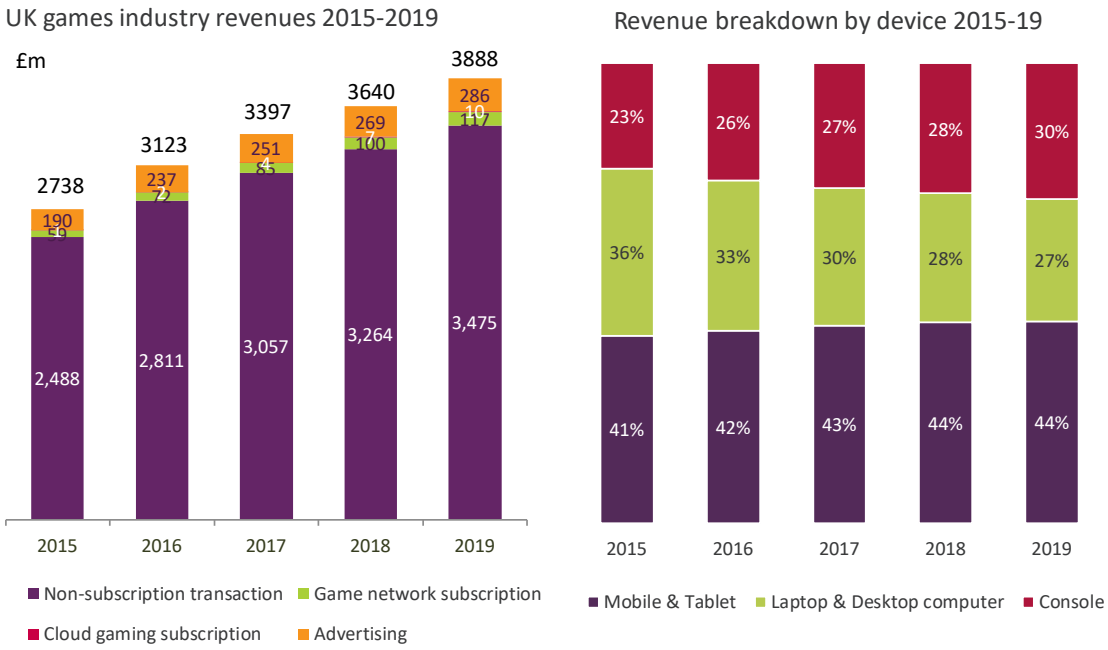
UK videogames revenues grew on average by 9% each year between 2015 and 2019, reaching almost £4bn in 2019[175]

A key feature of the video games market, compared to other sectors such as streamed video, is its reliance on transactional revenues rather than advertising or subscriptions. In 2019, subscriptions accounted for an estimated 3% of overall UK revenues (£117m), and advertising accounted for a further 7% of overall UK revenues (£286m).[176]

Over time, smartphones, tablets and games consoles have accounted for an increasing proportion of revenues at the expense of games on computers, with games revenues on mobile and tablets estimated to account for 44% of revenues in 2019 (£1.7bn).

[175] Revenue figures presented here are not directly comparable with the consumer expenditure figures above due to differences in methodology.
[176] The advertising figure relates to adverts built into games. Advertising revenues from dynamically inserted adverts are not included in the figure. This means that overall advertising revenues associated with games are likely to be higher.

Figure 3.10: UK online gaming revenues: 2015-2019



Source: Oliver & Ohlbaum analysis and estimates. Based on data from PwC Global Entertainment and Media Outlook, though PwC not the sole provider of data (O&O's estimates are included above). Adjusted for CPI at 2019 prices by Ofcom.
Note: Console revenues include VR revenues.

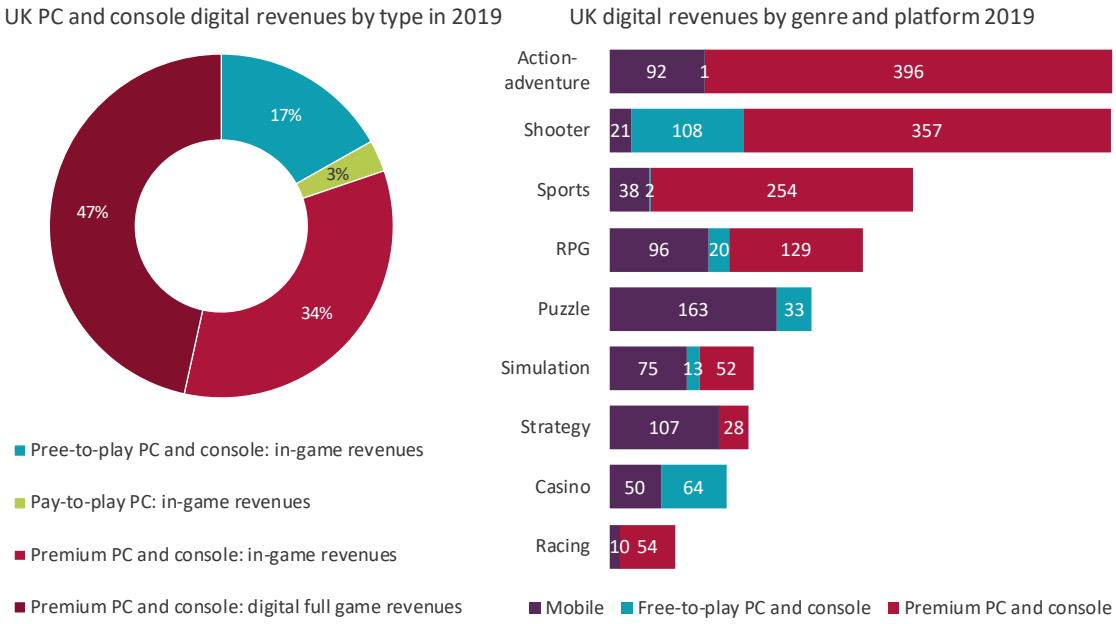
Although the majority of videogames revenue can be considered to be 'transactional', a significant proportion of digital revenues relate to transactions that take place after the player has downloaded and installed the game. In 2019 less than half (47%) of digital games revenue for PC and consoles was from the initial purchase of games (see digital full game revenues in figure 3.11 below). The balance related to transactions involving downloadable content (DLC), microtransactions, season passes and subscriptions.[177]

Revenue mix also varies considerably between genres, reflecting differences in business models and the ways in which players engage with the content. The figure below breaks down digital revenues in 2019, using Nielsen's SuperData. Premium PC & Console relates to games that earn revenue from purely digital products such as full-game digital download purchases and additional downloadable content; full game revenues are revenues generated from the digital sale of a base game, while in-game revenue across pay-to-play, free-to-play and premium PC and console is generated from any transaction that happens after purchase/download of the base game, including season passes, downloadable content microtransactions and subscriptions. Although the genres identified by Nielsen as "Action-Adventure" and "Shooter" generate similar digital revenues overall (£489m and £487m respectively), free-to-play PC and console games account for 22% of revenues for the shooter genre, compared to less than 1% for the action-adventure genre. Mobile accounts for a small

[177] Revenues identified by Nielsen as digital revenues. These exclude revenues from the sale of physical copies of games, although physical sales may give rise to digital in-game revenues.

proportion of revenues in the action-adventure, shooter and sports genres, but the majority of reported games revenue in the puzzle, simulation and strategy genres.

Figure 3.11: Analysis of digital revenue: 2019



Source: Nielsen's SuperData, Ofcom analysis. Genres with revenues greater than £50m in 2019 are shown in the chart.

The global games industry includes large vertically-integrated global players, large publishers and developers and a long tail of smaller companies

The global video games industry, forecast by NewZoo to generate $160bn (£125bn) revenue in 2020,[178] is characterised by several vertically-integrated firms with hardware, publishing and developer businesses such as Sony, Microsoft and Nintendo, in addition to large publisher and/or developer houses with global scale such as Activision-Blizzard and EA as well as a long tail of smaller developers and publishers, sometimes referred to as the indie games sector. Platforms that own digital content stores such as Google Play and Steam may also make a significant proportion of their revenue from games.

Sony's Game and Network Services segment reported revenues of ¥1,978bn (£14.2bn) in the year to March 2020,[179] representing 23% of total revenue, while Microsoft's Game Division reported revenue of $11.4bn (£8.9bn) in 2018-19 (the latest year for which data are available), equivalent to approximately 9% of overall revenue.[180] Nintendo's revenues from the video game hardware and software segment were ¥1,254bn (£9.0bn) in 2019-20, and accounted for 96% of total revenue.[181]

[178] Newzoo, Newzoo's Games Trends to Watch in 2020, 12 December 2019.
[179] Sony, FY2019 Consolidated Financial Results, 2020.
[180] gamesindustry.biz, Microsoft hardware revenue dips 48% YOY for fourth quarter, 18 July 2019.
[181] Nintendo, Financial Highlights, 2020.

Excluding firms with games hardware sales, the largest company by game revenue is Chinese internet firm Tencent, owner of the *League of Legends* franchise and part-owner of *Fortnite* developer Epic Games, which reported 2019 online games revenues of RMB 114.7bn (£13.0bn), equivalent to 30% of overall group revenues.[182]

Covid-19 measures have caused a spike in game sales but are causing game development delays

Lockdown measures in the UK and across the world have led to a spike in the volume of people playing games and making game-related purchases. PC game platform Steam has reported record-breaking global concurrent user records several times since 16 March, the highest of which was 24.5 million concurrent users on 4 April, a 32% increase on the 18.5 million concurrent users reported in January 2020.[183] The Nintendo Switch title *Animal Crossing: New Horizons,* released in March, outsold expectations, with physical sales 3.5 times higher than the previous title in the series.[184] Lockdown measures appear to have also increased the number of consumers playing online: Microsoft and Sony both reported an increase in global user numbers of their online gaming services, Xbox Live reached 90 million monthly active users in Q1 2020 (from 65 million in September 2019)[185] and PlayStation Plus reached 41.5 million subscribers, up from 38.8 million in December 2019,[186] probably due to lockdown measures related to the coronavirus.

Lockdown measures have affected the development of many games, as developers move to home working. The release of *The Last of Us 2*, developed by Naughty Dog and published by Sony, was delayed to 19 June, following a delay in early 2020 said to be as a result of the coronavirus outbreak. Amazon Game Studios launched its first title, *Crucible*, in May 2020, but another release, *New World*, has been postponed to August as a result of the impact of the move to remote working during the outbreak.[187]

The games industry is an important part of the UK's creative industries

As well as being an increasingly important part of people's media consumption, the games industry has long been an important part of the UK's creative industries. Major developers and publishers producing games for global distribution have a significant presence in the UK, including Rockstar North (founded in Dundee but now based in Edinburgh), the lead developer for the *Grand Theft Auto* series, and Codemasters, based in Warwickshire, one of the major clusters for games developers in England, outside London. Also based in Scotland is mobile-focused company Indie Champions, (formerly called All 4 Games), which was spun off from Channel 4 in 2017. Several developers and publishers are based in Wales, in Cardiff and across the country, including Llamasoft, established in the 1980s, based in rural West Wales, which has developed games for mobile platforms and consoles including PlayStation VR. Games development businesses in Northern

[182] Tencent, 2019 Fourth Quarter and Annual Results Presentation, March 2020.
[183] Valve, Steam & Game Stats, June 2020.
[184] gamesindustry.biz, Animal Crossing: New Horizons smashes sales records in the UK, March 2020.
[185] Microsoft, Earnings Release FY20 Q3, 29 April 2020.
[186] Sony, Corporate strategy meeting, 19 May 2020.
[187] New World, Release Date Update, April 2020.

Ireland are generally centred around Belfast and include Italic Pig. Across the UK as a whole, DCMS estimates that in 2018, 22,000 people were employed in the computer games sector,[188] with 2,286 games developer businesses listed on the UK Games Map as at 10 June 2020.[189]

Video games are one of the eight areas that benefit from the creative industry tax relief scheme.[190] This scheme gives developers a tax credit which has the effect of reducing their corporation tax liability. To qualify for the credit, the game must be intended for supply to the public, at least 25% of its core expenditure must be within the European Economic Area (EEA) and the title must be certified by the British Film Institute (BFI) as meeting the British cultural test.[191] In 2019 the BFI certified 240 titles, 39 more than in the previous year. Reflecting a range of genres, the titles certified as British in 2019 included open-world action-adventure game *Red Dead Redemption 2* and *BBC i-Reporter*, a browser-based game for young people about news gathering and reporting.

The TV, film and other content industries are a source of creative material and funding for games – and vice versa

There is a long history in the UK of TV, film and even radio programmes, across many genres, acting as source material for computer games. Games on mobile devices and sometimes consoles have been published for major current UK TV franchises including *Dr Who, Love Island* and *X Factor*. Broadcasters including Channel 5, ITV, S4C and the BBC also publish games on their websites. Often aimed at children, the games may have an educational purpose and close links to the broadcasters' programme output.[192] As well as extending the reach and engagement with their TV programming, licensing their programme IP for games may also be a source of revenue for production houses and broadcasters.

There are also examples of games acting as source material for film and TV. For example, in March 2020 it was announced that HBO had commissioned a TV series based on Sony's 2013 PlayStation game *The Last of Us*.[193]

Online connectivity enables new modes of distribution and interaction

There have been video games with online features since the 1970s, although online game services were not widely adopted in the UK until the early 2000s, following the introduction of broadband internet access. Following the launch of Xbox Live in 2002, all the major games console platforms

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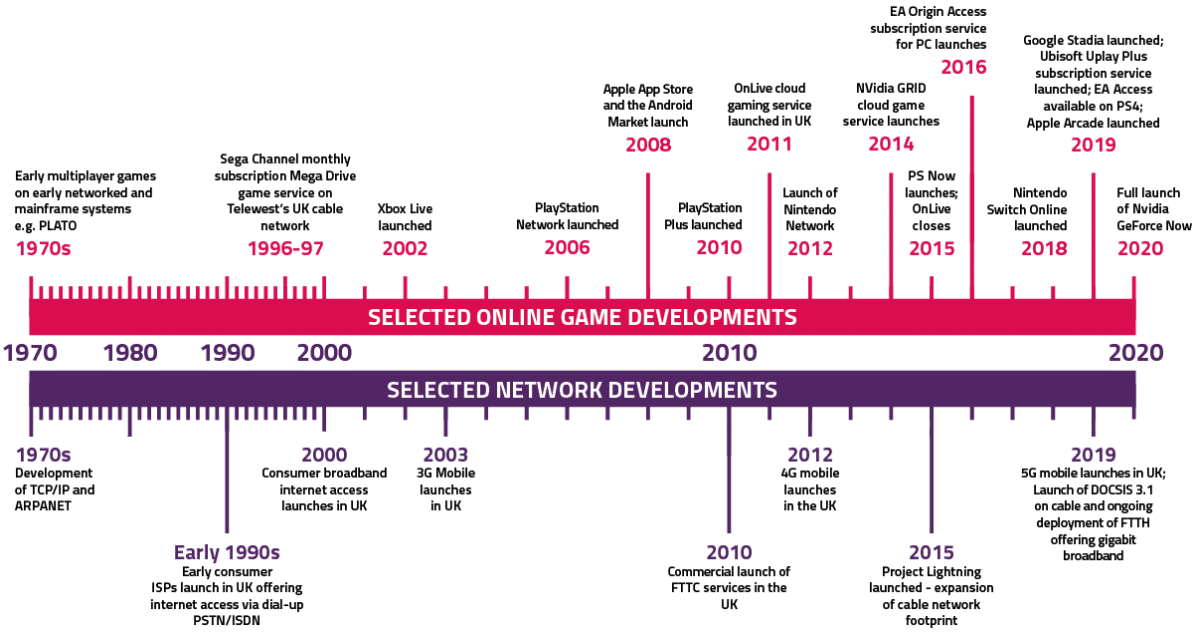
[188] DCMS, DCMS Sectors Economic Estimates – Employment, Computer Games, 2018. This figure relates to employment at the five-digit SIC code level for the following codes - 58.21 Publishing of Computer Games and 62.01/1 Ready-made interactive leisure and entertainment software development. Games development may also take place in businesses classified under SIC code 62.01 Computer programming activities.
[189] Ukie / Nesta UK Games Map.
[190] The others covered by Government's Creative Industry tax reliefs for Corporation Tax are films, high-end television, children's television, animation television, theatrical productions, orchestral concerts and museum / gallery exhibitions.
[191] To be classed as British under the Cultural Test for Video Games, a title must score at least 16 of a possible 31 points across four areas: cultural content (up to 16 points), cultural contribution (up to 4 points), cultural hubs (up to 3 points) and cultural practitioners (up to 8 points). The BFI maintains a database of all games that have been certified.
[192] See for example games produced by S4C and the BBC for CBBC.
[193] Hollywood Reporter, 'The Last of Us' Series in the Works at HBO From 'Chernobyl' Creator Craig Mazin, Neil Druckmann, 5 March 2020.

have launched online game services, allowing users to play games with each other for a fee, and many publishers and platforms have launched digital storefronts to distribute games. Many cloud game streaming services, discussed later in this chapter, have launched in recent years, but these are not the first services of this type. OnLive pioneered cloud game streaming in the UK when it launched in 2011, but closed in April 2015 after Sony acquired parts of the company.

Figure 3.12: Timeline of select online games and network developments



Source: Publicly available data.

Improved broadband access has been important in enabling the shift towards digital distribution

Improved broadband speeds have enabled the distribution of games over the internet to consoles, PCs, smartphones, tablets and other smart technologies including smart TVs and speakers. The file size of games (and therefore the time they take to download, as well as the storage capacity required on a device) can vary greatly; some are several times larger than a feature length 4K film. The largest games could take more than a day to download over a 10Mbit/s broadband connection but less than an hour over a 300Mbit/s connection.

The reduced barriers to game distribution, brought about by the widespread availability of high-speed internet infrastructure, allow additional content to be released after a game's initial launch, including software patches, further narrative and seasonal content. Downloading this content can take up a significant amount of broadband capacity and storage space: Ofcom broadband performance data shows that several of the UK's internet service providers (ISPs) suffered a reduction in broadband performance on 10 March 2020, the day a 50+ GB update for *Call of Duty: Modern Warfare* was released.[194]

[194] Ofcom, UK Home Broadband Performance, April 2020.

Recent advances in connectivity have enabled cloud streaming functionality

More recently, the migration to superfast and ultrafast broadband services has enabled remote game streaming. A game can be run remotely on a dedicated machine which streams the video output to a player's device and receives inputs, such as button presses, in real time. Cloud game streaming services can use dedicated hardware owned by the service provider (such as Google Stadia, Shadow and NVIDIA GeForce NOW) or computing hardware, for instance a home PC or console owned by the player (such as Nvidia GameStream, Steam Remote Play and PlayStation Remote Play) and can be streamed to a range of internet-enabled devices including mobiles and dedicated streaming devices. At the time of writing, Amazon was said to be developing a cloud gaming service, codenamed project Tempo, scheduled for launch in 2021.[195] The bandwidth requirements of cloud streaming services depend on many factors. Examples of these include resolution, frame rate, refresh rate, and how aggressively video is compressed for streaming.

Figure 3.13: Bandwidth requirements of selected game streaming services

Download speed	Steam Remote play	PlayStation Remote Play	Google Stadia	Shadow	Nvidia GeForce NOW
Minimum	n/a	15 Mbit/s	10 Mbit/s	5 Mbit/s	15 Mbit/s
Recommended	n/a	n/a	35 Mbit /s	25 Mbit /s	25 Mbit /s

Source: Publicly available data on platform websites.

Game streaming at the highest quality can have greater demands on network capacity than online multiplayer gaming. Based on a requirement of 25 Mbit/s, 71% of UK households with broadband are, on average, able to stream games at the lowest quality and 64% of households with broadband are, on average, able to stream games at the highest quality (35 Mbit/s).[196]

Online connectivity has enabled new features and functionality within games

As more game-playing devices are connected to the internet, the games industry has been able to leverage this connectivity for a range of features which have enabled better monetisation and longer product lifecycles, and have significantly reduced the barriers to entry for independent games developers, allowing small teams or individuals to self-publish digitally.

For example, *Minecraft*, which became one of the best-selling video games of recent years, was first released on an independent development forum in an early beta form, as *Cave Game*. It was developed by a self-taught solo developer, Markus Persson, and initially distributed only digitally. Early sales enabled the developer's studio, Mojang, to provide a series of free updates and bug fixes to the growing community, who in turn spread word of the game online. Microsoft purchased Mojang in 2015 for $2.5bn (£2bn).[197]

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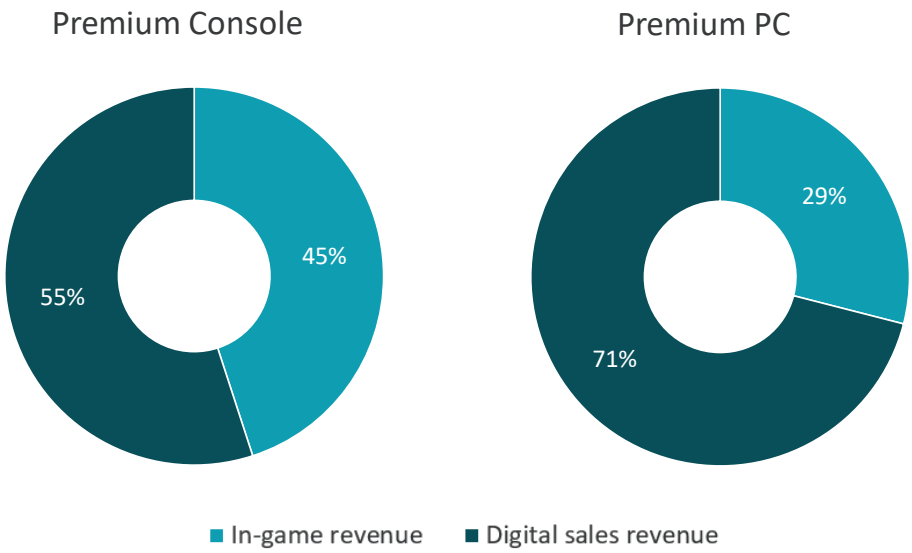
[195] The New York Times, Amazon Pushes Into Making Video Games, Not Just Streaming Their Play, 2 April 2020
[196] Ofcom, using data provided by SamKnows.
[197] Minecraft wiki on Gamepedia. Minecraft entry.

Downloadable content and microtransactions also allow games to continue to be monetised over time, leading to the development of the 'games as a service' model, where games are maintained and updated to encourage continued regular play. In 2017, *Minecraft* opened a digital storefront to sell maps and in-game cosmetic items, allowing it to be continually monetised post-sale.[198]

Online connectivity has enabled the development of new business models

By leveraging the features enabled by online connectivity, many modern games have been able to develop monetisation strategies which complement or replace the traditional retail model of game monetisation. Many popular games now use a range of these monetisation strategies simultaneously, replacing or enhancing revenue from initial game sales. The majority of in-game revenue generated on PCs is from games that were initially free to download (84%), while free games deliver a much smaller proportion of in-game revenues generated from consoles (5%). In-game revenues have not overtaken sales revenues for non-free PC or console games but represent a significant proportion of digital revenue for non-free games, both on PCs (29%) and on games consoles (45%).[199]

Figure 3.14: proportion of digital revenues from in-game purchases and game sales for PC and console games



Source: Nielsen's SuperData, Ofcom analysis.
PC & Console Premium relates to games that earn revenue from purely digital products such as full-game digital download purchases and additional downloadable content. Full-game revenues are revenues generated from the digital sale of a base game. In-game revenue is generated from any transaction that happens after purchase/download of the base game, including season passes, downloadable content, microtransactions and subscriptions.

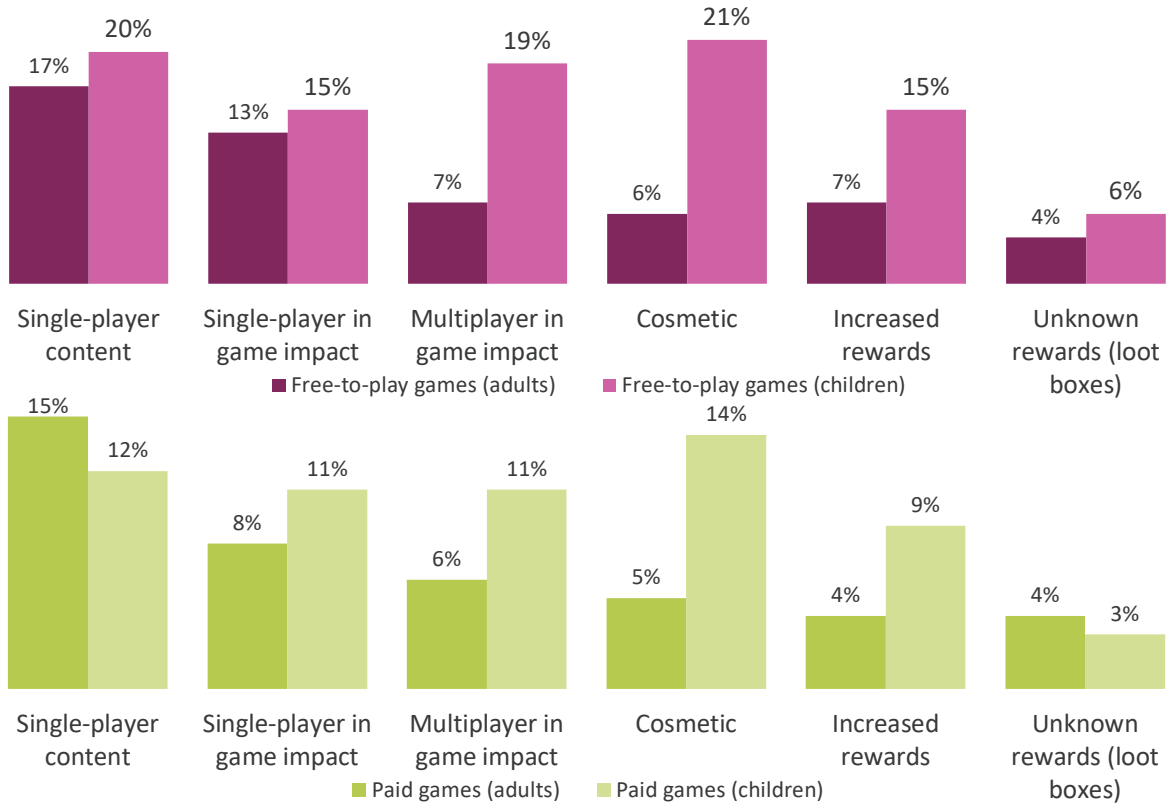
[198] Eurogamer, Microsoft reveals Minecraft Store with virtual currency, 12 April 2017.
[199] Revenues identified by Nielsen as digital revenues. These exclude revenues from the sale of physical copies of games, however physical sales may give rise to digital in-game revenues.

Many game players make microtransaction purchases, but relatively few purchase game-related subscriptions

In-game purchases, commonly known as microtransactions, are a driver of revenue growth in the games industry and have enabled 'games as a service' by allowing games to be monetised in the long term, thereby funding the development of future content. Microtransactions of differing kinds can be the sole monetisation model of a game, as is the case with free-to-play games, or an additional revenue stream in a game that is paid for, and they can take many forms. Some common types of microtransaction include single-player content such as additional levels, microtransactions with a game impact such as power-ups or new weapons, or cosmetic items such as 'skins' that change the look of a game but have no impact on gameplay. In some games many of these types of item are also packaged within 'loot boxes' (packs with unknown in-game rewards). Some microtransactions improve the rewards that players can earn through play. Often known as 'battle passes' or 'experience boosts', these are often time limited and can reward players with loot boxes or items.

A third of UK adult game players report having bought additional content for games that are free to play (31%), with a slightly lower proportion buying additional content in games that they have bought (25%). UK child game players are more likely than adults to purchase in-game content, both for purchased (33%) and free-to-play (47%) games.

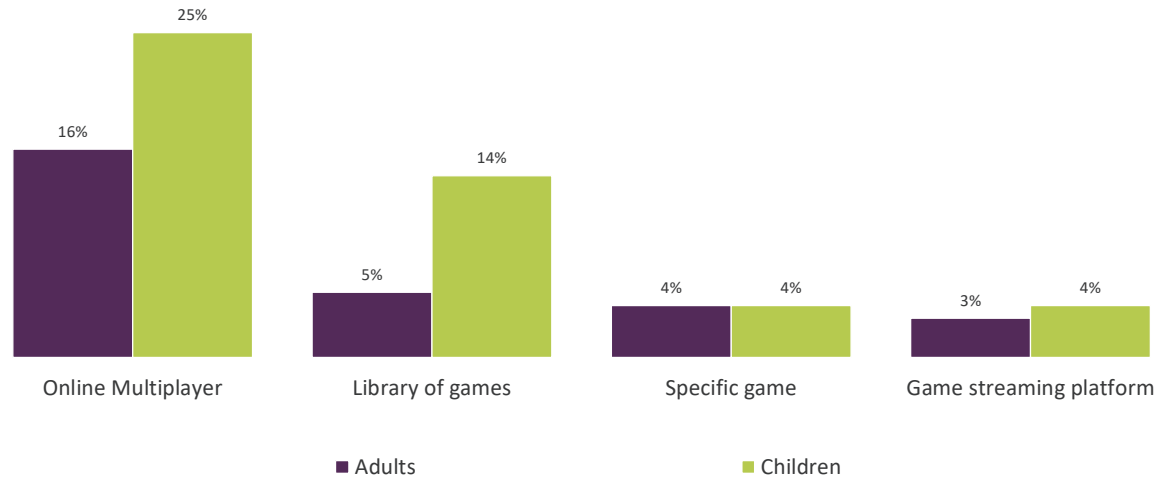
Figure 3.15: Proportion of UK adult and child game players who have purchased in-game content



Source: Ofcom online games research 2020. Q.14 Have you ever spent real money or bought in-game currency to buy additional content or functionality in a video game that is free to play? Q.16 Have you ever spent real money or bought in-game currency to buy additional content or functionality in a video game that you had already purchased? Base: UK game-playing adults aged 18+ (1374). Q.10 Have you ever spent real money or bought in-game currency to buy additional things in a video game that is free to play? Q.12 Have you ever spent real money or bought in-game currency to buy additional things in a video game that you had already purchased.Base: UK game-playing children aged 8-15 (1051).

Despite the recent developments in game-related subscriptions, consumer take-up is still relatively low. Sixteen per cent of UK adults and 25% of UK children who play games subscribe to an online multiplayer service such as Nintendo Online, but only 5% of adults and 14% of children who play games subscribe to a service that gives them access to a library of games, such as Apple Arcade. The proportion of consumers who subscribe to a game streaming service such as Google Stadia is even lower (3% of UK adult players).[200]

Figure 3.16: Proportion of UK adult and child game players who have purchased game-related subscriptions



Source: Ofcom online games research. Adults Q.19/Children Q.15 Subscription services allow you to pay regular payments (such as monthly or annual) for access to games to download, play, or multiplayer. Do you currently subscribe to any of the following types of subscription services for games? Base: UK game-playing adults aged 18+ (1374). Base: UK game-playing children age 8-15 (1051).

User experiences and attitudes

Players are able interact through online games in a variety of ways

As well as enabling players to compete, create and cooperate with each other, online games often allow players to message and speak to each other. These communications can be between two individuals, a local area within a game world or a select group of players. The communication channels open to players vary significantly by the type of game and the developer's approach, with some allowing simultaneous conversation between hundreds of players and some limiting communication to a limited set of phrases or emojis between a few individuals. The demand for in-

[200] Ofcom online games research 2020.

game and game-related communication has led to the rise of game-focused services like Discord, a dedicated communication service that allows consumers to voice and text chat within public and private communities.

As gameplay has moved online, games have become a core part of online life for some consumers, allowing them to connect with friends, share their experiences on social platforms and form communities with other players. Games are also used by friends who know each other personally to connect while apart, while game integration with social media platforms and communication apps like *Houseparty* bring games to the wider online population.

One in ten game players use the social features of games monthly

Console social platforms PlayStation Network, Xbox Live and Nintendo Switch Online allow players to share content, play together and communicate over voice and text. One in ten (11%) UK game playing adults have spoken to people they know in an online game in the past month, roughly the same (9%) as those who have spoken to people they don't know. UK child game players are much more likely to chat online, with two-fifths (43%) saying they have talked to people they know, and 16% with people they don't know in the past month. In addition, some games allow for the creation of more formal social groups that facilitate communication and gameplay, such as guilds or clans: one in 20 UK adult game players and three in 20 child game players have joined or taken part in this kind of social group in the past month. Fifty-two per cent of 8-15s who take part in these groups say they do it to socialise with other people, and 83% say they do it to play with friends. [201]

Many games and games platforms have integrated social features, allowing players to chat and connect in groups, share content and play together. Public profiles, groups and communications features within gaming networks operate similarly to those within other social networks; one in ten (9%) UK game playing adults have used the social features of a game-related social network such as Steam or Xbox Live in the last month.

Of those adults who use the communication features of games and game-related platforms, a third (33%) say they talk to friends more via these platforms than through other forms of online communication, and more than half (53%) say they talk about a wider range of topics, not just the games they are playing. [202] Games that allow players to interact via avatars in an online world, such as *Minecraft*, *Fortnite* and more recently *Animal Crossing: New Horizons,* enable players to co-exist in a virtual space and connect without necessarily engaging with any particular in-game activity. This type of interaction has been supported by game developers; for example, with the release of virtual concerts and the recently released 'party royale' mode within *Fortnite.* For some people, this may be a core part of their social lives. [203]

[201] Ofcom online games research 2020.
[202] Ofcom online games research 2020.
[203] Epic Games, Dillon Francis, Steve Aoki, and deadmau5 Invite You to the Party Royale Premiere, May 2020.

Some social media providers have integrated games into their platforms

Some social media platforms, including Snapchat and Facebook, have integrated games directly onto their platforms, bringing games to other parts of some consumers' online social lives. Facebook allows players to play games within the Facebook app, using Facebook profiles and friend lists to allow players to play together without needing to set up an account. Facebook Gaming, a livestreaming and video service, is discussed later in this chapter.

Snap Games, accessed via Snapchat's messaging function, allows users to play games alone or with friends on the app. Some games with multiplayer functionality include live voice chat, and single-player experiences have leader boards that allow friends to compare scores. As well as built-in dedicated games, Snapchat's lens functionality includes 'Snappables', a regularly changing selection of games which can be experienced to create short videos or images that are shared with friends. Snappables can include games such as 'tic-tac-toe', sent back and forth with a friend, or shared challenges such as augmented reality games, where a video of a player's attempt at the game can be shared.[204] Online multiplayer games also allow social media platforms to leverage their networks for content experiences that are repeatable, encourage engagement and allow new ways for friends to interact. Fifteen per cent of UK adult game players have played games on a social media platform.[205]

Social media services also offer integrated features to games outside their platforms. Some games allow their players to login with Facebook, saving them having to create multiple accounts and giving them access to their Facebook friends to play with or compete against.[206] The developer of the game gains access to information about its players and, with permission, can share achievements from the game on their social media accounts. Such integration gives social media platforms more information about their users which they can use to improve their services and target advertising more effectively.

Gameplay and game-related content are driving viewing to streaming sites and video-sharing platforms

Gaming content has enjoyed popularity on video-sharing sites for many years. The YouTuber with the most subscribers globally, 'PewDiePie', started his career creating gameplay videos. Fifteen percent of adults and almost two in five (37%) 18-24 year-olds say they watch videos of gameplay on a services such as YouTube or Twitch every month, while 56% of 8-15 year olds say they watch game videos online.[207] People choose to watch others playing games for a variety of reasons: to pick up tips or strategies, to enjoy entertaining commentary or to be a part of a growing online community around games and celebrity players. One-fifth (21%) of those who watch gaming videos say that they prefer watching other people playing video games to playing games themselves.[208]

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[204] Play Games in Snapchat webpage.
[205] Ofcom online games research 2020.
[206] Facebook Login for Mobile Games webpage.
[207] Ofcom online games research 2020.
[208] Ofcom online games research 2020.

As broadband speeds and video capture technology have improved, the popularity of live-streamed gameplay has increased. Around 7% of UK game-playing adults say they watch gameplay videos on dedicated game streaming services each month, increasing to 16% of 18-24 year-olds and 20% of children.[209] There is a significant difference between male and female adult gamers; 4% of women and 10% of men say they watch game streaming monthly on dedicated video platforms. Around 20% of adults who watch gaming videos say they watch game streams more than other types of content.[210]

Amazon-owned Twitch.tv is the most popular livestreaming service for game-related content, but it is facing competition

Game-related content has been a significant driver of livestream viewing generally and has led to a growth in the number of specialist game livestreaming services. Twitch.tv has been the most popular livestreaming service for game-related content since its launch in 2011 and its subsequent purchase by Amazon in 2014. The following year, Google launched its own dedicated game livestreaming app 'YouTube Gaming' to bring together its on-demand and livestream game content; this was integrated into its main app in 2019. Microsoft acquired livestreaming service Mixer in 2016, then called Beam, and Facebook launched its offering Facebook Gaming in 2018. In April 2020, Facebook relaunched this service as a distinct app where users can follow high-profile players, watch live gaming streams and leave comments, without interacting with the rest of Facebook.[211]

Users who create videos and stream games on Twitch have adopted a range of ways to monetise their content. In addition to advertising, sponsorship, ad-removing subscriptions and donations from viewers, streamers have used competitions, unpredictable rewards and gamification (such as leaderboards and rewards for donations) to monetise their content.[212] This interactivity is part of the appeal of livestreams. Our research shows that 4% of game-playing adults spend money to support a streamer monthly, increasing to 8% for 18-24 year-olds and children.

In September 2019, 1.5 million adults in the UK – equivalent to 3% of the UK population as a whole – a watched video on Twitch. Those who did this watched on average 11.8 minutes a day. Take-up varies by demographic group; older demographics and women are less likely to watch video on Twitch. In September 2019, 13% of all adults aged 18-24 and 19% of men in this age group had done so.[213] The number of people watching videos on Twitch increased over the first few months of 2020, potentially due to lockdown measures, with 2.3 million adults in the UK watching in April 2020,[214] up by 34% since March 2020, and by 24% since April 2019.

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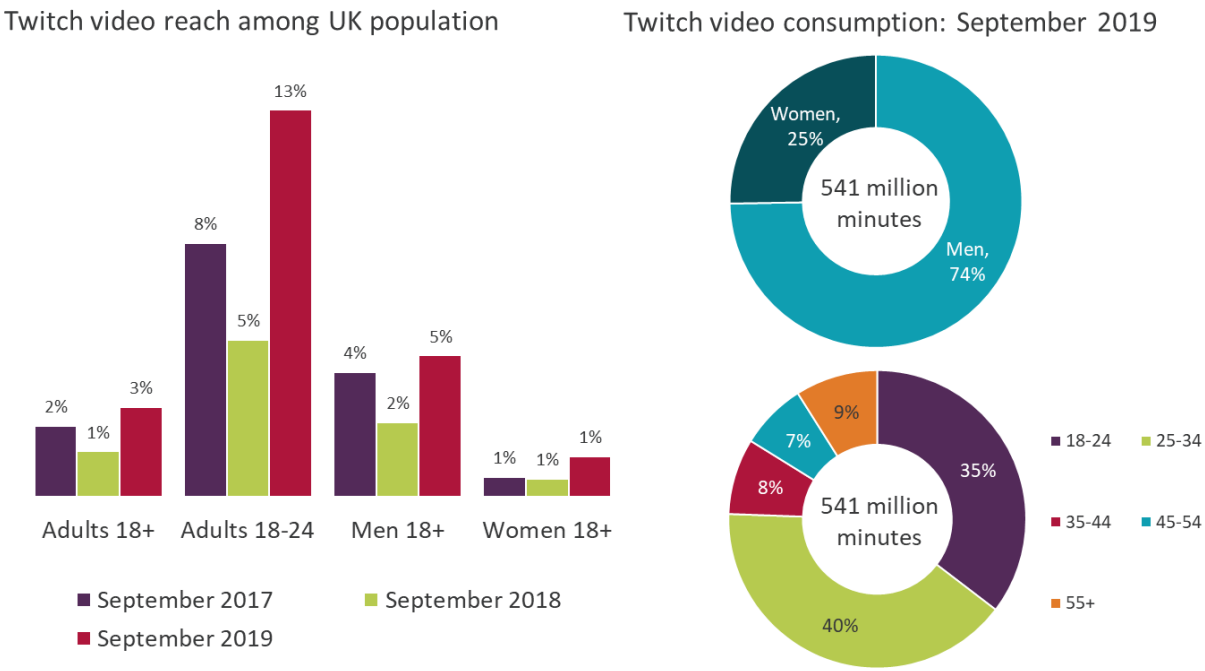
[209] Ofcom online games research 2020.
[210] Ofcom online games research 2020.
[211] StreamElements and Arsenal.gg, State of the stream 2019 report. 2019 global streaming platform hours: Twitch 9.3bn, YouTube gaming 2.6bn Facebook gaming 356m, and Mixer 354m
[212] Johnson & Woodcock (2019) "And Today's Top Donator is": How Live Streamers on Twitch.tv Monetize and Gamify Their Broadcasts, *Social Media + Society*, October-December 2019: 1 - 11
[213] Comscore VMX Multi-platform, TWITCH.TV, Age: 18+, Sep 2019, UK. In September 2019, 2.2 million adults in the UK visited Twitch, rising to 4.2 million in April 2020. Comscore MMX Multi-Platform, TWITCH.TV, Age: 18+, Sep 2019 and April 2020, UK.
[214] Comscore VMX Multi-Platform, TWITCH.TV, Age: 18+, April 2020, UK

Figure 3.17: Reach and consumption of video on Twitch



Source: Comscore VMX Multi-Platform, TWITCH.TV, Age 18+, Sep 2017-2019, UK. Total Digital Video, % Reach Total Pop.

Currently, Twitch still leads the market in terms of both hours watched and hours streamed, but its competitors are adding more features, exclusive content and routes to revenue for streamers. Facebook Gaming has adopted a micro-currency system similar to Twitch, where viewers purchase 'Stars' (equivalent to 'Bits' on Twitch) which can be 'tipped' to streamers, often accompanied by a notification on screen; the streamers then convert them back into real currency, with the platform taking a cut from the transaction. YouTube allows viewers to send paid 'super chats' which get priority in the live chat; again, Google takes a cut before it goes to the streamer. In early 2020 it was reported that Amazon was going to launch mini-games for the Twitch platform.[215]

Some of the largest channels on YouTube, such as PewDiePie, jacksepticeye and DanTDM, feature gameplay videos or broader game-related content, although channels may complement this with other types of content. Some YouTubers who produce game-related content generate significant audiences in the UK. For example, in September 2019, PewDiePie-related video content had an adult audience reach of 2.4 million adults in the UK, equivalent to 5% of online adults aged 18 and over, and reaching 15% online males aged 18-24.[216] Another game-focused YouTuber with a reach of just under million online adults in the UK in September 2019 was TheDiamondMinecart.[217]

[215] Sports Pro, Amazon confirms development of cloud-based gaming platform, April 2020.
[216] Comscore VMX Multi-Platform, PewDiePie CMS @ YouTube, Age: 18+, Sep 2019, UK.
[217] Comscore VMX Multi-Platform, TheDiamondMinecart @ YouTube, Age: 18+, Sep 2019, UK.

A small number of influential streamers drive audiences on livestreaming services and have become important assets to livestreaming platforms

The software required to stream gameplay content on consoles, PCs and mobiles is now freely available, and in many cases is integrated into game platforms and operating systems. But while high-quality microphones and studio equipment are more readily available than they used to be, the hardware needed to stream professionally can still be costly. Just 1% of adults aged 15+ broadcast, share or stream games weekly, increasing to 4% among 15-24 year-olds.[218] Audiences on game livestreaming services are driven primarily by a small number of influential streamers. For example, in March 2020 the average streamer on Twitch had an audience of 25.5 viewers, but the top ten streamers had an average of over 30,000 viewers.[219]

To compete with Twitch, other streaming services have started to sign exclusivity deals with popular streamers. In 2019, the two streamers with the most paid subscribers on Twitch – Ninja and Shroud, who attract hundreds of thousands of concurrent viewers – left the platform to stream exclusively on Mixer. Facebook has signed a number of other popular Twitch streamers exclusive to its platform, including Corinna Kopf, ZeRo and Disguised Toast. YouTube has also signed exclusivity deals with some of its most popular streamers, but has also signed deals with publishers, such as Activision Blizzard, to exclusively stream live esports matches on the service.

Esports, professional game players competing as a spectator sport, have risen in popularity in recent years from a niche interest to a global industry. This shift has been driven in part by support from mainstream celebrities such as Drake and Michael Jordan, increased coverage on traditional broadcasters like ESPN, Sky, ITV and BBC Three, and the mainstream popularity of certain games such as *League of Legends* and *Fortnite: Battle Royale*. The increased popularity of streaming, the primary medium of esports, has also contributed to this growth. 'The International 2019', the ninth concluding tournament for Valve's *Dota 2*, offered a record prize pool of over £27m and a British teenager won almost £1m after coming second in the 2019 *Fortnite* World Cup finals. Game streaming and esports content has also filled some of the output gap generated by the coronavirus pandemic for sports clubs and channels. *eFootball PES* has been used to host tournaments between professional football players, usually broadcast over Twitch or social media, and sports channels including ESPN and BBC iPlayer are broadcasting live esports tournaments while live sporting events are cancelled.[220]

Attitudes of online game players to online harms

As with other social platforms, in-game interaction is an important part of the user experience and games platforms have introduced different forms of moderation

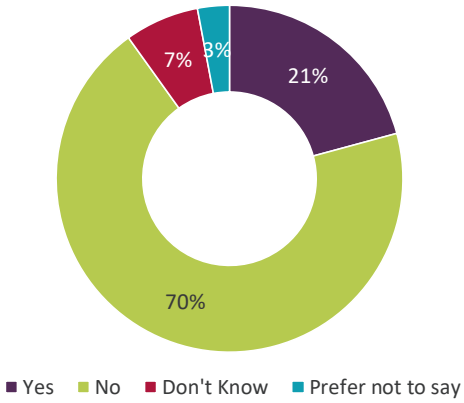
As outlined above, communication between players has become a staple of many online video games, either through the specific game users are playing, or the platform on which they are playing

[218] TouchPoints GB 2019. Base: all adults (15+).
[219] Twitchtracker.com as at March 2020.
[220] Forbes, 'Rocket League' World Championship To Air During ESPN Esports Day, April 2020; BBC Sport, Rocket League esports – How to watch Spring Series across the BBC, May 2020.

the game (e.g. Steam, Xbox Live or PlayStation Network). Some games restrict player interactions to pre-written text messages or to character 'emotes', gestures, phrases and dances performed by in-game avatars to communicate with other players – for instance, in From Software's *Dark Souls* series players can interact via gestures or messages, using a pre-determined list of words, while Blizzard's *Hearthstone* lets players interact using six pre-set phrases, customised for each character. Many games allow players to communicate fully via voice and text with friends, team-mates and rivals – in many cases these are people with whom the player has not interacted before.

As with all means of communication, in-game communication opens players to receiving inappropriate, upsetting or offensive messages. One-fifth of adult players report receiving these kinds of messages via in-game chat. As well as offensive or upsetting messages, game players and developers have raised concerns about other potentially harmful experiences which players may be exposed to, including the risk of child grooming, trolling and misuse of personal information.[221]

Figure 3.18: proportion of adults who have received an inappropriate upsetting or offensive message while playing a game in the past 12 months



Source: Ofcom online games research. Q.9 In the last 12 months, have you received a voice or text message on a service that you use to play games, which you found inappropriate, offensive, or upsetting? Base: UK game-playing adults aged 18+ who have used in-game chat (210).

Game developers therefore face similar challenges to social media platforms in protecting their users; the fact that many interactions take place in real time adds another level of difficulty to moderation.

Games and platforms usually have rules or community guidelines in place and can suspend or ban players who break them. In some cases, communities self-police; for instance, dedicated family-friendly *Minecraft* servers have been set up and run by communities to create a safe environment for children to play online.[222] Real-time moderation by a developer is possible in some circumstances, such as where a large number of players are communicating in a single chat or thread, as happens in massive multiplayer online games. Games and platforms also often provide ways for players to report inappropriate behaviour, while automated tools such as profanity filters

[221] See: THINKUKNOW.co.uk, Gaming: What parents and carers need to know; NSPCC, Online games.
[222] Parent Info, Staying safe on Minecraft.

or harm detection systems may also be used to filter and escalate player interactions to human moderators. For example, UK-based developer Jagex in its game *Runescape* uses bespoke tools to automatically monitor player communication and behaviour, which can identify unwanted activity for human review. Developers work with external agencies such as the Internet Watch Foundation and local police forces to develop their tools, identify high-risk behaviours, inform their approaches and escalate cases.[223]

As well as banning players who engage in negative behaviour or preventing them from using in-game communication features, some games reward players who display positive behaviour. Players in some online multiplayer games such as *League of Legend*s can praise team-mates for teamwork or friendliness, or reward kind or helpful players with in-game rewards or currency if enough of their fellow players have recognised their actions.

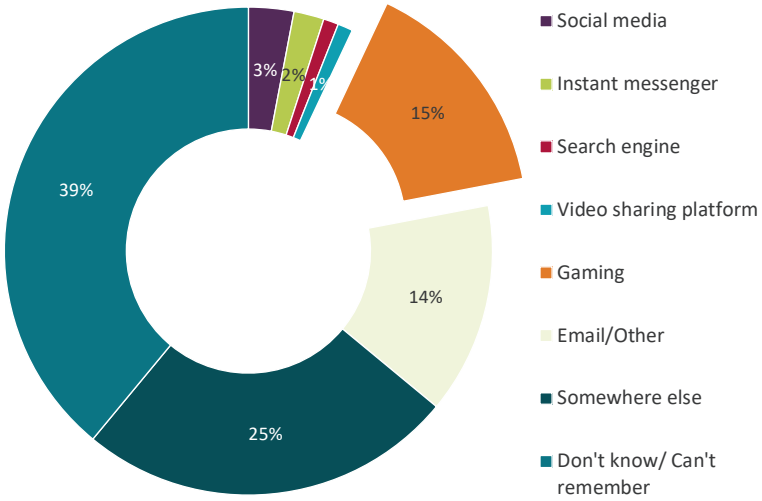
Similar moderation challenges also exist in game-related streaming platforms, where active community engagement via each channel's chat function is key to the consumer experience. Game streaming services often allow channels to nominate community moderators who act in tandem with community-wide moderation staff and automated community tools. Video-sharing sites also use automated tools; for instance, Twitch's AutoMod tool can be configured by streamers to flag inappropriate language for moderator review before it appears in the chat.

Fifteen per cent of 12-15s who said they had spent too much money online in the past 12 months said this happened in a game

Our online harms research shows that few adults (2%) or 12-15s (3%) who have experienced potential online harms in the past 12 months cite online games as the source of their most recent experience.[224] One in ten (9%) 12-15s reported spending too much money online in the past 12 months, with more boys (12%) reporting this than girls (7%). Among the children who had experienced spending too much money online and were concerned about it, 15% said this occurred while playing a game. Despite this, game-playing 12-15s are no more likely to be concerned with spending too much money online than all 12-15s.[225]

[223] HM Government, Government response to the Internet Safety Strategy Green Paper, 2018.
[224] Ofcom-ICO research 2020.
[225] Ofcom-ICO research 2020. Apply caution and treat as indicative only due to small sample size (n = 71).

Figure 3.19: source of most recent experience of spending too much money online, 12-15s



Source: Ofcom-ICO research 2020. Question: C7 Which site or service were you using when you came across your most recent experience of spending too much money online? Base: All children 12-15 who have experienced and are concerned about spending too much money online (base 71).

Four in ten (42%) parents of game-playing 5-15s expressed concern with pressure to make in-game purchases in 2019, and the same proportion expressed concern with how much time their children spent playing games.[226] Despite parental concerns, only 3% of 12-15s who had experienced spending too much time online and were concerned about it said this occurred while playing a game.[227]

Like other forms of content, video games are rated and labelled for age-appropriateness. In shops in the UK, it is illegal to supply a game to a person below the game's age rating. As well as providing an age rating, the PEGI rating system used in the UK provides content warnings in categories including violence, bad language and gambling. In August 2018 PEGI launched the 'in-game purchases' content descriptor to flag games that allow the purchase of digital goods with real money. On smartphones, Google's Play store has adopted PEGI ratings, whereas Apple's iOS app store uses Apple's own rating system. Both Android and iOS operating systems allow users to prevent the download of apps based on their age rating.

Most modern consoles and other platforms have built-in parental controls, preventing children accessing content rated for older audiences or spending money without parental permission. On Playstation 4, Xbox One and Nintendo Switch consoles these parental control include tools for managing mature content, play time and spending.[228] One-fifth (22%) of parents with children who go online used on-device parental controls in 2019, although almost half (49%) of all parents were unaware of these kinds of controls.[229]

[226] Ofcom Parents' and Children's Media Literacy Tracker 2019
[227] Ofcom-ICO research 2020
[228] Further information can be found at the VSC Rating Board's website, Ofcom's parental controls advice page or at the Nintendo, Sony and Microsoft parental control webpages
[229] Ofcom Parents' and Children's Media Literacy Tracker 2019

4. Video-sharing platforms

Introduction

Key metrics

Figure 4.1: UK video-sharing platforms (VSPs): key metrics

	2017	2018	2019	2020
UK online adults who use VSPs[1]	-	-	-	90%
UK online 8-15 year olds who use VSPs[1]	-	-	-	98%
YouTube adult online reach[2]	95%	95%	95%	97%*
Free video UK market ad revenue[3]	£1.5bn	£2.0bn	£2.50bn	-
UK % of global revenue[3]	9%	8%	8%	-

*Source: [1]Ofcom video-sharing platforms adults and children research 2020. Age: children: 8-15 adults: 18+. [2]Comscore MMX Multi-Platform, YouTube.com, age: 18+, Sep 2017-2019 and *Apr 2020, UK. [3]Oliver & Ohlbaum estimates and analysis (based on data from PwC Global Entertainment & Media Outlook). Adjusted for CPI at 2019 prices by Ofcom.*

Video-sharing platforms are a type of online video service where users can upload and share videos

A defining characteristic of a video-sharing platform (VSP) is that the provider of the service does not have effective control over all videos that are uploaded to the service, but does determine how they are organised and presented to users. By contrast, the providers of on demand programme services (ODPS) have editorial control over both the selection of videos and their organisation into a catalogue, and are subject to different regulation. As set out in figure 4.2 below, providers of user-generated content such as YouTube may act as VSPs for much of their content offering, while also offering other types of online video services.

Figure 4.2: Types of online video services[230]

Video-sharing platform (VSP)
An online service which consists of the provision of videos to the general public on a commercial basis. The key distinction between this type of service and video on-demand services (see following descriptions) is that the provider of a VSP does not have effective control over videos that are uploaded to the service by its users. Users uploading videos may be individuals who have produced the content themselves (referred to as user-generated content), or broadcasters and other corporate entities, who upload content such as broadcast TV programmes, films or music videos.

[230] Note: These are not regulatory/legal definitions

Content may be monetised in different ways but VSPs are generally free at the point of reception and funded through advertising.	
Other online video service types (not mutually exclusive)	
Subscription video on demand (SVoD)	Paid subscription video-on-demand services such as Netflix, Amazon Prime Video and Disney+. Under this model, consumers pay a flat fee, usually on a monthly or annual basis, to stream and/or download content.
Broadcaster video on demand (BVoD)	This type of video on-demand service may be free or paid-for. This label refers to services provided by broadcasters such as the public service broadcasters (PSBs) and Sky. Services include BBC iPlayer, ITV Hub, All4, My5 and Sky Go. These services may offer more than just broadcast catch-up viewing.
Advertising or ad-based video on demand (AVoD)	Content offered by this type of video on-demand service is free at the point of reception and is monetised mainly through advertising. AVoD services may be provided by commercial broadcasters (e.g. ITV Hub, All4), social media (e.g. Facebook), user-generated video platforms (e.g. YouTube) and publishers (e.g. Mail Online).
Transactional video on demand (TVoD)	Video on-demand services which allow users to make one-off payments to own, rent or view video content (e.g. Apple TV, Google Play Store, or the rent/buy feature on Amazon).

This chapter looks at a range of services, some of which may fall into scope of new regulation

In autumn 2020, the UK government intends to introduce into UK legislation new powers which will give Ofcom regulatory responsibility for VSPs established in the UK.[231] New rules will require VSP services to: have appropriate measures in place to protect young people from potentially harmful content; ensure that all users are protected from material which incites violence or hatred, promotes the commission of terrorist offences or includes child pornography, racism or xenophobia; and meet certain obligations around commercial communications.

This chapter explores a range of services that people in the UK use to watch and share video online. Although we refer to specific services broadly under the term 'video-sharing platforms (VSPs)', and other related terms, this chapter does not seek to identify which services will fall into Ofcom's regulatory remit,[232] nor to pre-determine whether any particular service we refer to would be classed as a VSP under the regulatory definition.

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[231] Following the revision of the EU Audiovisual Media Services Directive (AVMSD) in 2018, a provision was included requiring VSPs to take appropriate measures to protect users from potentially harmful content. VSPs are defined in the Directive as "a service where the principal purpose, a dissociable section or an essential functionality of the service is devoted to providing programmes, user-generated videos, or both, to the general public, for which the video-sharing platform provider does not have editorial responsibility […]. The organisation of content is determined by the VSP provider, including by automatic means or algorithms, in particular by displaying, tagging and sequencing."

[232] A recent study commissioned by DCMS explored some VSPs which may fall under the AVMSD definition and under UK jurisdiction. Plum consulting, Understanding video-sharing platforms under UK jurisdiction, December 2019.

Later in the summer, Ofcom will issue a call for evidence on video-sharing platforms. Ofcom will also be consulting later this year on the regulatory framework for VSPs, which will include guidance to help services understand whether they meet the legal definition of a VSP. Guidelines are also expected to be published by the European Commission. The UK Government intends the UK framework for regulating VSPs to be an interim regime ahead of its planned online harms legislation, which will introduce a broader scheme that is likely to cover video-sharing and social media services.[233]

Enormous amounts of user-generated video content are uploaded online across a range of services

The most established provider of user-generated video is YouTube, acquired by Google in 2006. Short-form user-generated videos defined YouTube's early days, exemplified by its first video, 'Me at the zoo' (5 minutes 22 seconds long) and the tagline 'Broadcast Yourself'. By the end of 2010 YouTube began permitting videos longer than 15 minutes for "users with a history of complying with the YouTube Community Guidelines and [its] copyright rules",[234] and diversified its offering with the introduction of a TVoD service and more recently its SVoD service, YouTube Premium. In 2013, YouTube announced that it had reached a billion monthly users.[235] More than 500 hours of content are now uploaded to YouTube every minute,[236] it has more than 2 billion logged-in global users each month,[237] and it is the second most-visited site after parent Google.com.[238] In total, 168 billion YouTube videos were watched by adults in the UK in 2019, equating to more than 4000 videos per YouTube UK adult viewer, or 11 videos per day, in 2019.[239]

Providers which act as VSPs now encompass a wide array of services that intersect with social media and music/video-subscription services and continue to evolve. As well as adopting features of other online services in order to attract and retain users, providers such as YouTube and Twitch are taking an increasingly active role in facilitating a range of professional-standard user-generated video content (for instance, through the YouTube Partners Programme which allows creators to monetise their videos) and hosting original series (such as YouTube Originals). In turn, social networks and messaging services are placing increasing emphasis on video to engage users, such as Facebook Watch's launch in 2017 and Instagram's introduction of IGTV in 2018. As such, business models and methods of content delivery for user-generated video content can be diverse and complex.

In 2017, Facebook, the fourth most-visited site globally,[240] launched Facebook Watch in the US, with subsequent worldwide roll-out in 2018. Facebook Watch is a dedicated space for video that also

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[233] DCMS, Audiovisual Media Services, Government response to public consultations on the government's implementation proposals, 30 May 2019.
[234] YouTube Official Blog, Up, up and away – long videos for more users, 9 December 2010.
[235] YouTube Official Blog, YouTube Hits a Billion Monthly Users, 20 March 2013.
[236] Tubefilter, More Than 500 Hours Of Content Are Now Being Uploaded To YouTube Every Minute, 7 May 2019.
[237] YouTube About Press, as at 1 April 2020.
[238] Alexa.com, The Top 500 sites on the web, as at 1 April 2020.
[239] Comscore VMX Multi-Platform, YouTube.com, Age 18+, Jan-Dec 2019, UK.
[240] Alexa.com, The Top 500 sites on the web, as at 1 April 2020.

hosts Facebook original content, in addition to videos that are shared via the Facebook feed. Watch includes videos from traditional broadcasters such as German broadcaster ProSiebenSat.1,[241] as well as creators such as Jada Pinkett Smith's *Red Table Talk*. As of June 2019, Facebook reported that every day 140 million people spent at least one minute in Watch, with daily visitors spending on average 26 minutes watching videos on the service.[242] Facebook-owned Instagram also introduced video-sharing in 2013.

Amazon, meanwhile, launched Amazon Prime Video Direct in 2016, which provides a platform for user-generated content within its SVoD service, Prime Video. The Wall Street Journal reports that two-thirds of the titles on Amazon Prime Video are uploaded by users.[243] Creators monetise their videos through the service based on subscription and purchase revenue shares, or ad impressions (see market context and business models).

New services are also coming to market. In January 2020, the creators of Vine released short-form video service, Byte, where users post 6-second looping videos. Its release follows the emergence of another mobile-first short-form video-sharing app, TikTok, owned by Chinese internet technology company Bytedance. TikTok was launched in China (as Douyin) in September 2016 and in the UK in September 2018, after Bytedance's merger with musical.ly in 2017. TikTok is used predominantly to create lip-sync, comedy and dance videos, and the TikTok app was downloaded more than 700 million times across the world in 2019.[244]

Providers of user-generated video are constantly evolving, but share some common features

Figure 4.3 below identifies some of the features that are common across selected sites and apps with video-sharing functionality.

Video upload functionality is often accompanied by a wide range of social and content-sharing features. Livestreaming – the ability for users to broadcast video content as it happens – is an increasingly common feature among providers. Some platforms, such as Twitch, are dedicated to livestreaming, while others, such as YouTube and Facebook, have launched the functionality as a later addition to their platforms (in 2011 and 2016 respectively). Some allow any user to livestream (e.g. Instagram, through its Stories feature), while others have restrictions in place, such as requiring a minimum number of subscribers or followers before becoming eligible to livestream (e.g. TikTok and YouTube).[245] Livestreaming also often allows users to interact in real time with other viewers and the creator via a live chat feed.

A personalised content feed is another common feature. These can be personalised by users choosing to follow or subscribe to, certain creators or topics, or can be based on their previous activity (likes, clicks and watch history) on a platform. Examples include the personalised

[241] Digital TV Europe, Facebook Watch strikes digital deal with ProSiebenSat.1, 12 June 2019.
[242] Facebook, Catching Up With Facebook Watch, 12 June 2019.
[243] Vox, The dark underbelly of Amazon Prime Video, 24 Jan 2020.
[244] Kids Insights UK, Trend Alert, Oct -Dec 2019.
[245] To stream on YouTube Live from a mobile device, creators need to have at least 1,000 subscribers. Those with less than 1,000 subscribers can still live stream from a desktop and webcam. See: YouTube Help, Restrictions on live streaming.

recommended videos on the YouTube homepage, and Instagram's Explore page which shows a collage of posts that might interest the user.

Figure 4.3: Video-sharing and social functionality on popular online platforms

	VIDEO			PERSONALISATION		SOCIAL						BUSINESS MODEL	
	VIDEO SHARING	STORIES [246]	LIVE-STREAMING [247]	PROFILE/ ACCOUNT	PERSONAL FEED	FRIENDS [248]	FOLLOWERS	COMMENTS	PRIVATE MESSAGES	LIKES/ VOTES	HASHTAGS/ TAGS [249]	ADVERTISING [250]	TRANSACTIONS [251]
YOUTUBE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	#	✓	✓
FACEBOOK	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	#	✓	✓
INSTAGRAM	✓	✓	✓	✓	✓		✓	✓	✓	✓	#	✓	
TWITTER	✓	✓	✓	✓	✓		✓	✓	✓	✓	#	✓	
SNAPCHAT	✓	✓		✓	✓	✓	✓		✓			✓	
REDDIT	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
IMGUR	✓	✓		✓	✓		✓	✓	✓	✓	#	✓	
VIMEO	✓		✓	✓			✓	✓	✓			✓	
TIKTOK	✓		✓	✓	✓	✓	✓	✓	✓	✓	#	✓	✓
TWITCH	✓		✓	✓	✓	✓	✓	✓	✓		#	✓	✓
LIVELEAK	✓		✓	✓			✓	✓	✓	✓		✓	
TUMBLR	✓		✓	✓	✓		✓	✓	✓	✓	#	✓	

[246] Stories or similar functionality differs by platform. For instance, YouTube only allows content creators with at least 10,000 subscribers to use this feature and makes the content available for 7 days (YouTube Help); Twitter's 'Moments' feature allows users to share content on their profile compiled by a small number of tweets (Twitter help centre); Imgur's Snacks feature allows users to watch GIFs on the app (Imgur help) .

[247] Livestreaming functionality also differs by platform. For instance, only TikTok creators over the age of 16 with over 1000 followers can go 'live' (Business Insider, 2 Jan 2020); users can only live stream on Vimeo if they subscribe to its Premium tier; and Tumblr livestreams are supported through YouNow, Kanvas, Upclose and YouTube connected to users Tumblr account (Support on Tumblr) .

[248] Friend functionality may differ by platform and the distinction with followers may not always be clear; for instance, Twitter allows users to pre-approve their followers and the visibility of their tweets, while Instagram enables a 'close friends' option so that users can choose an exclusive group of followers with whom to share their Stories.

[249] On Imgur and Twitch, 'tags' group posts and streams together.

[250] Vimeo provides a basic free tier for users, which features display advertising on some pages, but its core business is based on a tiered subscription model. See Business models and monetisation later in this chapter.

[251] Includes both exchange of money between users and between users and platform, but does not include subscription.

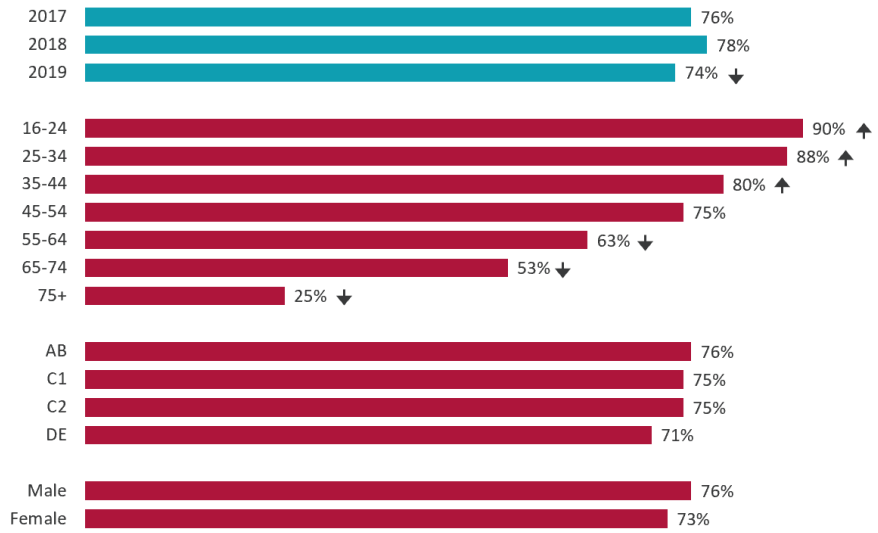
Take-up and use

Use and user demographics of VSPs in the UK

Watching content on VSPs is a common pastime among adults and children in the UK

Ninety per cent of adults and 98% of children aged 8-15 who use the internet say they have used a VSP in the last year; this includes watching videos, uploading videos, commenting on videos and sending private messages.[252] Overall, 74% of internet users watch content on a VSP. Those aged 16-44 are more likely than average to do so, while those aged 55+ are less likely.[253] Overall, 32% of adult VSP users spend more time watching videos on VSPs than live broadcast TV, with younger adults more likely than older adults to do this; 57% of 18-24 year-olds VSP users spend more time watching videos on VSPs than on live broadcast TV.[254]

Figure 4.4: Incidence of watching video content on sites and apps, by age, gender and socio-economic group, and by year: 2017-2019

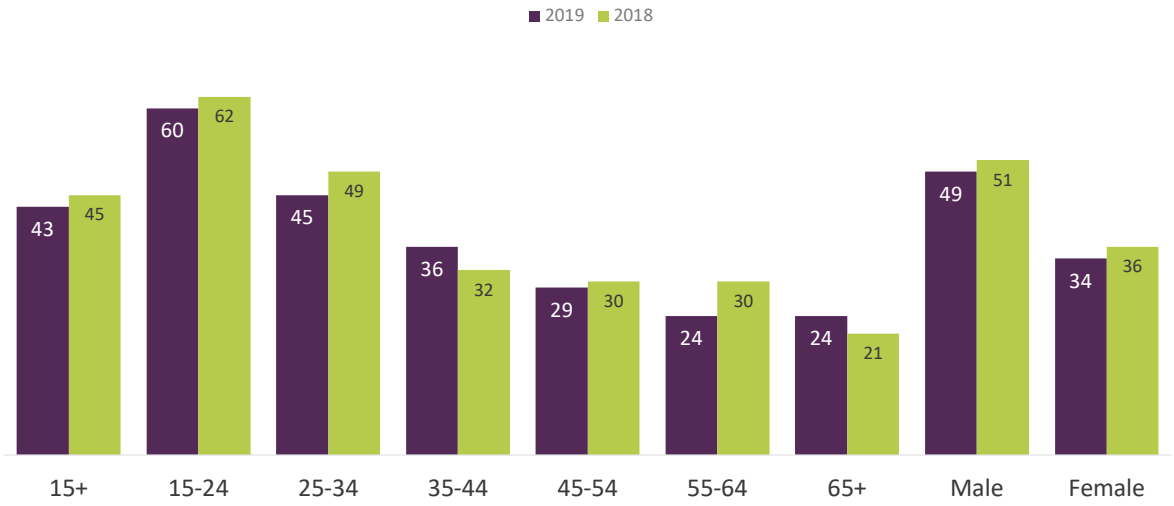


Source: Ofcom Adult Media Literacy Tracker 2019. IN19A. Do you ever watch videos on sites or apps like YouTube, Vimeo, Snapchat or Facebook? (prompted responses, single coded). Base: All adults aged 16+ who go online (1570 in 2017, 1602 in 2018, 1601 in 2019, varies by demographic). Arrows show significant differences (95% level) between 2018 and 2019 at the overall level and by age/ socio-economic group compared to all internet users and males compared to females.

VSP users aged over 15 spend around 43 minutes per day watching content, and male audiences spend 42% more time than women per day watching content on VSPs.[255] Conversely, in 2019, females aged 4+ spent on average 3 hours 16 minutes watching broadcast TV; 15% more than their male counterparts.[256]

[252] Ofcom video-sharing platforms research 2020 (adults and children)
[253] Ofcom Adult Media Literacy Tracker 2019
[254] Ofcom video-sharing platforms research 2020 (adults)
[255] TouchPoints 2018 and 2019 GB, age: 15+
[256] BARB

Figure 4.5: Minutes per day spent watching content on video-sharing services



Source: TouchPoints 2018 and 2019 GB, Watching Any Online Video (Short or Long Form, Not on TV Set) - Mon-Sun Reach ~ Reach By Day/Week. Base: Those who watch any Online Video (Short or Long Form, Not on TV Set). Excludes SVoD and BVoD.

YouTube is the most popular service for watching user-generated video online

In the UK, YouTube and Facebook are the highest-reaching platforms with video-sharing capabilities. YouTube videos can be found embedded on various sites other than the YouTube platform itself (e.g. on a news website), resulting in some viewers not necessarily being aware that they are consuming a YouTube video. Reach, in figure 4.6 below, relates to site/app reach, not necessarily to video viewing or uploading by the visitor; many sites provide various other functionalities such as photo sharing and messaging. The reach data covers use on desktops, laptops, tablets and mobile devices, but excludes use on a TV set.

Figure 4.6: Reach of selected sites and apps with video-sharing capabilities among online adults in the UK: Sept 2019

	Total digital population		Desktop		Mobile	
	Unique visitors	Digital reach	Unique visitors	Digital reach	Unique visitors	Digital reach
YouTube	41.97m	95%	21.06m	74%	38.87m	92%
Facebook	41.40m	94%	13.88m	49%	37.41m	89%
Instagram	31.22m	71%	3.27m	11%	29.82m	71%
Twitter	24.58m	56%	3.89m	14%	22.26m	53%
Pinterest	15.06m	34%	2.83m	10%	13.26m	32%
Snapchat*	11.8m	26%			11.8m	26%
Reddit	11.01m	25%	4.08m	14%	8.3m	20%
Vimeo	3.83m	9%	1.22m	4%	2.92m	7%
Tumblr	3.20m	7%	1m	4%	2.48m	6%

TikTok	3.17m	7%	99k	0.3%	3.11m	7%
DailyMotion	2.93m	6%	1.11m	4%	2.11m	5%
Imgur	2.77m	6%	884k	3%	2.14m	5%
Twitch	2.25m	5%	1.37m	5%	1.19m	3%
Telegram	1.46	3%	18k	0.1%	1.45m	3%
9GAG	593k	1.3%	94k	0.3%	516k	1%
Mixer	411k	0.9%	223k	0.8%	242k	0.6%
Yubo	260k	0.6%			260k	0.6%
BitChute	210k	0.5%	61k	0.2%	163k	0.4%
LiveLeak	80k	0.2%	45k	0.2%	37k	0.1%
Periscope	74k	0.2%	3k	0.009%	71k	0.2%
BIGO	51k	0.1%	4k	0.014%	48k	0.1%
YouNow	29k	0.1%	6k	0.022%	23k	0.1%
DLive	29k	0.1%	29k	0.1%		

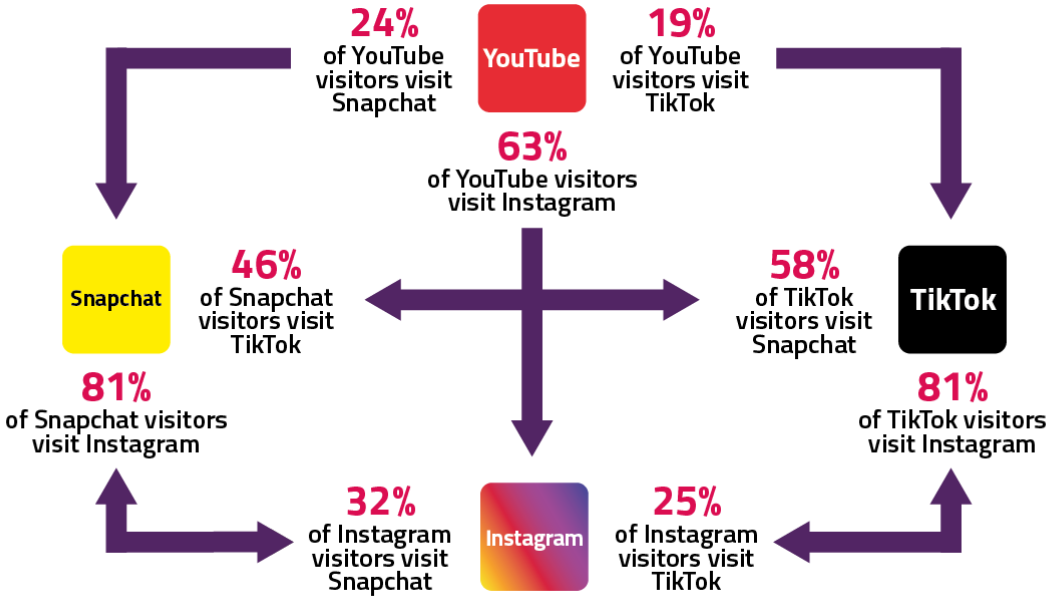
Source: Comscore MMX Multi-Platform, Age: 18+, Sep 2019, UK.
*Note: Unique visitors/ reach does not equate to number of accounts/profiles in the UK. Custom defined list by Ofcom. *Snapchat figure taken from Nov 2019 due to Comscore methodology enhancements.*

Instagram had the fastest-growing reach in the UK in 2019, up by 12pp (2018: 59%), with 95% of online 18-24s accessing the site and/or app in September 2019. TikTok, meanwhile, almost doubled its app reach among young adults in the past year; from 590k in September 2018 to 1.07 million in September 2019.[257] TikTok has also proved popular with younger age groups; according to Kids Insights, TikTok was the most downloaded app among 6-18s in 2019 in the UK. Its use among younger age groups grew by 500% between Q1 and Q4 2019, reaching 13% of all 3-18s. It is particularly popular among 10-12 year-old girls.[258] Four per cent of UK 3-15s cited TikTok as their favourite app in April 2020, an increase of 2 percentage points year on year.[259]

Many users visit more than one of these sites; figure 4.7 below shows the proportion of online adults who cross-visit YouTube, Snapchat, Instagram and TikTok.

[257] Comscore Mobile Metrix, TikTok, app only, Age: 18-24, Sep 2019, UK
[258] Kids Insights UK, Q4 2019. TikTok was the most downloaded app in Q4 amongst children with 59k downloading the app of which 31k of 10-12 year olds girls stated they had downloaded the app in during the quarter.
[259] Kids Insights UK, April 2019 and 2020, 3-15 year olds

Figure 4.7: Proportion of adult users cross-visiting YouTube, Snapchat, Instagram and TikTok: March 2020



Source: Comscore MMX Multi-Platform, Cross visiting, Age: 18+, March 2020, UK.
Note: Users does not equate to accounts/profiles in the UK. Snapchat data is app only.

During the coronavirus pandemic the number of adults accessing TikTok in the UK more than doubled: 12.9 million in April 2020 compared to 5.4 million in February[260]

During the UK lockdown, the number of UK adult visitors to TikTok increased significantly (January 2020: 5.4 million, April 2020: 12.9 million), while visits to YouTube, Facebook and Twitch increased by around 1-2 million visitors. 59% of online 18-24 year olds visited TikTok in April. But Snapchat had a slight reduction in the number of adult visitors (-439k) compared to January; 11.4 million adults visited the app in April. YouTube and Facebook already had large user bases, and so did not have such large increases during the isolation period, although time spent on these platforms did increase during the lockdown (see figure 4.8).[261] YouTube users aged 18-24 spent one hour 32 minutes per day on the platform in April, up by 15 minutes per day since January 2020 and by 27 minutes since September 2019. In April 18-24 year-old visitors to TikTok spent 12 minutes more per day on the platform (32 mins) compared to January.[262]

Children are also using YouTube more frequently; 54% of 3-18 year olds reported that they were going on YouTube at least "a few times a day" during lockdown – an increase of 9 percentage points compared to the same period last year.[263] And 14% of 3-12 year olds and 31% of 13-18 year olds used TikTok during the lockdown; up by 2 and 7 percentage points respectively since January 2020.[264]

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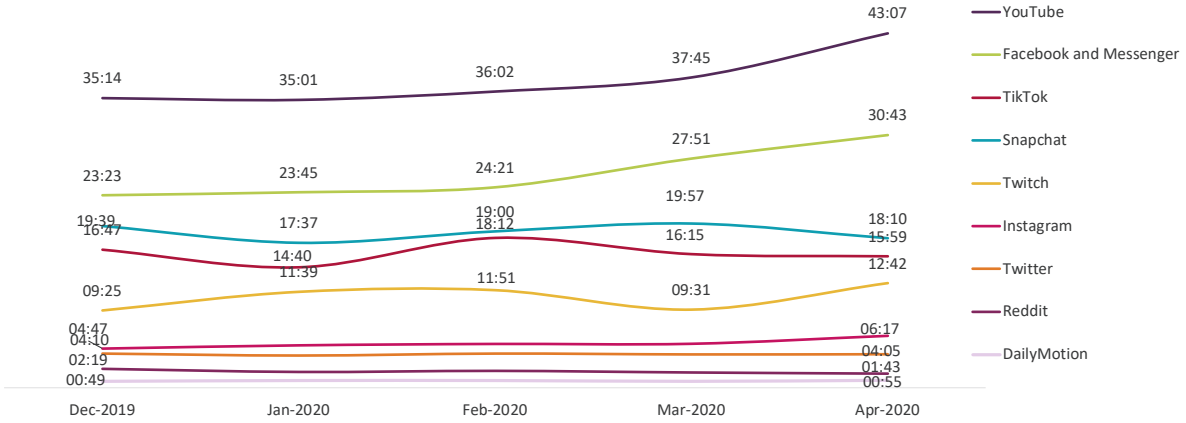
[260] Comscore MMX Multi-Platform, TikTok, Age: 18+, Feb and April 2020, UK. Note: In February 6.2m adults visited TikTok.
[261] Comscore MMX Multi-Platform, TikTok, Twitch, YouTube, Facebook and messenger and Snapchat (Mobile App), Age: 18+, Jan and April 2020, UK.
[262] Comscore MMX Multi-Platform, YouTube and TikTok, Age: 18-24, Jan and Apr 2020, UK. Note: Excludes TV set use. Time spent on platform does not equate to video viewing time - other activities may have been undertaken on the platforms.
[263] Kids Insights UK, 23 March – 30 April 2019 and 2020, age: 3-18. Single select question: How often do you go on YouTube?
[264] Kids Insights UK, 23 March – 30 April 2020 and 1-31 January 2020 age: 3-18.

Figure 4.8: Average minutes per day spent by adult visitors in the UK on selected sites and apps with video-sharing functionality



Source: Comscore MMX Multi-Platform, Age: 18+, Dec 2019 – Apr 2020, UK.
Note: Custom defined list by Ofcom. Excludes TV set use. Time spent on platform does not equate to video viewing time – other activities may have been undertaken on the platforms.

Adults are most likely to use YouTube and Facebook to watch video, while children and teenagers are most likely to use YouTube, TikTok and Snapchat

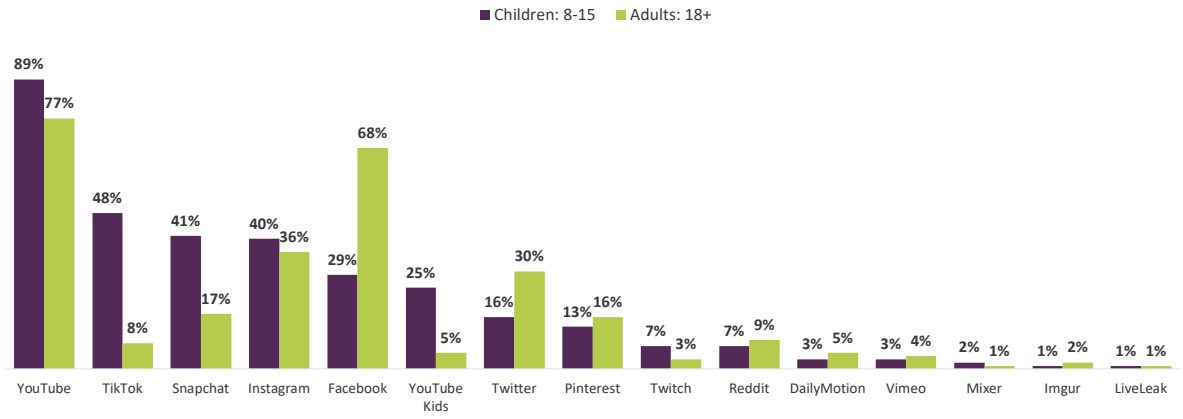
Despite the minimum age requirement of 13 on many popular online platforms (for account holders, not necessarily for browsing), many under-13s report using them: 88% of 8-12 year olds use the main YouTube platform, 44% use TikTok, 27% use Snapchat, 22% use Instagram and 17% use Facebook.[265] Use of any video-sharing site in the past 12 months is also higher among those who have children under 18 (96%) than those without (88%).[266]

YouTube is the most popular service for user-generated video content among children and adults, but the second and third most popular sites vary between children and adults: TikTok, Snapchat and Instagram are the most popular among children (8-15), while Facebook and Instagram are most popular among adults (18+). In May 2020 YouTube channel Cocomelon – Nursery Rhymes became the first channel to achieve 1 billion views per week globally, meaning that more than 1,600 people are watching its videos every second.[267] Cocomelon – Nursery Rhymes is known for producing 3D animation videos and in particular its popular *baby shark* song. About a quarter of 8 to 15-year-olds report watching YouTube Kids, a child-oriented version of the YouTube service, with curated content, parental controls and content filters, making it the fifth most popular among the sites asked about.

Although men report that they spend more time on VSPs each day,[268] a higher proportion of women report using Facebook for video services (75% vs. 61%). Women are also more likely than men to have used Instagram's video features in the past 12 months (45% vs. 26%).

[265] Ofcom video-sharing platforms research 2020 (children, age 8-15)
[266] Ofcom video-sharing platforms research 2020 (adults)
[267] Tubefilter, Top 50 Most Viewed YouTube Channels Worldwide • Week Of 5/18/2020
[268] TouchPoints 2019 GB, age: 15+

Figure 4.9: Use of sites with video-sharing capabilities in the past 12 months, by age: 2020



Source: Ofcom video-sharing platforms research 2020. Adult question: In the last 12 months, have you visited or used any of the following sites or apps that host user-generated videos? This includes watching videos, uploading videos, commenting on videos or sending private messages on these sites or apps. Children's question: In the last 12 months, have you visited or used any of the following websites or apps that you can upload videos to and watch what others have uploaded too? Base: Adult 18+, 2081. Children 8-15, 1006.

36% of adult VSP users use smartphones several times a day to access VSPs

As with overall internet use, VSPs are most commonly accessed via smartphones; 74% of UK adult VSP users use a smartphone to visit a VSP, and the majority of 18-24s VSP users use their smartphones to access VSPs several times a day (71%).[269]

The 'time spent' data in figures 4.10 and 4.12 below includes activities such as browsing, direct messaging and commenting as well as video viewing on desktop and mobile devices. More than 70% of YouTube global watch time is on mobile devices.[270] YouTube is also accessible via connected TV sets, and in 2019 YouTube stated that TV sets were its fastest-growing access device, with more than 250 million hours of content watched on TV screens per day globally, up from 180 million hours in June 2018.[271] A third of adults have used a smart TV to access VSPs, rising to half of 25-34s, and a fifth of this age group are doing this on a daily basis.[272]

In both reach and time spent, most of YouTube app use is on smartphones – 73% of the UK adult online population use the YouTube app on their smartphones. Probably because YouTube is pre-installed on Android devices, it has higher reach on Android than on iOS. In contrast, the Snapchat app is more likely to be used on Apple devices. This may be because, historically, the iOS app was more highly developed than the Android app; in 2019 the Android app was redeveloped.[273]

[269] Ofcom video-sharing platforms research 2020 (adults).
[270] YouTube press, as at 28 May 2020.
[271] YouTube blog, 2019 Brandcast stage highlights: Primetime is now personal, 2 May 2019. Note: YouTube Internal Data, Global, March 2019. Based on 90 day average of WatchTime for Living Room Devices, which include smart TVs, Roku/Apple TV, and game consoles.
[272] Ofcom video-sharing platforms research 2020 (adults). 22% use a laptop and 16% use a tablet to access these sites at least daily.
[273] Comscore Mobile Metrix, YouTube and Snapchat, app only, Age: 18+, Sep 2019, UK.

Figure 4.10: Reach of selected apps with video-sharing capabilities, on smartphones, adults UK: Sept 2019

	Smartphone		iPhone		Android	
	Unique visitors	Reach	Unique visitors	Reach	Unique visitors	Reach
YouTube	27.2m	73%	9.2m	62.5%	18.1m	80.5%
Facebook	25.5m	69%	8.9m	60.4%	16.7m	74.1%
Instagram	19.2m	52%	9.7m	66.1%	9.5m	42.1%
Snapchat*	11.2m	47%	7.1m	85.2%	4.1m	21.9%
Twitter	9.8m	26%	4.2m	28.6%	5.6m	25.0%
Pinterest	5.4m	15%	2.7m	18.1%	2.7m	12.2%
TikTok	2.8m	8%	1.5m	10.1%	1.3m	5.8%
Reddit	1.4m	4%	411k	2.8%	996k	4.4%
Telegram	1.3m	3%	91k	0.6%	1.2m	5.3%
Tumblr	773k	2%	267k	1.8%	509k	2.3%
Twitch	487k	1.3%	393k	2.7%	94k	0.4%
Mixer	110k	0.3%	30k	0.2%	80k	0.4%
Imgur	77k	0.2%			77k	0.3%
Vimeo	74k	0.2%			74k	0.3%
Periscope	71k	0.2%			71k	0.3%
DailyMotion	28k	0.1%	8k	0.1%	8k	0%

Source: Comscore Mobile Metrix, App only, Age: 18+, Sep 2019, UK.

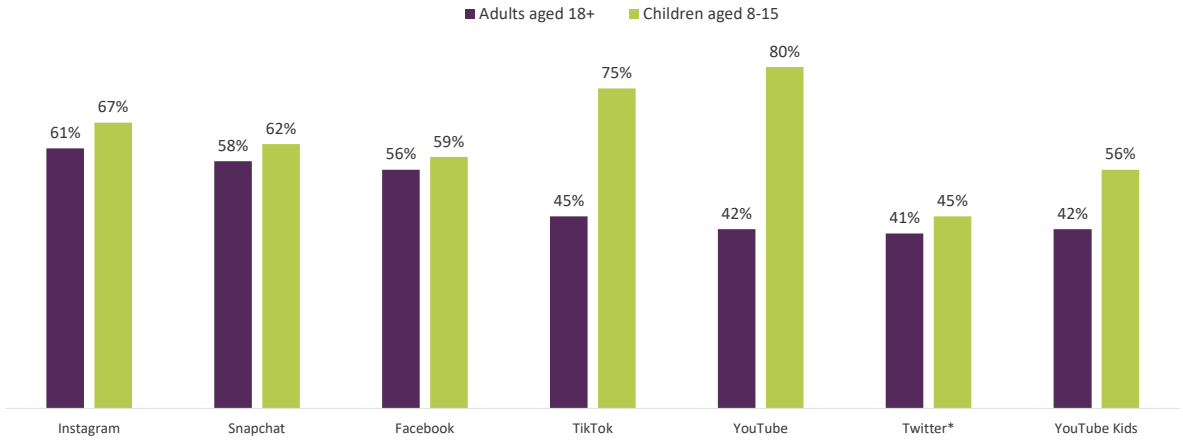
*Note: Custom defined list by Ofcom. *Due to Comscore methodology enhancements, Snapchat data has been taken from November 2019.*

62% of adults who visit video-sharing sites watch videos on these services at least daily

Nearly half (45%) of adults who use VSPs, and 73% of children aged 8-15, watch videos on these services multiple times a day. Adult multiple daily consumption of online video on such sites differs by gender. Men use Twitter to watch videos more than women (48% of male Twitter users say they use the platform at least daily to watch videos, compared to 35% of women). Among children, our research shows that girls aged 8-15 using TikTok report watching videos several times a day more often than boys (68% vs. 49%). Among YouTube users, a higher proportion of boys than girls aged 8-15 watch videos at least daily (82% vs. 77%).[274]

[274] Ofcom video-sharing platforms research 2020 (adults and children)

Figure 4.11: Proportion of users who stated that they watch video on the following services "at least daily"



*Source: Ofcom video-sharing platforms research 2020. Question: Q.2 In the last week, how often did you watch videos on these services? Base: All who visited/used sites/ apps (Instagram adult: 727, children: 399, Snapchat 333/414, Facebook 1416/291, TikTok 144/483, YouTube 1602/899, Twitter 651/71, YouTube Kids 111/140). *Note: Figure for use of Twitter among children has a low base size of 71.*

18-24 year-olds are the heaviest users of video-sharing sites

On average, almost a quarter (24%) of the 4 hours 21 minutes spent online per day by 18-24 year olds in the UK is spent on YouTube, compared to 13% for all adults.[275] For the majority of the sites shown in figure 4.12, 18-24 year-olds spend more time than other adults on them, apart from Facebook. Facebook has lower reach, but Twitch ranks higher in terms of time spent per user (probably due to people watching live-streamed gaming content). Engagement with gaming content is explored further in our chapter on online games.

Figure 4.12: Average time spent on selected sites and/or apps with video-sharing capabilities, UK online adults, Sept 2019

Time spent rank	Digital reach rank[276]		Time spent per day by adult platform user: Sep 2019 (min:sec)	
Age: 18+			Age: 18+	Age: 18-24
1	1	YouTube	28:52	65:01
2	2	Facebook	25:36	18:25
3	6	Snapchat*	21:17	40:53
4	10	TikTok	12:22	16:34
5	13	Twitch	11:01	11:27
6	3	Instagram	08:03	15:01
7	20	Periscope	05:39	15:28

[275] Comscore MMX Multi-Platform, Age: 18+, Sep 2019, UK. Note: Excluding TV set use.
[276] See figure 4.10, Multi-Platform reach.

8	4	Twitter	03:40	04:47
9	18	BitChute	03:31	00:10
10	17	Yubo	03:02	02:01
11	9	Tumblr	02:49	04:15
12	15	9GAG	02:19	00:58
13	14	Telegram	02:14	02:09
14	7	Reddit	02:05	03:06
15	16	Mixer	01:06	02:05
16	19	LiveLeak	01:01	00:30
17	11	DailyMotion	00:59	00:44
18	22	YouNow	00:29	00:29
19	12	Imgur	00:28	00:26
20	8	Vimeo	00:08	00:10

Source: Comscore MMX Multi-Platform, Age: 18+, Sep 2019, UK.
Note: Custom defined list by Ofcom. Excludes TV set use. Time spent on platform does not equate to video viewing time – other activities may have been undertaken on the platforms.
Note: Snapchat data taken from November 2019 due to methodology enhancements.*

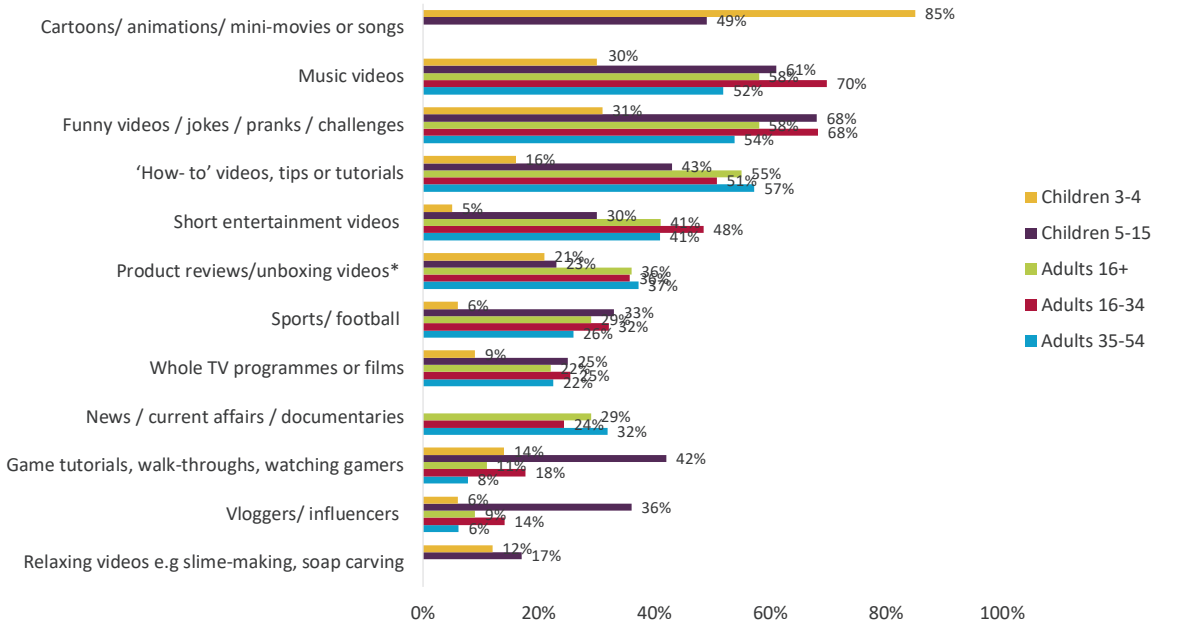
Key genres and user engagement with video-sharing sites

In the UK, entertainment and how-to videos are the most popular content on YouTube

Google has indicated that the most common reasons given by consumers in the UK who access YouTube are for entertainment and to watch how-to videos.[277] This is consistent with Ofcom research, which finds that music and funny videos are the most popular type of content for 16-34 year olds (70% and 68% respectively) while the most popular content watched by over-35s is 'how-to', tips and tutorial videos (57% among 35-54s and 62% among those aged 55+:).

[277] CMA, Online platforms and digital advertising: market study interim report, 2019, p.94 (CMA, Interim report)

Figure 4.13: Type of content watched on video-sharing sites by adults, and on YouTube by children



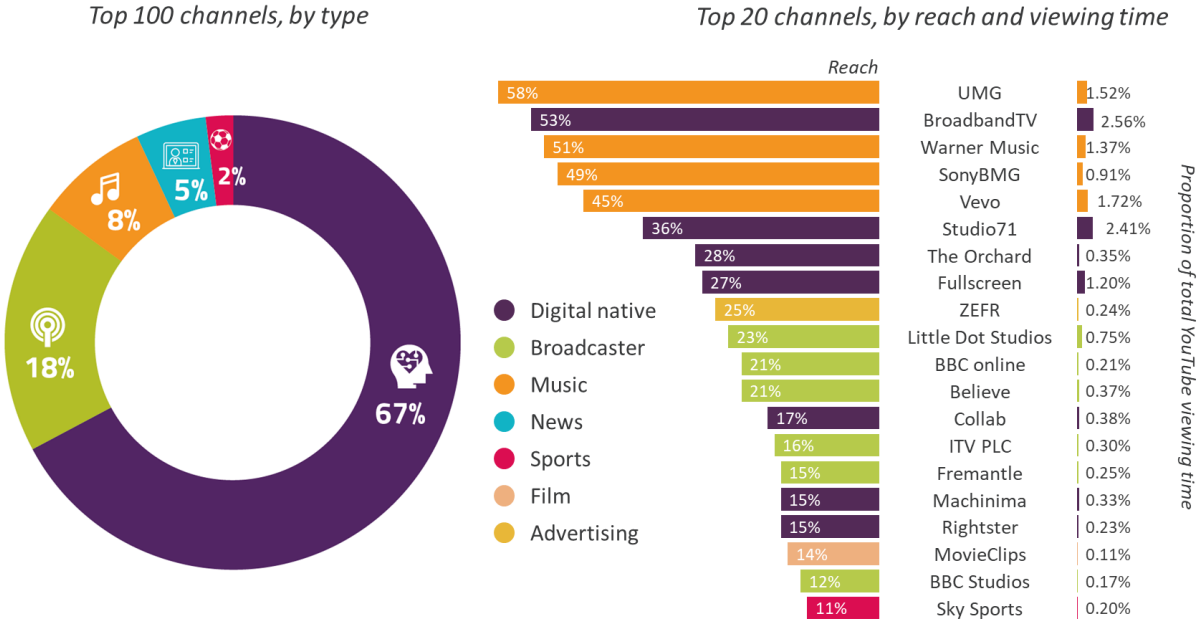
*Source: Ofcom Adults' and Children's Media Literacy Trackers 2019. Adult survey question: What types of videos do you tend to watch on these sites or apps? (prompted responses, multi-coded). Base: All aged 16+ who ever watch content on video-sharing sites (1126 in 2019). Children's survey question: Here is a list of the sorts of things that your child may have watched on YouTube. Which if any of these types of things do they watch on YouTube? (responses from parents for 3-7 year-olds and from children aged 8-15, multicode). Base: Parents whose child uses the YouTube website or app (1752 for 5-15 year-olds; 452 for 3-4 year-olds). *Labelled as 'product reviews' in adult survey and 'unboxing videos' in children's survey.*

Brands and broadcasters are increasing their reach on YouTube, but the long tail continues to make up the large majority of time spent

Most of the content viewed on YouTube is 'digital native', i.e. content designed specifically for digital viewing. Nevertheless, the most-viewed YouTube 'channels'[278] in the UK are largely made up of professionally produced content from music brands and media groups, and amalgamations of individual channels, known as multichannel networks (MCNs). Broadcasters are also re-purposing some of their output for the platform. Of the top one hundred YouTube channel entities in the UK, 18 are broadcasters. Even so, although many people use the platform to access branded content and to watch music or clips from broadcasters and movie studios, the long tail of content continues to account for the large majority of time spent. Collectively, the top 20 most-viewed channels account for just over a fifth (21.5%) of total time spent on YouTube in the UK.[279]

[278] 'Channels' here refers to the partners reported in Comscore's YouTube Partners Report and does not necessarily equate to a YouTube channel name as seen on the platform.
[279] Comscore VMX Multi-Platform, YouTube Partners report, Age: 18+, Sep 2019, UK.

Figure 4.14: Top YouTube 'channels', by organisation type



Source: Comscore VMX Multi-Platform, YouTube Partners report, Age: 18+, Sep 2019, UK.
Note: organisation classification by Ofcom, Top 100 based on digital audience reach.

As outlined above (see figure 4.3), many video platforms let users watch live broadcasts. Forty-six per cent of adults and 69% of 8-15 year olds who use video-sharing sites reported having ever watched a livestreamed video or event on a VSP platform, with 15% of adults and 30% of 8-15s watching this type of content at least daily.[280] According to Kids Insights, in 2019 4% of 3-12 year-olds and 5% of 13-18 year-olds posted a live video on a social media site or app.[281]

During the coronavirus pandemic, livestreaming has provided a means for users to stay in touch and boost morale. Millions have watched Joe Wicks' *P.E. with Joe* daily livestream on YouTube at 9am, which began streaming on 23 March.[282] On 28 March, livestreaming site Twitch hosted a Stream Aid charity event to raise money for the fight against the coronavirus, with performances by celebrity musicians.[283] TikTok partnered with the WHO to host live streams that featured WHO experts answering live questions about health information.[284]

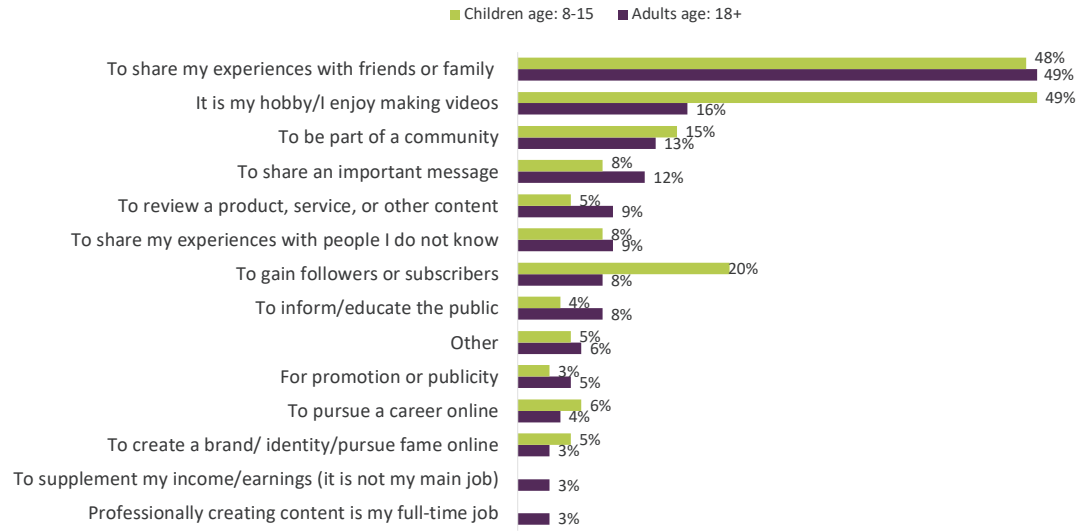
40% of adults and 59% of children who use video-sharing sites have made and uploaded a video online

User-generated video content includes amateur and professionally produced videos and, for some, provides a source of income. Forty per cent of adults and 59% of 8-15 year-olds who use video-sharing sites have made a video and shared it online. 9% of adult and 16% of 8-15 year-old YouTube users create and upload videos at least weekly, while 20% of adult and 42% of 8-15 year-old Instagram users

[280] Ofcom video-sharing platforms research 2020 (Age: children: 8-15, adults: 18+).
[281] Kids Insights UK, 1 January – 31 December 2019, age: 3-18. Multi choice question: What kind of posts do you share on social media?
[282] The Bodycoach, P.E. With Joe.
[283] Twitch, Stream Aid 2020, 4pm- 5am GMT 28 March 2020.
[284] TikTok Safety Centre, Supporting Our Community Through COVID-19.

create and upload videos at least weekly. Among Snapchat users, 38% of adults and 48% of 8-15 year olds say that they create videos at least weekly, and among TikTok users, 28% of adults and 50% of 8-15 year olds do so.

Figure 4.15: Reasons for creating videos for video-sharing sites or apps

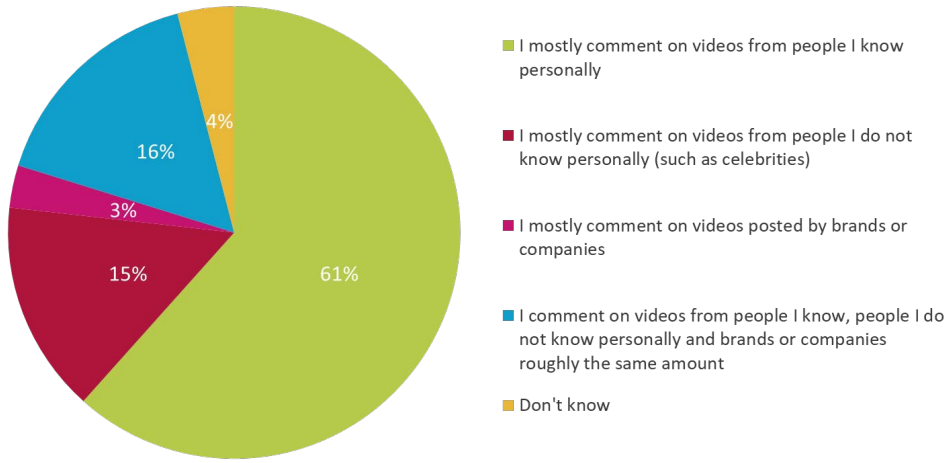


Source: Ofcom video-sharing platforms research 2020. Question (Q.25/Q.17): Why do you create videos for video-sharing sites or apps? Base: All who uploaded videos to video-sharing sites (adult: 729, children: 567).

Sharing a video that someone else has posted is also a popular activity: 57% of adults and 59% of 8-15 year-olds who use video-sharing sites have shared a video uploaded by someone else, while 15% of adults and 24% of 8-15 year-olds say they do so at least daily.[285]

Commenting on others' videos is also a regular activity for many users: 45% of adults and 54% of 8-15 year-old children who use VSPs say that they comment on other people's videos at least once a week. Ofcom research shows that adult VSP users mostly comment on videos from people they know personally rather than on those from brands or celebrities.

Figure 4.16: Most common behaviours by adults for posting comments on others' videos



[285] Ofcom video-sharing platforms research 2020 (Age: children: 8-15, adults: 18+)

Source: Ofcom video-sharing platforms research 2020 (adults). Question: Q.6 You said you comment on other people's videos, which of these statements applies to you the most? Base: All who commented on other people's videos (836).

Market context and business models

Features and functionality

Video-sharing capabilities have been integrated into many platforms to improve user engagement

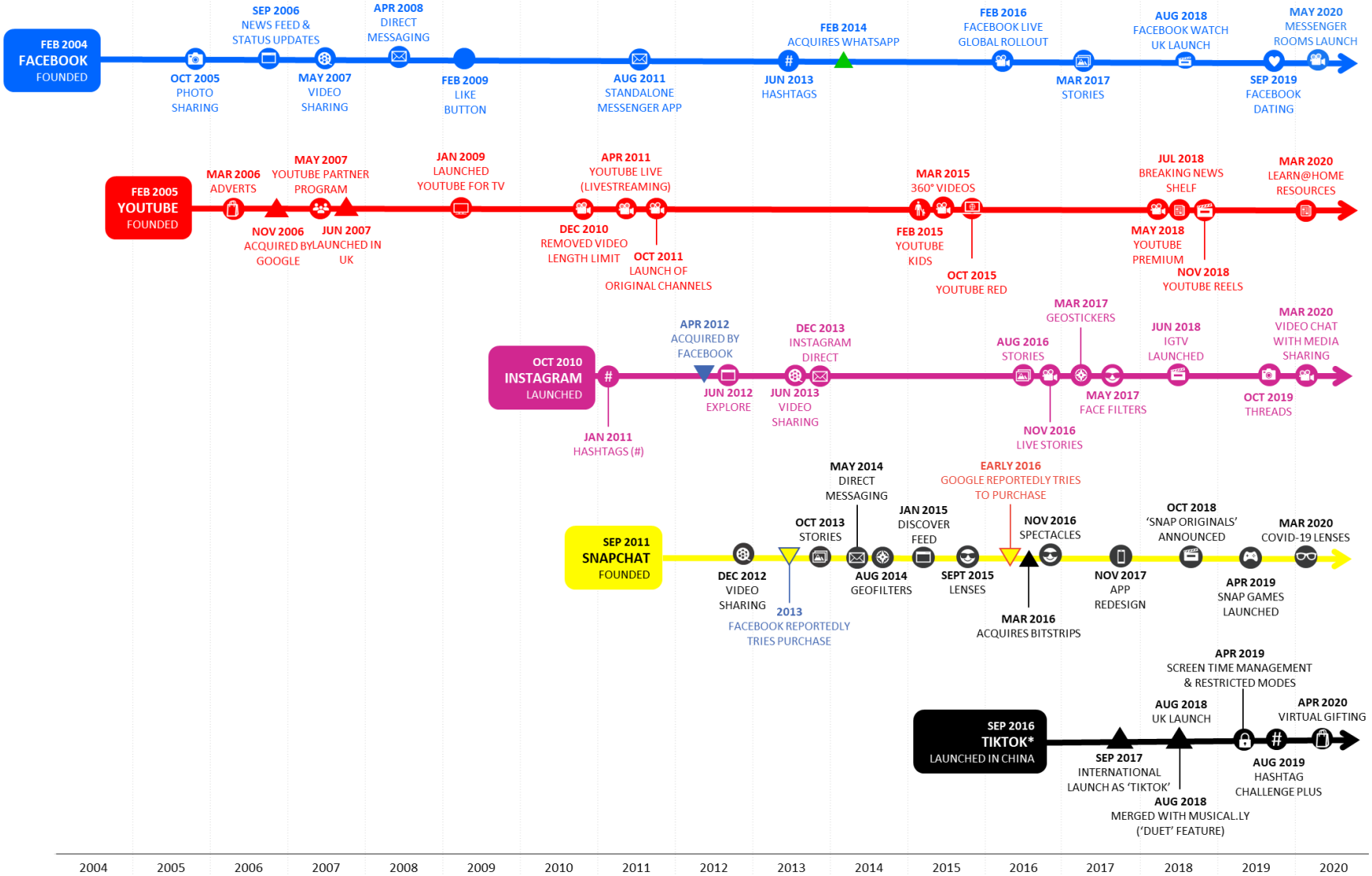
To maintain users and engagement, sites which provide video-sharing functionality innovate and acquire new features or incorporate features that have been successful on other platforms. For instance, in 2013, Snapchat introduced 'Stories' (ephemeral photos and videos, visible to friends and followers for a set amount of time), which can be overlaid with doodles, texts, stickers and filters.[286] Following the success of the Stories format, Instagram introduced the feature in 2016, Facebook in 2017,[287] and YouTube in 2018, for channels with more than 10,000 subscribers.[288]

As newcomer TikTok increases in popularity, other video-sharing services are beginning to incorporate similar features. In November 2019, Instagram launched Instagram Reels in Brazil, allowing users to create 15-second videos to music in Instagram Stories.[289] YouTube is also reportedly planning to launch a short-form video-sharing feature called 'Shorts' within the existing YouTube mobile app, allowing users to make use of music and songs licensed by the platform.[290]

Many services have also introduced new product features quickly in response to the coronavirus pandemic. Instagram introduced a shared story to help those practicing social distancing connect with others, using a 'Stay Home' sticker,[291] while TikTok's #IsolationGames challenge connects users with Team GB athletes,[292] and Snapchat has partnered with the WHO to launch a filter promoting WHO safety tips and guidelines.[293]

[286] Techcrunch, Snapchat Gets Its Own Timeline With Snapchat Stories, 24-Hour Photo & Video Tales, 3 October 2013
[287] Instagram blog, Introducing Instagram Stories, 2 Aug 2016; Facebook Newsroom, More Ways to Share With the Facebook Camera, 28 Mar 2017
[288] YouTube creator blog, Introducing more ways to share your Stories on YouTube, 29 Nov 2018
[289] TechCrunch, Instagram Stories launches TikTok clone Reels in Brazil, 12 Nov 2019
[290] Business Insider, YouTube is reportedly planning to launch an in-app rival to viral video-sharing app TikTok before the end of 2020, 1 Apr 2020
[291] Instagram blog, Keeping People Informed, Safe, and Supported on Instagram, 24 March 2020
[292] TikTok Newsroom, Exercise at home with Team GB athletes in TikTok's #IsolationGames, 16 April 2020
[293] Filter available from end of March in countries including the UK, US and Australia. Snapchat for Business, Coronavirus: How Snapchatters are reacting to the news and staying informed, updated 17 March 2020

Figure 4.17: Timeline of video and social functionality on Facebook, YouTube, Instagram, Snapchat and TikTok



*Source: publicly available information. *TikTok launched 'A.me' and later rebranded in China to 'Douyin'.*

Providers of VSP services have also expanded their offering of original content

Providers of user-generated content such as YouTube may act as VSPs for much of their content offering, while also venturing into producing original content, which helps diversify sources of revenue as well as broadening reach. YouTube, as part of its YouTube Premium service, provides original content such as *Cobra Kai* and *Step Up* via a paid monthly subscription.

In October 2018 Snapchat introduced *Snap Originals,* a dozen serialised original shows aimed at its 'mobile-first' audience. It has vertical short-form videos and is monetised by ads in the free-to-use app. In Q1 2020, more than 60 Snapchat shows each reached a monthly global audience of over 10 million viewers, up from 50 shows in Q4 2019.[294] Snap says that the best performers in its Originals series have been seen by more than 20 million viewers, with one programme, *Endless Summer*, reaching 28 million unique viewers in its first season.[295] In May 2019 Snapchat launched a new slate of ten *Originals*, and renewed three of its most popular shows, *The Dead Girls' Detective Agency*, *Endless Summer* and *Deep Creek*.

VSPs organise content to arrange how videos become visible to platform viewers

VSPs use algorithmic or human content organisation to arrange how videos become visible to viewers.[296] Often, the delivery of content is automated, with platforms using specific algorithms to sort and recommend content.[297] Content delivery can be generic, i.e. arranging content in a way that is the same for all users, based on time of posting or genre of content, or personalised, where the content is organised based on various factors known about individual users, including their previous use of the platform or their location. Often it is both: platforms promote the most popular or newest content, as well as content aligned with individual preferences.

For example, Imgur employs a non-personalised algorithm which uses organic site traffic to decide which uploads become visible to the viewer (although users can also choose other users and tags to follow).[298] From its homepage, users can choose how content is arranged. The 'Most Viral' configuration delivers the most popular (most upvoted or widely shared) posts on Imgur, based on an algorithm that combines score, views and time of day, while 'Highest scoring' shows posts with the highest number of 'upvotes' at the time.[299]

YouTube's Recommendations system is an example of a personalised algorithm. In the 'Recommended' bar on its homepage, YouTube displays videos from viewers' subscriptions, as well as videos watched by viewers with similar interests and watch patterns. Recommendations are based on analysis of hundreds of data points around viewers' behaviour (videos watched, click-through rates, average time spent, likes, dislikes, comments and explicit feedback submissions). Similar personalisation features on the side panel of the video interface, which shows an 'Up Next'

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[294] Snap Inc., Q1 2020 Earnings press release 21 April 2020.
[295] CNBC, Snap's Chief Business Officer Jeremi Gorman speaking at Advertising Week on 25 September 2019.
[296] European Audiovisual Observatory, Online video sharing: Offerings, audiences, economic aspects, 2018.
[297] Algorithms are a sequence of instructions written by engineers in computer programming language, run automatically by computers.
[298] Imgur help, Imgur's feed, as at 27 April 2020.
[299] Imgur articles, Most viral and user submitted, as at 15 May 2020.

list based on viewers' previous YouTube activity.[300] Meanwhile, on Facebook and Instagram 'Social graphs' are used to make suggestions based on connections' viewing behaviours.[301]

The curation of content in a way that is appealing to users can maximise viewer engagement and help to increase use of, engagement with and profit derived from a video or service. For this reason, platforms, particularly those that use personalised algorithms, have not made the intricacies of their systems known publicly, as they are a source of competitive advantage and a key component in driving profits.

Business models and monetisation

Advertising is the main source of revenue for many VSPs

As VSPs operate on a global scale and have various functionalities (as discussed above) there are challenges in sizing the revenue generated by the UK-specific portion of the sector. As such, this section uses data sources from analysis by Oliver & Ohlbaum, The Internet Advertising Bureau (IAB UK) and the Competition Markets Authority (CMA) to give a sense of the size of the revenues generated by user-generated video online, relative to other types of video advertising and online video.

Many online platforms are free to users in a monetary sense, although users can be considered to pay for using them by giving the platform data about themselves. Advertising-funded platforms are able to use the contextual or personal information they have about users to serve highly-targeted adverts, which are in high demand by advertisers.[302] Advertising is sold by VSPs or intermediaries[303] with revenues shared between the VSP and content creators and, where relevant, intermediaries.

Many online platforms sell their own advertising inventory directly to advertisers and media agencies through self-service interfaces (for example, an advertiser can purchase ad placements directly through Facebook Ads Manager or Snapchat Ads Manager). 'Programmatic advertising' refers to where ad selection, pricing and delivery of ads is automated. Programmatic advertising can also allow for the targeting of audiences based on their profile, using algorithms in a similar manner to recommendations and suggestions through personalised content delivery. It is usually sold on a cost per impression, and typically measured as cost per thousand impressions (CPM),[304] an impression being a single instance an ad is displayed on a site. The 2018 expenditure of the median UK advertiser on Google ranged between £200-300 and on Facebook between £0-100.[305]

'Display advertising' is a range of video or non-video format types that feature in specific ad formats (e.g. at the start or in in the middle of a video, or next to the video on a page).[306] The figure below sets out some of the display ad formats that may feature on video-sharing services. Ad formats often

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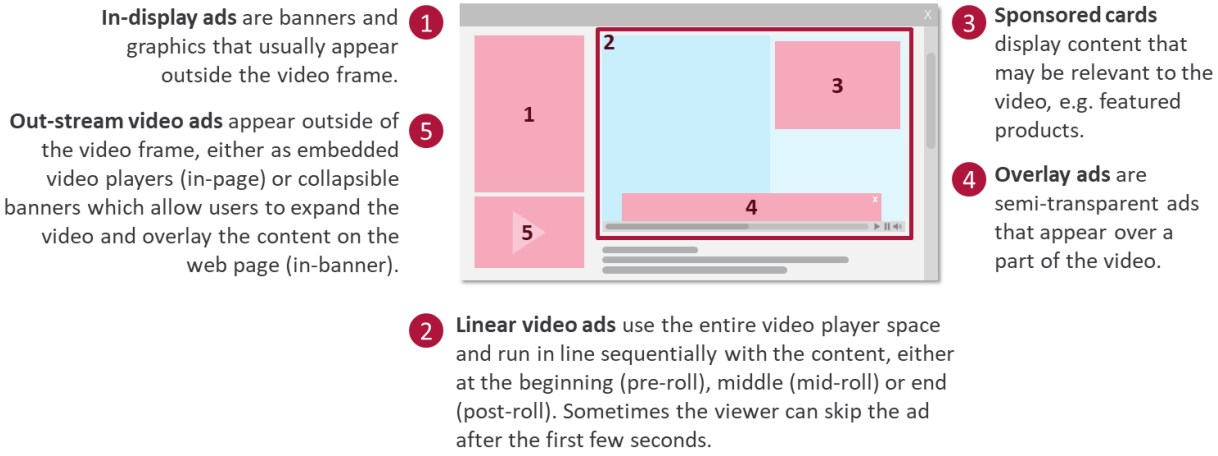
[300] Colorado State University blog post, Understanding YouTube's Algorithm in 2019, 2 April 2019.
[301] Business Insider, So What The Heck Is The 'Social Graph' Facebook Keeps Talking About?, 3 March 2012.
[302] CMA, Interim report, p.36.
[303] Intermediaries run ad auctions on behalf of the publishers and advertisers.
[304] CMA, Interim report, pp.48-49.
[305] CMA, Interim report, p.50.
[306] CMA, Interim report, p.151-152.

differ depending on the nature of a service. For instance, on TikTok, users may see in-feed ads (appearing between videos),[307] while Snapchat includes branded augmented reality experiences and filters among its ad formats.[308]

Figure 4.18: Examples of video display advertising formats



Source: YouTube Help, YouTube advertising formats. Rocktium Academy, 13 Video Ads that Marketers Must Know About, 28 August 2017.

The IAB UK and PwC's Digital AdSpend Study reported that £6.2bn was spent on online display advertising in the UK (39% of total online advertising expenditure), of which 46% (£2.9bn) was spent on video, 29% on banners and 21% in native ads.[309] Outstream ads made up 62% of all video ad spend, growing by over £400m year on year to £1.8bn, the majority (£1.7bn) of which was generated via smartphone advertising. The study also reported that £632m was spent on pre-mid-post roll video ads (linear video ads in the graphic above) on non-broadcaster online video services in 2019, comprising 58% of all expenditure on these types of ads.[310]

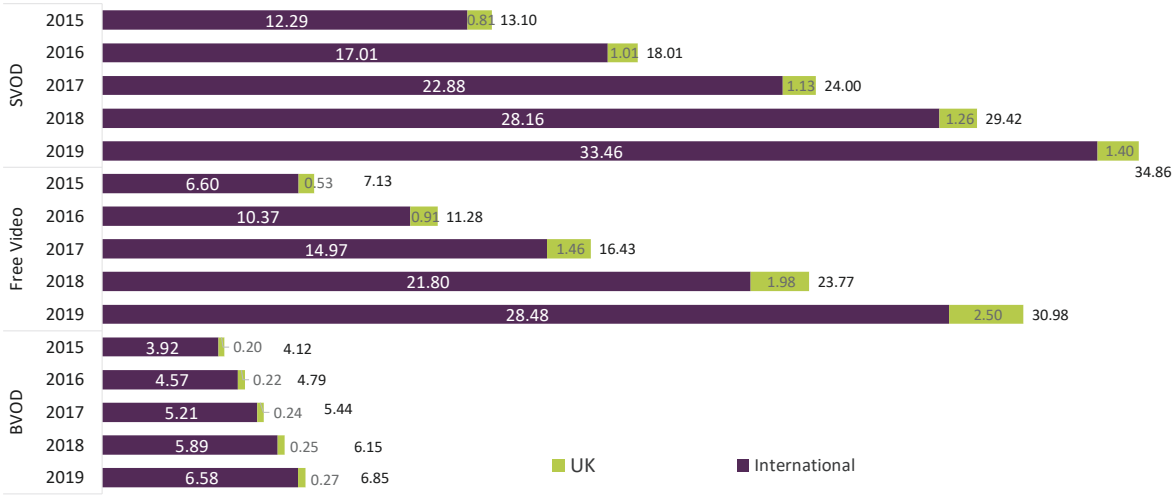
In its market study interim report, the CMA indicated that in 2018 a range of between 40% and 50% of UK display advertising expenditure was supplied to Facebook (including Instagram), with YouTube, having a range of 5%-10%.[311] Looking at video advertising, the CMA estimated that in 2018 Facebook (including Instagram) had a share ranging from 50%-60% of video advertising (between £1bn and £1.1bn in revenues). YouTube was the second largest supplier in video advertising, with a share ranging from 15% to 20% of expenditure.[312]

[307] TikTok Ads, Advertising on TikTok Ads.
[308] Snapchat for business, How to promote on Snapchat with Advanced Create, 29 January 2020.
[309] 2019 IAB UK & PwC, Digital Adspend Study. Native ads adopt the design and functionality of the environment in which it is placed.
[310] 2019 IAB UK & PwC, Digital Adspend Study.
[311] CMA, Interim report, pp.179-180.
[312] CMA, Interim report, p.180.

Overall, services carrying short-form and user-generated video content generated an estimated £31bn in advertising revenues globally in 2019

Estimates from Oliver & Ohlbaum suggest that the 'free video' sector (excluding BVoD) generated £31bn in advertising revenue globally in 2019, inclusive of £2.5bn in estimated UK revenues.[313] In the UK in 2019, revenues from 'free video' were higher than SVoD and BVoD combined.

Figure 4.19: Global and UK revenues for the SVoD, free video and BVoD sector: 2015-2019 (£bn)



Source: Oliver & Ohlbaum estimates and analysis (based on data from PwC Global Entertainment & Media Outlook). Adjusted for CPI at 2019 prices by Ofcom.

In 2019, YouTube brought in $15bn (£11.5bn) globally in advertising revenue, a 36% increase on 2018.[314] Oliver & Ohlbaum estimates suggest that YouTube generated £851m in ad revenue in the UK in 2019.[315] In Q1 2020, YouTube global advertising revenues continued to increase, 33% year on year, bringing total ad revenue for the quarter to $4.04bn (£3.28bn).

However, the coronavirus pandemic has caused a reversal since the second half of March 2020. Google CFO Ruth Porat stated that YouTube had seen "continued decline in brand advertising" post-March.[316] There is early indication that other platforms' ad revenues have also been impacted by the pandemic. Facebook reported a reduction in advertising in the last three weeks of March 2020 (although it saw a similar flattening in April 2019 compared to the previous year).[317] The UK Advertising Association forecasts a 31.8% decline in UK online video advertising revenues in Q2 2020.[318]

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[313] Oliver & Ohlbaum used a broad definition for this analysis. It includes video services carrying short-form, user-generated and/or other video content, as well as video advertising revenues from social media services. It excludes revenues associated with 'native' video and outstreaming advertising (such as that which might be embedded in a news article) – but includes revenues from social infeed. Revenues from broadcaster video-on-demand services (BVoD) and subscription video-on-demand (SVoD) are excluded.

[314] Alphabet investor relations, press release Q4 and fiscal year 2019

[315] Oliver & Ohlbaum analysis and estimates (based on company reporting and/or public filings) .

[316] Alphabet Investor Relations, Earnings call transcript, Q1 2020, p.5.

[317] Statement by Dave Wehner CFO, Facebook , Inc. Q1 2020 Earnings Call Transcript 29 April 2020, p.8.

[318] Advertising Association, UK adspend forecast.

In addition to advertising, some video-sharing sites employ a subscription model

In June 2018 YouTube introduced a consumer subscription service, YouTube Premium, which, as well as hosting *YouTube Original* content and exclusive creator content, lets viewers watch YouTube videos ad-free and offline for £11.99 per month.[319] At the end of 2019 YouTube stated that, globally, it had more than 20 million paid Music and Premium subscribers.[320] Ofcom research has found that about 1% of UK households subscribe to YouTube Premium,[321] generating a very small proportion of YouTube's overall UK revenue.

Vimeo provides a basic free tier for users, which features display advertising on some pages;[322] however, its core business model is providing content creators with software to create high-quality videos that can be distributed outside the platform, rather than drawing in content viewers to the platform. As of 2008, Vimeo offered content creators a paid business-to-business subscription-based service based on uploaded video storage space (rather than for content-viewing access, like YouTube Premium). The four paid subscription tiers, priced from £6 to £70 per month, provide video storage space of 5GB per week, up to 7 terabytes of total storage.[323] In 2019 Vimeo stated it was nearing 1 million paid subscribers globally.[324]

Some video sharing services also offer transactional videos that operate on a pay-per-view format. Paid memberships are another revenue stream for video-sharing sites. For instance, Twitch users can upgrade their free membership to a monthly subscription fee which enables certain features and eliminates some advertising seen on the site. Membership options include Twitch Turbo and Twitch Prime, a premium experience included with Amazon Prime which offers bonus games and content.[325]

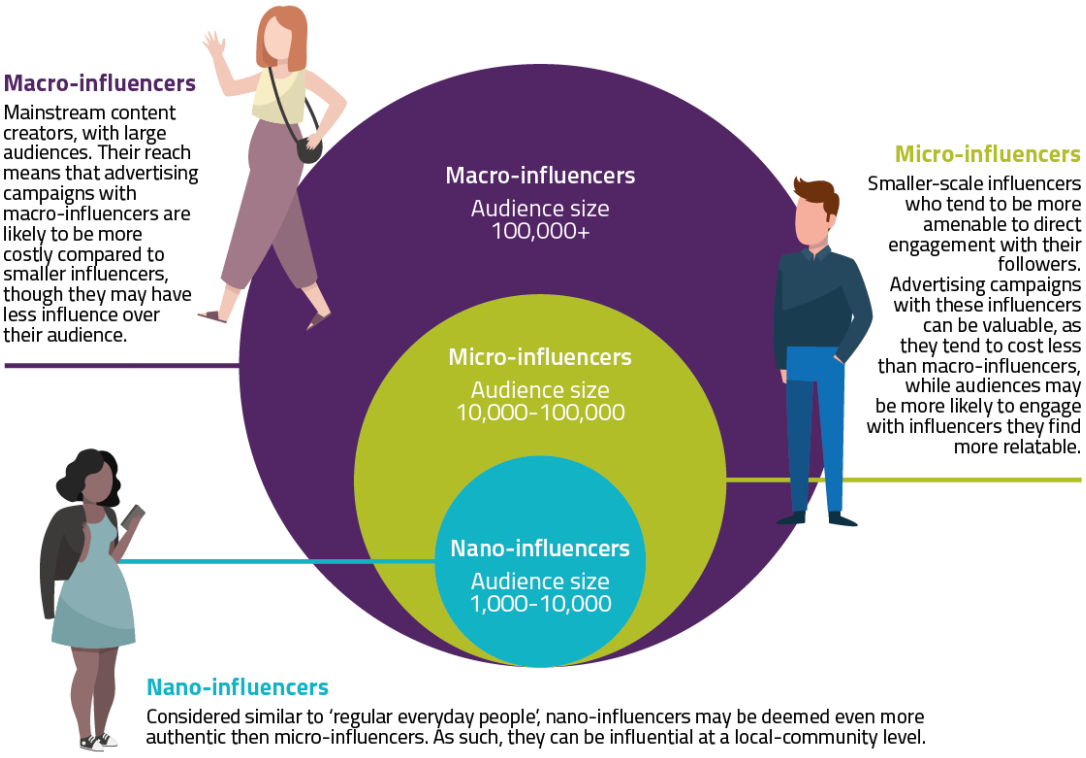
'Influencer marketing' is now a well-established advertising technique, whereby influencers promote a product by using it on their channel

Content creators, and in particular influencers, are key to the VSP ecosystem, as they regularly create video content bringing in audiences to the VSP, which benefits both the platform owner and the creator. Creators can reach influencer status depending on their audience reach; some operate as micro SMEs and work on their own brand or with PR/marketing agencies. In recent times, influencers have branched out into broadcast TV endeavours such as *Love Island* or *Strictly Come Dancing* contestants, and some have their own TV shows. In March 2019, Facebook announced its Facebook Match programme, aimed at partnering traditional broadcasters with creators. This includes partnering with publishers such as BuzzFeed to produce new Facebook Watch shows that feature content creators and influencers.[326] Figure 4.20 below provides approximate audience sizes

[319] YouTube Official Blog, Introducing YouTube Premium, 16 May 2018. Note: subscription fee as at 29 May 2020.
[320] Statement by Sundar Pichai CEO of Alphabet and Google, Alphabet Q4 2019 Earnings Call Transcript, 3 Feb 2020, p.2.
[321] Ofcom Technology Tracker 2020.
[322] Vimeo Help Center: Vimeo Plus FAQs as of June 2020.
[323] Vimeo pricing as at 8 April 2020.
[324] Vimeo CTO Mark Kornfilt cited in Digiday, How Vimeo shifted from being a YouTube alternative to a $160m B2B player, 5 April 2019.
[325] Twitch purchase support, How to subscribe, accessed 1 May 2020.
[326] Digiday, Facebook is paying 12 publishers for Watch shows starring video creators, 12 March 2019.

for different types of influencers, although as audience reach to VSPs continues to grow, definitions and audience sizes for different types of influencers will evolve.

Figure 4.20: Influencer types



Source: Iconosquare blog, A Guide to Social Media Influencers: Mega, Macro, Micro, and Nano, published 17 Feb 2020 and CMSWire.

'Mega-influencers', those with more than a million followers, earn substantial sums from being creators. In August 2019, UK-based YouTuber PewDiePie became the first independent content creator to reach 100 million subscribers and was among the highest-earning YouTubers in 2019 (£16.6m). The highest-earning YouTuber, 8-year-old Ryan Kaji, has been a YouTuber since the age of 3, under the channel name 'Ryan's Toys Review'. He grew popular among children through toy unboxing videos, which earned him £33m in 2019.[327] In 2019, 264k 3-6 year-olds in the UK cited Ryan's World as their favourite channel, making it the most popular channel among this age group.[328]

Advertisers may work together with certain content creators (e.g. those with broad audience reach and influencers) to promote sponsored content and improve their ability to reach viewers and convert audiences into purchases. The agreement between advertisers and content creators can be facilitated by the platform; in this case, advertisers pay the platform, which may share ad revenue with content creators. In other cases, advertisers and content creators may strike a deal independently of the site where the content is uploaded.

Several programmes exist for content creators and influencers to monetise their content. Through the YouTube Partners Program, content creators can earn a portion of the advertising revenue

[327] Forbes, The Highest-Paid YouTube Stars of 2019, 18 December 2019. Earning period: June 1, 2018, and June 1, 2019.
[328] Kids Insights UK, age: 3-6, 2019. Base: 2.4k surveyed. Indicative of 3.3m population.

generated by their videos. To join the programme, creators must have attained 4000 watch hours over 12 months and have at least 1000 subscribers. Creators who are not part of the YouTube Partner Programme can apply for a Google AdSense account and 'turn on ads' around their content if they meet the platform's ad guidelines. Google keeps 32%[329] of its AdSense revenue, which varies on average from $0.01 to $0.03 per view (averaging at $0.018 per view, or $18 per 1000 ad views).[330] In June 2020, Instagram introduced ads in IGTV. The IGTV ads will initially appear when users click to watch IGTV videos from previews in their feed and will be up to 15 seconds long. The ad revenue generated will be shared with content creators.[331]

There are often specific guidelines around the type of content that can be monetised through advertising, to protect brands as well as platform users. Under YouTube's terms of service, content relating to 'sensitive events' cannot be monetised, in order to protect advertisers from being associated with videos about events like mass shootings, terrorist acts and armed conflicts, as well as to disincentivise users from uploading potentially harmful content. In response to the coronavirus crisis, YouTube initially prevented videos about the coronavirus crisis being monetised. However, when creators reacted against the policy, YouTube reviewed and adjusted its guidelines to allow a limited number of channels, such as news channels, to generate ad revenue from videos about the coronavirus.[332]

There are a range of different revenue streams available to creators, beyond advertising

Creators can also monetise their content in a number of ways beyond advertising and platform revenue shares, such as by being paid to feature or endorse products.

Figure 4.21: Monetisation options available to creators, beyond advertising

Option	Description
Brand sponsorships	Here, brands pay a fee for a creator to promote their product. Creators managing themselves or under the management of an MCN may be approached directly by brands. Alternatively, they may use apps like Famebit, an influencer marketing link-sharing app bought by Google in 2016, to apply to promote offers posted by companies.
Affiliate links	These are hyperlinks from which creators can earn revenue, based on the traffic/sales they drive to a business. Through the Twitch Affiliates Program, streamers can earn revenue from the sale of games or in-game items linked to the platform.[333] Through the Amazon Affiliates programme,[334] content creators can display links to Amazon products on their website or videos and earn

[329] Adsense help, Adsense revenue share.
[330] Influencer Marketing Hub, How much do YouTubers make? – A YouTuber's pocket guide.
[331] Instagram blog, Doing More to Support Creators on Instagram, 27 May 2020.
[332] YouTube creator blog, Coronavirus: An update on creator support and resources, 11 March 2020.
[333] Twitch Affiliates Program.
[334] Programme is also known as Amazon Associates.

	revenue (referral fees) when visitors click on them.[335] In 2019 TikTok launched 'Hashtag Challenge Plus' where creators can post videos of themselves using a product, adding a shoppable component to the hashtag.[336] A similar live shopping feature was introduced to Instagram in May 2020.[337]
Donations	Viewers can directly support their favourite creators, in the form of tips, gifts and badges. On Twitch users can 'tip' their favourite streamers by sending "Cheer Bits", while on TikTok users can send coins either directly or indirectly by purchasing gifts for other accounts (which can be converted into cash via PayPal, with a limit up to $1000 a day).[338] Instagram recently introduced badges for purchase during a live video; viewers who purchase badges will stand out in comments and unlock features such as access to a special heart.[339]
Subscriptions	Subscriptions are like memberships for fans; they offer exclusive access to content, or ways to connect directly with the creators. This method provides creators with recurring income. The Twitch Affiliates Program, for example, allows streamers to earn income when users subscribe to their channel. Patreon is the most prominent membership service provider, but similar services include Memberful and Buymeacoffee.
Merchandise	Creators can sell products with their branding, marketing these themselves or collaborating with other companies. For example, for health and lifestyle creators, sportswear, water bottles and recipe books are popular merchandise options.[340] Businesses may also contact creators offering to create merchandise to sell.
Services	Services may include 'meet and greets' with fans, being a brand ambassador, or organising events. Fitness influencers, for instance, often offer fitness/weight loss plans and organise group classes or retreats for fans to meet up.

Retaining influential creators is strategically important to providers of user-generated video

YouTube is facing increased competition from platforms like Facebook and video game streaming sites like Twitch, as creators choose which platform or platforms to upload their content to. Facebook Watch runs a similar ad-revenue sharing system to YouTube; its creators keep 45% of

[335] Referral fee rates for Amazon Affiliates/Associates programme Standard fees schedule. The signing up to certain Amazon services, such as Amazon Prime, as a result of visiting the site can also reap rewards.
[336] Techcrunch, TikTok's new 'Hashtag Challenge Plus' lets video viewers shop for products in the app, 19 August 2019.
[337] Facebook News, Introducing Facebook Shops: Helping Small Businesses Sell Online, 19 May 2020.
[338] As of December 2019, only those aged 18 or over can send and receive gifts on TikTok, as per the updated TikTok gifting policies.
[339] Instagram blog, Doing More to Support Creators on Instagram, 27 May 2020.
[340] Joe Wicks, the UK fitness instructor, sells workout plans and recipe books. His account 'The Body Coach' had 2.6m subscribers on YouTube and 3.6m followers on Instagram, as of April 2020. Ella Mills, UK healthy lifestyle influencer @deliciouslyella (~1.7m Instagram followers), sells plant-based healthy food products along with recipe books.

revenues.[341] Twitch's Partnership Programme, meanwhile, allows content creators to take a share of revenue related to monetary tips,[342] advertising, subscriptions, and merchandise sales.[343]

Varying revenue splits can draw creators to, or away from, platforms, and influential creators can take audiences with them, increasing or reducing time spent on different platforms. In May 2020 PewDiePie, YouTube's largest independent content creator subscription channel (with 104 million subscribers), signed an exclusive deal to livestream on YouTube, having previously moved to platform DLive from YouTube in 2019 because it provided better financial returns.[344] As explored in our chapter on Online Games, livestreaming and live chat have proved popular in this industry, enabling gaming communities to socialise, and exposing users to new games. This year, YouTube signed deals with three of Twitch's biggest gaming stars in an effort to drive its livestreaming presence.[345]

Children are more likely than adults to consider themselves 'content creators'

As set out above, video-upload is a common functionality of many online platforms. However, just 11% of adults and 16% of 8-15 year-olds who upload videos to VSPs consider themselves to be content creators.[346] Seventy-four per cent of adults and 62% of 8-15 year olds who consider themselves to be content creators are male. Among adult content creator respondents, most (43%) fall within the 25-34 age group.*[347] Research from Kids Insights finds that the number of children under 13 who aspire to become a YouTuber/vlogger has increased by 19% since Q4 2018; boys in particular have been considering YouTube as a career option more frequently (+25%).[348]

Seventeen per cent of adults who upload videos on VSPs report receiving money or gifts from their videos. Of those who reported earning any form of revenue from uploading their videos, 57% were aged 18-34, 38% were 35-54 and 5% were over 55. Revenue sources include having a formal partnership with a brand, gifts from companies and brands in return for promotion, advertising revenue, and financial donations or subscription payments from viewers/fans. A higher proportion of male adults reported earning revenue (through money or gifts), at 21% compared to 13% of women who upload videos.[349]

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[341] BBC News, Facebook Watch video service launches worldwide, 29 August 2018.
[342] Users can 'tip' their favourite streamers by sending a Twitch currency called Bits. Users can purchase Bits through payment apps such as PayPal and Amazon Payments.
[343] Twitch Partner Program.
[344] BBC News, PewDiePie signs exclusive live-streaming deal with YouTube, 5 May 2020.
[345] BBC News, YouTube signs three top gamers away from rival Twitch, 14 January 2020.
[346] Ofcom video-sharing platforms research 2020 (Age: children: 8-15 adults: 18+).
[347] Ofcom video-sharing platforms research 2020 (Age: children: 8-15 adults: 18+) * Please note: there was a low base for these figures.
[348] Kids Insights UK, Q4 2018 and 2019.
[349] Ofcom video-sharing platforms research 2020 (Age: children: 8-15 adults: 18+).

User experiences and attitudes

Media literacy and critical understanding

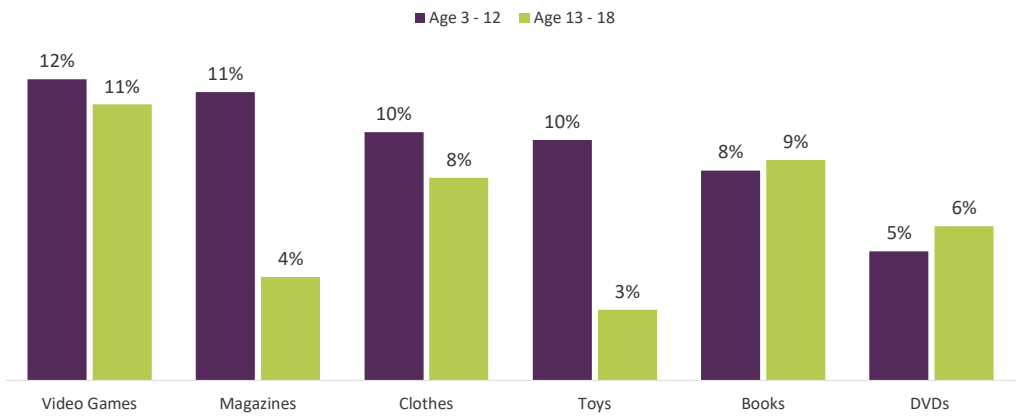
Less than half of UK adults are aware that YouTube is funded by advertising

Despite advertising being YouTube's key revenue source, only around 45% of UK adults are aware of this, unchanged for the past three years. Over-55s are least likely to be aware (31%), while men are more likely than women to be aware of how YouTube is funded (48% vs. 39%).[350]

When asked about potential sources of income for the people appearing on video-sharing sites, three-quarters of adult users said they were aware that vloggers/influencers might be paid by a company to say favourable things. Three in ten said that they might be endorsing these products as they think the information will be useful to their followers.[351] An Ofcom study found that children were generally aware that influencers could make money through sponsorship or "receiving a lot of likes". However, the nuance of how this might affect influencers' behaviour, or the content they posted, was rarely understood by children. Some of the younger children in the study assumed that YouTube and other platforms paid influencers directly. Some of the older children in the study made a link between making money and sponsorship, although it was not always clear to them how this worked in practice.[352]

Forty-four per cent of children say they have bought an item related to their favourite YouTuber, with video games being the most popular type of product.[353]

Figure 4.22: Products purchased relating to children's favourite YouTuber



Source: Kids Insights UK, September 2019, age: 3-18. Multi-Choice Question: Have you bought any of the following which relate to your favourite YouTuber? Base: 3-12 year-olds: 714, 13-18 year-olds: 433.

[350] Ofcom Adults' Media Literacy Tracker 2019.
[351] Ofcom Adults' Media Literacy Tracker 2019.
[352] Ofcom Children's Media Lives 2019.
[353] Kids Insights UK, age: 3-18, Sep 2019.

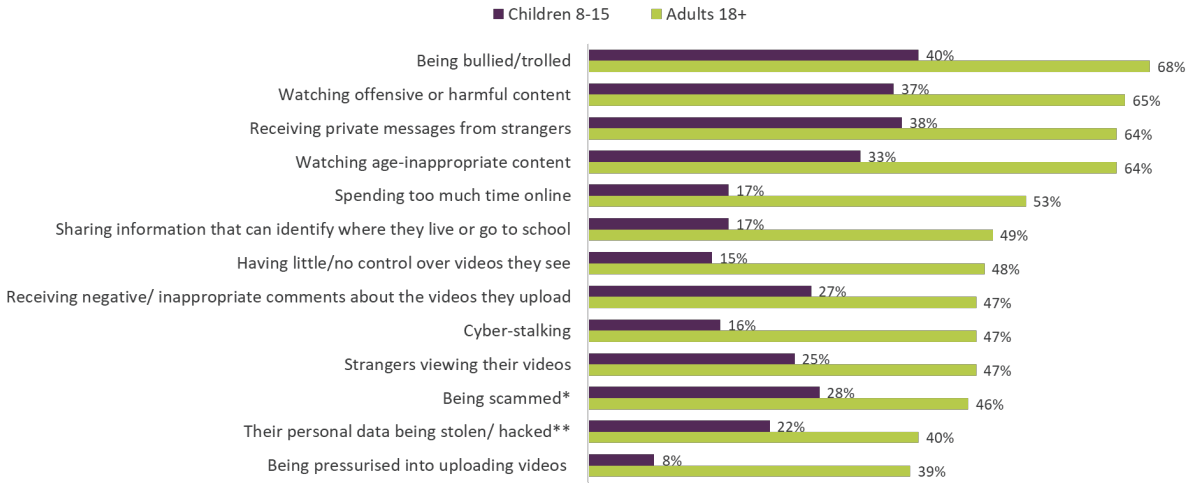
Experiences of potential harm on VSPs and industry responses

87% of adults and 79% of children have concerns about children using VSPs

As outlined in our consumer chapter, social media is most commonly cited as a source of online harms. As explored in this chapter, the boundary between 'social media' and 'video-sharing platforms' may not be wholly distinct; the services with video-sharing functionality discussed above are categorised as 'social media' in our online harms research.

To understand more about the full range of video-sharing sites, including those that may be better known as 'social media', we conducted separate research which asked people about their concerns and actions related to a broader range of services with video-sharing capabilities,[354] in addition to our regular online harms survey. With this expanded range of services, 87% of adults and 79% of children had concerns about children using VSPs, with the top concerns relating to bullying/trolling, viewing harmful content and receiving private messages from strangers.[355]

Figure 4.23: Adults' and children's concerns in relation to children using VSPs

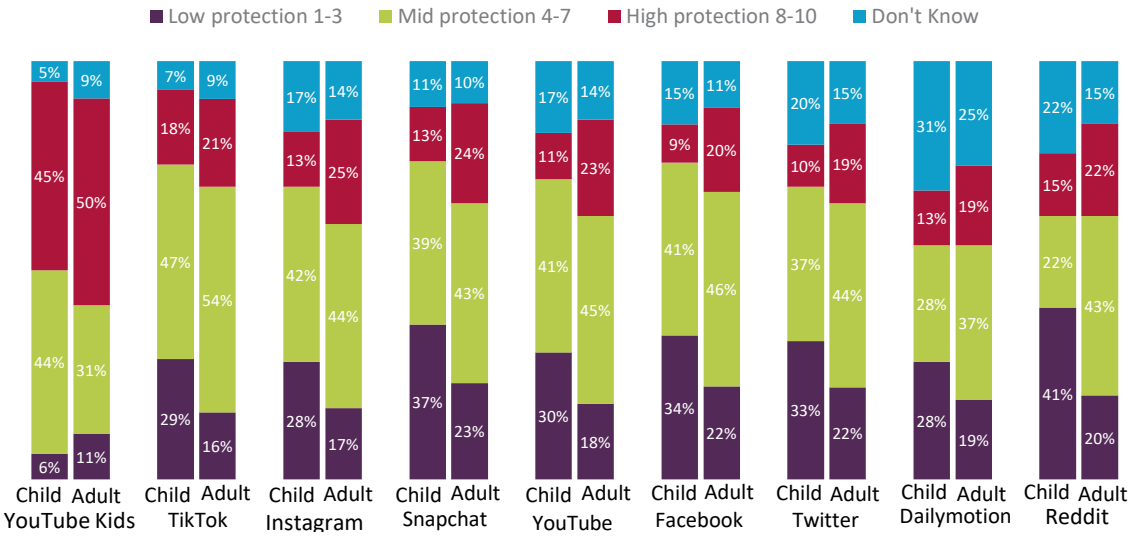


*Source: Ofcom VSP research 2020. Question for adults: Q.16 Which, if any, of the following concern you in relation to children using video-sharing sites? Base: All respondents (2081). Question for children: Q11 Do any of the following things worry you when using video-sharing sites? Base: All respondents who have visited video-sharing sites in the last 12 months (988). *Labelled as 'being tricked into something' in children's question. **Labelled as 'personal facts about me being stolen/hacked' in children's question.*

Similarly, we asked adults about how well-protected they thought both adults and children were from inappropriate videos on video-sharing sites. There is little variation among the sites asked about, with the exception of YouTube Kids, which was perceived to be by far the safest for children and adults.

[354] Ofcom video-sharing platforms research 2020. Question for children and adults: Q1. In the last 12 months, have you visited or used any of the following websites or apps that you can upload videos to and watch what others have uploaded too? Selection included: YouTube, TikTok, Snapchat, Instagram, Facebook, YouTube Kids, Twitter, Pinterest, Twitch, Reddit, DailyMotion, Vimeo, Mixer, Periscope, Yubo, LiveLeak/iLeak, younow, Imgur, other.
[355] Ofcom video-sharing platforms research 2020.

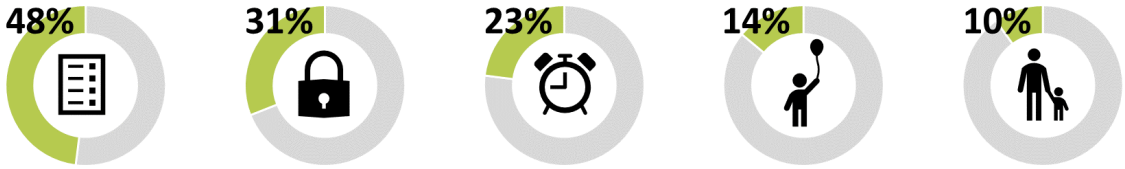
Figure 4.24: Extent to which adult users feel that they / children are protected from inappropriate video content on selected video-sharing sites



Source: Ofcom VSP Research 2020. Question for adults: Q12: On a scale of 1 to 10, where 1 is not very protected and 10 is extremely protected, how well protected do you think you personally/children are from inappropriate videos on the following video-sharing sites? Base: All who used or visited sites/apps (YouTube Kids 111, TikTok 144, Instagram 727, Snapchat 333, YouTube 1602, Facebook 1416, Twitter 651, Dailymotion 101, Reddit 189).

Research from Kids Insights found that the majority (75%) of parents of 6-18 year-olds say that they monitor their child's use of YouTube: 89% of parents of children aged 3-11 either always or sometimes monitor their child's use of YouTube, but this proportion drops to 55% when children reach the age of 15.[356] Figure 4.25 below sets out some of the ways in which parents monitor or control their children's use of VSPs, from Ofcom's VSPs research.

Figure 4.25: Use of parental safety measures



Source: Ofcom video-sharing platforms research 2020 (children). Question: Do you do any of the following when you are watching videos on video-sharing sites? Base: all respondents who have watched videos on video-sharing sites in the past week (981).

36% of adults who use video-sharing sites agree that their benefits outweigh the risk; only a small proportion (15%) disagreed with this sentiment. Younger people are more likely to agree (50% of 18-24s and 53% of 25-34s), as were adults with children under 16 (39%).[357]

[356] Kids Insights UK, September 2019, age: 6-18
[357] Ofcom video-sharing platforms research 2020 (adults)

Our online harms research shows that, in line with attitudes to regulation of online platforms generally, 62% of adults believe that regulations are in place for VSPs,[358] an increase of 8pp year on year. This research suggests that adults' trust in sites to remove illegal, offensive and harmful material has increased by 7 percentage points since last year, to 54%. Nevertheless, a majority of adults (57%) continue to support an increase in the level of regulation of VSPs (from 64% in 2019).[359]

Services with video-sharing capabilities have implemented standards and tools to try to address potential harm

Many popular online platforms have guidelines and policies in place around illegal, harmful and inappropriate content, aimed at preventing its upload or, if it is uploaded, taking it down or suppressing its spread. Ways to report content are common across video-sharing services, often in the form of reporting buttons where users can flag a piece of content, and forms where more details are provided. Many services use moderation staff (Facebook, YouTube, Snapchat and TikTok), or volunteer moderators (such as 'Mods' on Twitch), or both (Reddit uses both subreddit moderators and Reddit employees known as Admins to enforce the rules), to review content and act if it breaches guidelines.

Reporting functions are often provided for users to flag potentially harmful content that needs to be removed. Seventy-four per cent of adult users of VSPs said they were aware of reporting functions, such as a report or flag button, for inappropriate content. Younger VSP users were more likely to be aware (89% of 16-24s) than older users (54% of over-55s).[360]

Additional to user reporting, some services use automated detection mechanisms to find content that does not adhere to their guidelines, resulting in the content being flagged for review and potentially taken down. These algorithmic techniques are still being developed. For instance, in August 2019, YouTube was reported to be experimenting with a new algorithm designed to reduce the spread of potentially harmful videos in the UK, which YouTube chief executive Susan Wojcicki said would expose users to fewer "problematic" videos which "brush right up against [YouTube's] policy line".[361]

As well as prohibiting or restricting certain content, platforms have started looking at restricting certain video functionality to prevent the spread of harmful content. For instance, after the New Zealand Christchurch shooting, Facebook restricted use of its livestreaming video service for those who had violated certain parts of its Community Standards.[362]

Features aimed at promoting digital safety and well-being are also increasingly common among these services. For example, as part of a digital wellbeing initiative in 2018, YouTube introduced Time Watched statistics, which provides users with viewing statistics over the past seven days, and

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[358] Range of sites net as video sharing in Ofcom-ICO 2020 research: YouTube, Vimeo, Daily Motion, LiveLeak, Mixer, Twitch, Instabib.tv, (Other: write in). Social media net: Facebook, Google Hangouts, Instagram, LinkedIn, Pinterest, Reddit, Snapchat, TikTok, Tumblr, Twitch, Twitter, Viber, WhatsApp, (Other: write in).
[359] Ofcom-ICO research 2020.
[360] Ofcom video-sharing platforms research 2020 (adults and children) .
[361] YouTube Creators Blog, Susan Wojcicki: Preserving openness through responsibility, 27 August 2019.
[362] Facebook News, Protecting Facebook Live From Abuse and Investing in Manipulated Media Research, 14 May 2019.

tools to manage their time spent on YouTube. More recently, TikTok introduced a family safety mode, which links a parent's TikTok account to their child's; once enabled, they can control the time spent on TikTok by their child each day, restrict certain content and limit messaging functionality.[363] In 2019, TikTok announced that it was partnering with Internet Matters to create resources for children and parents about how to stay safe online.[364]

The coronavirus pandemic, declared an 'infodemic' by the Director-General of the World Health Organisation (WHO),[365] has initiated further developments in platforms' content policies and approaches to misinformation. Facebook, YouTube, Twitter, Reddit and LinkedIn were among those to produce a joint statement pledging they were working closely together to address misinformation about the virus.[366] Given the potential harm to public health, there has been debate around the appropriate balance between freedom of expression and harm during the crisis, and many platforms have made prominent announcements around their approach to misinformation. In May 2020, Facebook CEO Mark Zuckerberg told the BBC that Facebook would remove any content likely to result in "immediate and imminent harm", although it would err on the side of freedom of expression where this was not the case.[367] Twitter introduced a broader definition of the harmful content it would remove as that which "goes directly against guidance from authoritative sources",[368] while YouTube banned 'medically unsubstantiated' coronavirus-related content that contradicts WHO advice.[369] At the end of April, TikTok introduced an in-app reporting feature where users can report 'Covid-19 misinformation', which is sent to a priority moderation team.[370]

These efforts to remove harmful, false or misleading information about the virus have been accompanied by a push to increase the prominence of authoritative sources. For example, Instagram announced that it had removed recommendations related to the coronavirus, unless from a credible health organisation, and down-ranked content rated false by third-party fact checkers.[371] Snapchat partnered with the WHO to develop custom content to answer questions from Snapchat users.[372] And in March, Facebook launched the Coronavirus Information Center to centralise news and information about the virus, and show posts offering or requesting help from local communities.[373]

There have been several high-profile reports around harmful content not being removed from platforms or not being removed quickly enough. For instance, last year, the Home Affairs select committee's frustration with Facebook, Twitter and YouTube was widely reported, as MPs suggested

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[363] TikTok newsroom, 'Introducing Family Safety Mode and Screentime Management in Feed', 19 Feb 2020.
[364] TikTok newsroom, 'TikTok partners with Internet Matters', 4 April, 2019.
[365] World Health Organisation, Munich Security Conference, 15 February 2020.
[366] Twitter post by Facebook Newsroom, Joint Industry Statement, 17 March 2020. Facebook, Google, LinkedIn, Microsoft, Reddit, Twitter and YouTube.
[367] BBC News, Coronavirus: David Icke's channel deleted by YouTube, 2 May 2020.
[368] The Guardian, Twitter to remove harmful fake news about coronavirus, 19 March 2020.
[369] BBC News, Coronavirus: YouTube bans 'medically unsubstantiated' content, 22 April 2020.
[370] TikTok Newsroom, Our efforts towards fighting misinformation in times of COVID-19, 29 April 2020.
[371] Instagram blog, Keeping People Informed, Safe, and Supported on Instagram, 24 March 2020.
[372] Snapchat for business, Coronavirus: How Snapchatters are reacting to the news and staying informed, updated 17 March 2020.
[373] Facebook Newsroom, Launching the Coronavirus Information Center on Facebook, accessed 24 April 2020.

a lack of progress around the removal of hate speech from the platforms.[374] More recently, research has suggested that misinformation about the coronavirus is widely available on platforms and is therefore still presenting a risk to users. [375]

Platforms have also sought to improve transparency around how they implement their content standards

A number of platforms issue regular transparency reports to outline how they take action against content that contravenes their guidelines. The case study below looks at data presented in YouTube's Community Guidelines enforcement for 2019 on Google's Transparency Report site, but a number of other platforms also provide transparency initiatives. For instance, in 2018, Reddit expanded its transparency report to cover details of actions taken by the main platform (Reddit Inc) and its system of subreddit moderators. In March 2020 TikTok announced plans to open a TikTok 'Transparency Center', a facility opened in May in its Los Angeles office, where outside experts can observe how teams moderate content on the platform.[376] TikTok explained that the Center will later be expanded to include insight into the platform's source code and efforts around data privacy and security. Facebook issues a quarterly transparency report. There have also been calls for platforms to increase their initiatives around transparency, such as providing researchers with access to platform data.

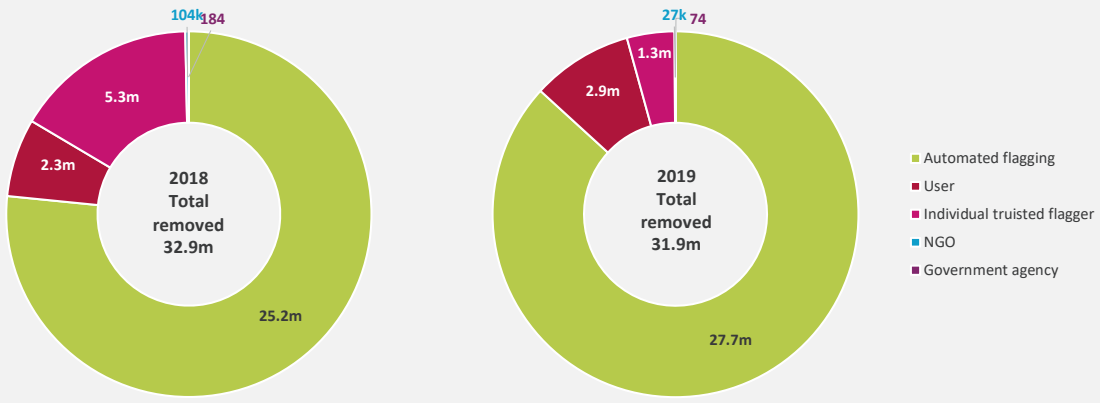
31.9 million YouTube videos were removed in 2019

YouTube relies on a combination of algorithmic and human moderation to remove videos deemed to contravene its guidelines. Eighty-seven per cent of the 31.9 million videos removed in 2019 were removed by its automated flagging process, an increase of 10pp year on year, and 72% of the 27.7 million videos removed through automated flagging were removed before any users had viewed them.

Flags from human detection can come from a YouTube user or from a member of YouTube Trusted Flagger programme, which includes individuals, government agencies and non-governmental organisations (NGOs) that are expert in at least one of YouTube's policy guideline areas.[377] 95,079 of the videos removed during July to December 2019 were uploaded in the UK,[378] equating to less than 1% of all videos removed from YouTube during the period.

[374] The Guardian, MPs press social media firms over failure to take down hate speech, 19 December 2017; BBC News, Hate speech: Facebook, Twitter and YouTube told off by MPs, 24 April 2019.
[375] See: Avaaz, How Facebook can Flatten the Curve of the Coronavirus Infodemic, 15 April 2020; NewsGuard, Tracking Twitter's COVID-19 Misinformation 'Super-spreaders', May 2020.
[376] TikTok newsroom, TikTok to launch Transparency Center for moderation and data practices, 11 March 2020.
[377] YouTube Help, YouTube Trusted Flagger Programme.
[378] UK upload removal data prior to July 2019 has not been reported on by YouTube.

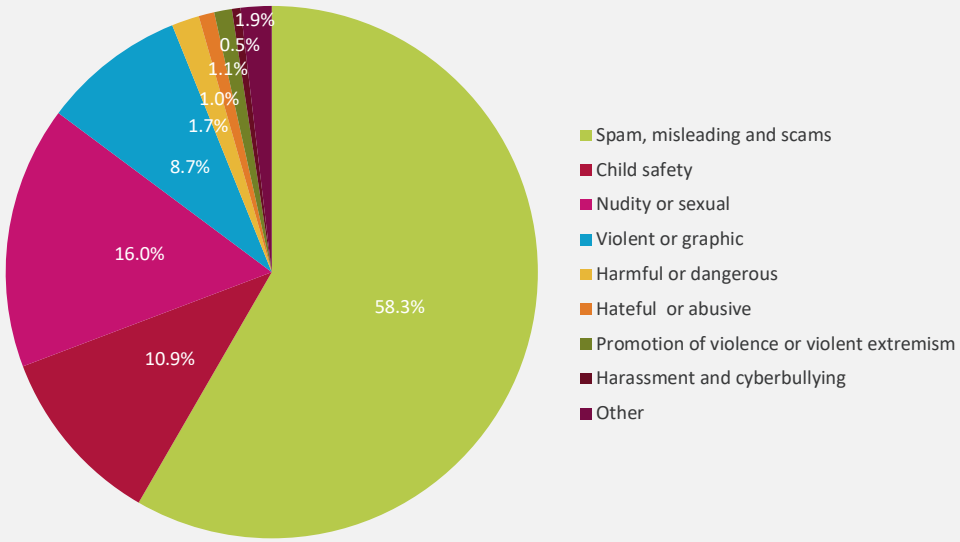
Figure 4.26: Number of videos removed on YouTube, by source of first detection



Source: Google Transparency Report, YouTube Community Guidelines enforcement, global, 2018-2019.

YouTube reports that the most common reason for video removals are misleading descriptions, tags, titles or thumbnails intended to increase views (spam, misleading and scam videos). As well as removing videos, YouTube terminates channels which violate its policies three times within a 30-day period, or are determined by YouTube to be wholly dedicated to violating its guidelines. Once a channel is terminated, all videos within the channel are removed. In 2019, over 12 million channels were removed, with spam, misleading and scam content being the most popular reason for this.

Figure 4.27: YouTube videos removed, by removal reason: 2019



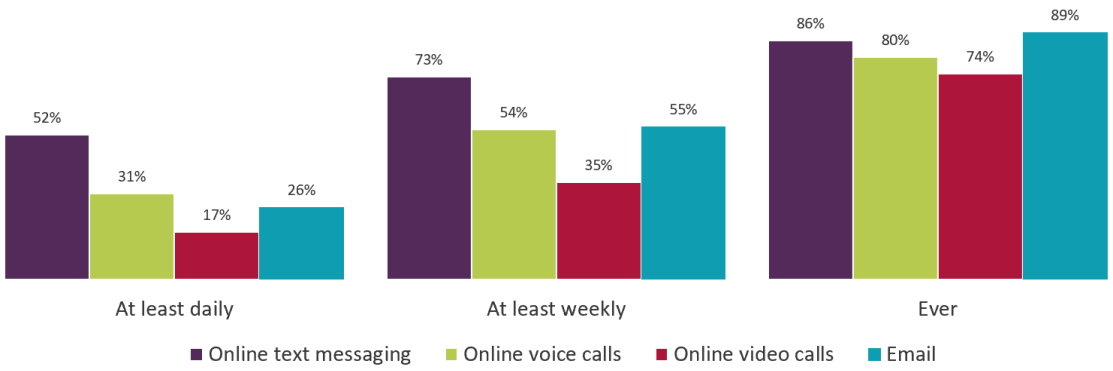
Source: Google Transparency Report, YouTube Community Guidelines enforcement, global, 2019

5. Online communication services

Introduction

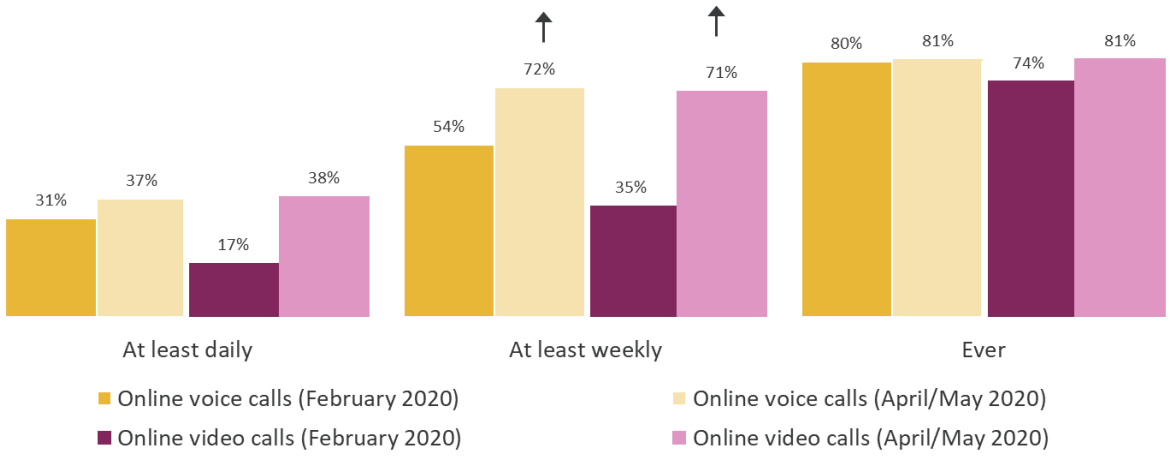
Key metrics

Figure 5.1: use of online communication services at least weekly in the 12 months to February 2020



Source: Ofcom Online Communication Services research 2020. Base: all respondents (2094).

Figure 5.2: use of video and voice calls, February and April/May 2020



Source: Ofcom Online Communication Services research 2020. February base: all respondents (2094).
Ofcom Covid-19 news and information: consumption and attitudes research 2020. April/May base: all respondents (4256).
The arrows indicate the growth in at least weekly online voice and video calling by online adults in April/May 2020 as compared to February 2020.

UK consumers are increasingly using services provided over the internet to communicate with one another, and this has notably increased during the coronavirus pandemic

Consumers are increasingly using services provided over the internet to communicate, including apps and websites such as WhatsApp, Facetime, Snapchat and Gmail. The use of online communication services has grown with increased mobile phone use, the availability of low-cost

data plans and better connectivity, both within and outside the home – and more recently, as people have turned to online communications as a way of staying in touch during the lockdown.

In their broadest sense, online communication services include a wide range of apps and websites that consumers use to connect and communicate with each other – from Gmail to WhatsApp to YouTube to iMessage to TikTok to LinkedIn to Strava. Some services primarily offer communication functionality whereas others offer a communication function built into a wider platform, such as social networking sites like Facebook, Twitter, Instagram and Snapchat. For the purposes of this report, we focus on the online services that consumers say they use to communicate directly or interpersonally in place of traditional electronic communications services (e.g. landline, mobile, SMS/MMS) and, as such, are similar, or functionally equivalent to, traditional services – albeit sometimes with new functionality such as video calling.

In this chapter, we consider online communication services as having at least one of the following key features: online voice calling; video calling; online text and other instant messaging (including photos, videos and voice messages); and web-based email. These online communication services can provide a lower cost alternative, or provide additional functionality, in comparison to traditional electronic communications services such as landline phone calls, phone calls through the mobile phone network, and SMS/MMS messages.

Figure 5.3: Summary of online communication service functionality (excluding email)

	Voice calling	Video calling	Text messages	Text chat	Group calling	Image/video messages
WhatsApp	✓	✓	✓		✓	✓
Facebook Messenger	✓	✓	✓		✓	✓
iMessage			✓			✓
Facetime	✓	✓			✓	
Snapchat	✓	✓	✓		✓	✓
Instagram DM	✓	✓	✓		✓	✓
Skype	✓	✓		✓	✓	
Zoom		✓		✓	✓	
Houseparty		✓		✓	✓	

Source: Ofcom analysis of public information.

Given the proliferation of online communication services and their importance for consumers, Ofcom continues to seek to understand the full experience of UK consumers and the range of services that they use. This chapter outlines our understanding of consumers' use of, and attitudes towards, online communication services. First we look at the take-up and use of online

communication services, how this has changed during the coronavirus pandemic and where use is increasing – for example, our research indicates that on a daily basis online adults are using WhatsApp for text messaging daily to a similar extent as SMS (40% vs. 41%), and since the imposition of measures related to the coronavirus, the use of video calling at least weekly has more than doubled (35% vs. 71%). We also look at the industry context, including the implications of popular online services being available without any direct monetary payment, with many being linked to popular online platforms such as Facebook, Apple, Google and Microsoft, some of which rely on the monetisation of consumer data. Finally, we consider potential sources of consumer harm, including in relation to consumer awareness of the collection and use of their data when using online communication services.

This has been informed by recent quantitative and qualitative consumer research that Ofcom has commissioned. Populus carried out an online survey of over 2000 UK adults aged 18+ in February 2020,[379] and Futuresight carried out qualitative research into consumers' use, attitudes to and understanding, through online video and telephone interviews in March 2020. Ofcom commissioned further quantitative research on the use of online communication services following the lockdown in April/May 2020, and consultancy research from WIK-Consult, based on publicly-available information and industry insight, which was carried out from February to May 2020.

Take-up and use

UK consumers of all ages are using online communication services for voice and video calls, text messages and emails

The majority of UK consumers use online communication services at least weekly, with under-35s using online calling and text messaging more frequently than other age groups

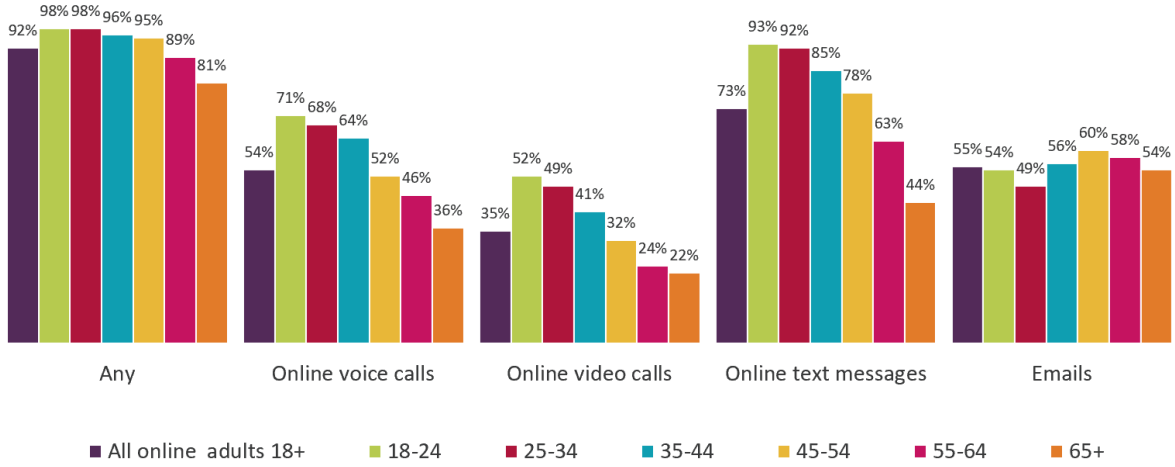
Nine in ten adult internet users in the UK (92%) used an online communication service for making voice or video calls, sending text messages or email at least weekly in the year to February 2020.[380] At least half of adult internet users used online voice calls, text messages and email at least weekly.[381] Until the coronavirus pandemic, the use of video calling was much lower, with 35% of online adults using this service at least weekly. This compares to 76% of adult internet users who used mobile phone calls at least weekly, 35% who used landline calls and 73% who used SMS.

The popularity of these services applies across all age groups, including older consumers. Our research shows that all online communication services are used by a significant proportion of consumers aged 55-64 (89% using any) and over-64s (81% using any).[382] Others are more popular with younger age groups; 85% of 18-24s send online text messages on a daily basis, compared to just 19% of consumers aged 65 years and over. Younger consumers are also nearly twice as likely to use

[379] This data is published in the interactive Online Nation report.
[380] Populus-Ofcom March 2020, based on online interviews with over 2000 adults aged 18+ in the UK conducted between 17-18 February 2020 ("Ofcom online communication services research 2020").
[381] Ofcom online communication services research 2020.
[382] 67% of the UK population aged 65 and over have access to and use the internet at home (Ofcom Technology Tracker 2020).

online voice calling at least weekly: 71% of 18-24 year-olds compared to 36% of consumers over 64.[383]

Figure 5.4: At least weekly use of online communication services to make calls or send messages in the past 12 months, by age: February 2020



Source: Ofcom Online Communication Services research 2020. Q1. In the last 12 months how often have you used these services to make voice calls? This does not include calls made using video. Q3. In the last 12 months, how often have you used each of the following online communication services or apps to make video calls? Q6. In the last 12 months how often have you used these services to send text messages? Q16. In the last 12 months how often have you used these services to send letters, documents, emails or long messages? This does not include any messages sent for a work purpose. Base: all respondents (2094) (18-24 year olds 226, 25-34 321, 35-44 357, 45-54 371, 55-64 352, 65+ 467).

Consumers continue to use their mobile phones, but SMS/MMS messaging and landline calls have declined while adoption of online services has risen

Consumers in the UK continue to decrease their use of landline calls in favour of using mobile calls and mobile data. Between 2012 and 2018, the total volume of outgoing landline calls in the UK more than halved, decreasing by 59 billion minutes, from 103 to 44 billion minutes. Over the same period the volume of outgoing mobile phone calls increased, but only by 29 billion minutes, from 132 to 161 billion minutes. Moreover, international calls decreased by 17%.[384] Although we do not have figures for online calling over this period, this suggests that consumers are not simply substituting landline calls with mobile networks calls.

There are indications that they are substituting at least some landline calls with online voice and video calls. On smartphones, online calling can offer a lower cost alternative to making calls using a voice tariff: 87% of UK adults who have ever used online voice or video calls did so using a smartphone.[385]

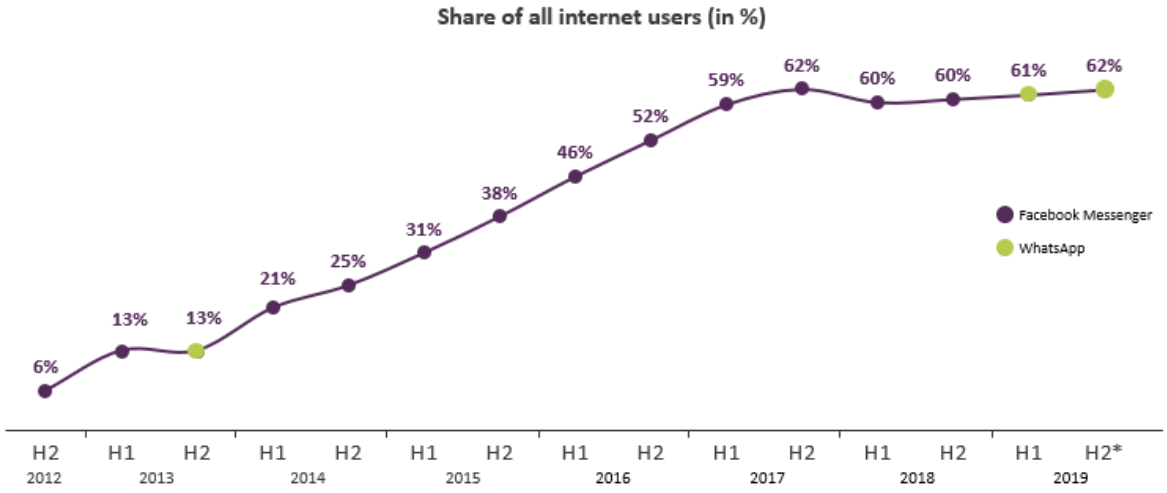
The volume of SMS/MMS messages has significantly decreased, while the adoption of online communication services has risen. During the seven years from 2012 to 2018, the average number of SMS/MMS messages per subscriber more than halved, falling from 326 to 136 messages per month.

[383] Ofcom online communication services research 2020.
[384] Ofcom, Communications Market Report 2019.
[385] Ofcom Technology Tracker 2020.

In 2018, five billion fewer SMS/MMS messages were sent than in 2017, reducing by 6% from 79 to 74 billion, [386] although the rate of decline was slower than in previous years.

Figure 5.5 below illustrates the rapid adoption of online services, excluding email, over the same period. It tracks the share of internet users accessing the most popular online communication service in the UK – either Facebook Messenger or WhatsApp – in each half year period since 2012 (the actual adoption across online services is probably somewhat higher). [387]

Figure 5.5: Share of internet users accessing the most popular service for online messaging, voice and video communication each year in the UK

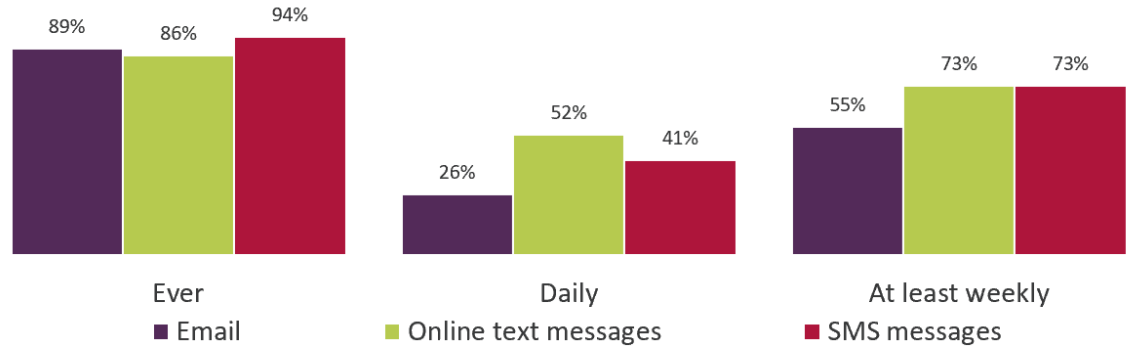


*Source: WIK-Consult (2020) based on GWI (2020). *Q3/2019 for this figure. The share of internet users depicted in the figure refers to the most popular online communication service in each observed period. We disregard email usage here.*

The daily use of online text messaging is higher than SMS and the personal use of email

Our research indicates that online text messaging is significantly more popular for daily use by online adults (52%) than SMS (41%) or email (26%), and online text messaging and SMS are used to the same extent, at least weekly (73%).

Figure 5.6: Personal use of email, SMS and online messaging in the past 12 months, by frequency



[386] Ofcom, Communications Market Report 2019.

[387] This figure shows adoption of the one most popular online communication service in each half year period rather than volume of regular use. Data from GWI (2020) based on a quarterly online survey of 40,000 respondent adults aged 16+ living in the UK.

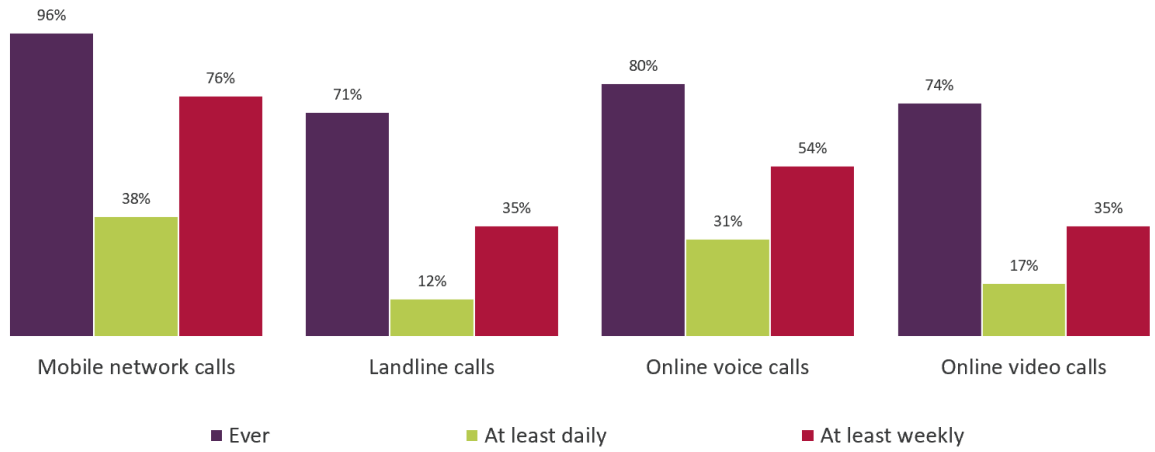
Source: Ofcom Online Communication Services research 2020. Q6. In the last 12 months how often have you used these services to send text messages? Q16. In the last 12 months how often have you used these services to send letters, documents, emails or long messages? This does not include any messages sent for a work purpose. Base: all respondents (2094)

Before the coronavirus pandemic, nearly a third of internet users used online voice calling on a daily basis – only slightly lower than the proportion using mobile phone calls

Ofcom research carried out in February 2020 shows that on a daily basis, consumers used online voice calling to a similar extent as mobile network calls in the previous 12 months; 31% had made online voice calls and 38% had made mobile network calls. However, on an 'at least weekly' basis, online adult consumers used mobile network calling significantly more; 76% had made mobile calls while 54% had made online voice calls. Mobile network calling also had greater reach; 96% of online consumers said they had made a mobile network call at some point in the past year, compared to 80% who had accessed online voice calling at least once and 71% who had made a landline call.

Online video calling was used to a much lesser extent than other online services, with 35% of online adults using video calling at least weekly. Under-35s were the most likely to use online video calling, with 52% of 18-24s making online video calls at least weekly (see figure 5.4 above).

Figure 5.7: Use of communication services for calling in the past 12 months, by frequency: February 2020



Source: Ofcom Online Communication Services research 2020. Q1. In the last 12 months how often have you used these services to make voice calls? This does not include calls made using video. Base: all respondents (2094).

Online voice calls were used at least weekly by a greater proportion of ethnic minority consumers (81%) than white consumers (52%) and by more parents/guardians of children under 18 (69%) than by users without children under 18 (49%).[388] This pattern can also be seen distinctly with video calling, with 68% of consumers from ethnic minority backgrounds using video calling at least weekly, in comparison to 32% of consumers from white backgrounds, and by 50% of parents/guardians of children under 18 compared to 30% of adults without children under 18. It is clear that these groups also favour mobile network calls to a similar extent, with 86% of ethnic minority consumers and 88% of parents with children under 18 using mobile voice calls at least weekly.

[388] Ofcom online communication services research 2020. This increases for parents with the youngest children – 76% of parents with children under 5 use online calling at least weekly, and 71% for those with children aged between 5 and 10.

Online communication services are used by children, including those under 13

Ofcom research indicates that children, including under-13s, do access and use online communication services, and they increasingly own devices that support the use of these services. Our research shows that 37% of 8-11 year-olds now have a smartphone and 49% have a tablet; this device ownership increases with age, with 83% of 12-15 year olds having smartphones.

Children, especially older children, often use the online services that are most popular with UK adults, including social media services that have built-in direct communications functionality such as direct messaging or online calling. However, online communication services generally have a minimum age requirement of 13, and some have a minimum age of 16, especially for direct messaging functionality. In 2019, Ofcom research showed that 48% of children aged 12-15 used Snapchat and 47% used Instagram, which both have a minimum age requirement of 13 for account-holders. Our research also indicates that 43% of 12-15s use WhatsApp, which has a minimum age of 16. Even in younger cohorts, these services are used to a significant extent, with 9% of 8-11 year-olds using WhatsApp or Snapchat.[389] TikTok recently introduced a minimum age of 16 for direct messaging;[390] our research indicates that 4% of 8-11 year olds and 9% of 12-15 year olds use TikTok, which includes a built-in direct messaging feature.[391]

Despite the large number of services available for consumers to choose from, use is concentrated among a small number of providers

WhatsApp and Facebook Messenger are the two most-used services for each of online text messages, voice calls and video calls. For text messages, iMessage and Instagram direct messaging are the next most popular services, while FaceTime is the third most-used service for voice and video calls. WhatsApp, Facebook Messenger and Instagram are all owned by Facebook, whereas iMessage and Facetime are Apple services, pre-installed on Apple devices. For email, Google Gmail and Microsoft Outlook email services have a significant lead on other email services, including broadband providers' email accounts (see figure 5.16 below).

The most popular online communication services across these different functions are therefore concentrated on a few providers, primarily the large platforms – Facebook, Apple, Google and Microsoft. Ofcom research indicates that the trend of daily users across some of the most popular online text, voice and video calling services has been relatively stable since 2017,[392] with WhatsApp seeing the greatest increase in its share of daily users.[393]

At the same time, consumers often access multiple different services; UK consumers use an average of two online communication services (excluding email) on a weekly basis (see figure 5.17 below). Our research indicates that the average number of online communication services used has been

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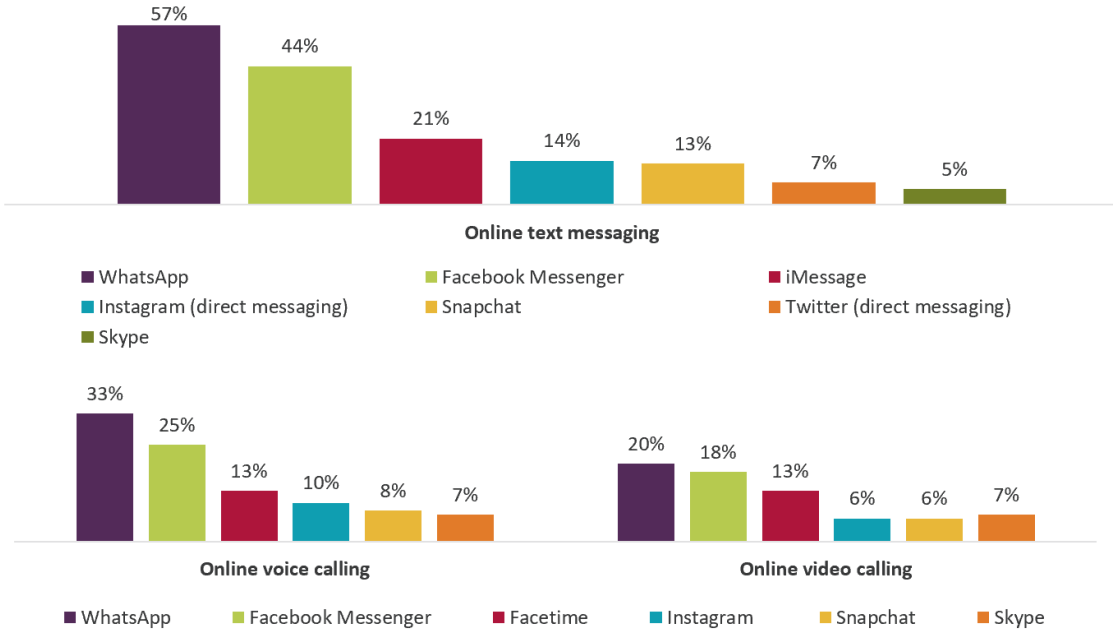
[389] Ofcom Parents' and Children's Media Literacy Tracker 2019.
[390] TikTok, Why we're making changes to Direct Messaging, 16 April 2020.
[391] Ofcom Parents' and Children's Media Literacy Tracker 2019.
[392] WIK-Consult Online Interpersonal Communication Service Report (2020). The online communication services tracked were Facebook Messenger, WhatsApp, Instagram and Snapchat.
[393] WIK-Consult (2020) based on GWI (2020) referring to daily internet users in the UK (aged 16+). WhatsApp's share of users increased from 34% in 2017 to 46% in 2019.

relatively stable since 2017, having grown steadily from 2012 to 2017;[394] however, new and innovative services can rapidly grow in popularity – recent examples of new emerging services include Zoom and Houseparty (see figure 5.14 below).

Figure 5.8: Leading services for at least weekly use of online text messaging, voice and video calls



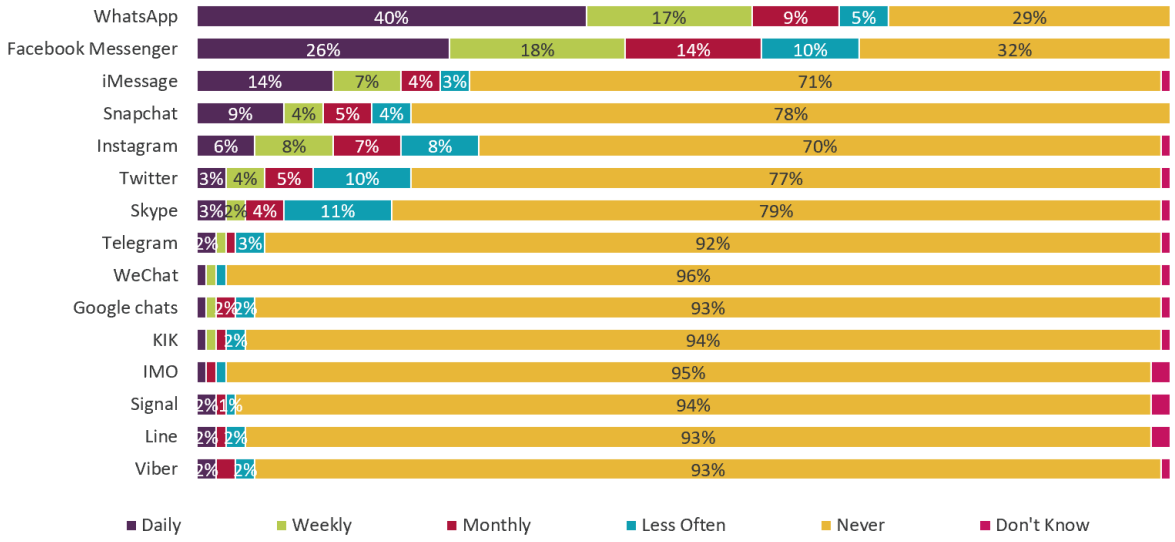
Source: Ofcom Online Communication Services research 2020. Q7. In the last 12 months how often have you used these services or apps to send text messages? Base: All respondents who have used online communication services or apps in the past 12 months to send text messages (1809). Question: Q2. In the last 12 months, how often have you used these services or apps to make voice calls? This does not include calls made using video. Base: Adult internet users. Question: Q3. In the last 12 months, how often have you used each of the following online communication services or apps to make video calls? Base: Adult internet users.

Four in ten online adults (40%) use WhatsApp for online text messaging on a daily basis, and consumers are using WhatsApp to a similar extent as SMS

WhatsApp was the most frequently used service and the most-accessed service for online text messaging, with four in ten adult internet users using it on a daily basis (40%), over half using it at least weekly (57%) and 71% of all adult internet users ever accessing the service in the past year. Facebook Messenger is the second most popular service, with only 32% stating that they had never accessed it during the year. It was used by more than a quarter of adult internet users on a daily basis (26%).

[394] WIK-Consult (2020) based on GWI (2020). The online communication services tracked were Blackberry Messenger, Facebook Messenger, Google Allo, Google Hangouts, Instagram, KakaoTalk, Kik Messenger, LINE, Skype, Snapchat, Tango, Telegram Messenger, Viber, WeChat, WhatsApp.

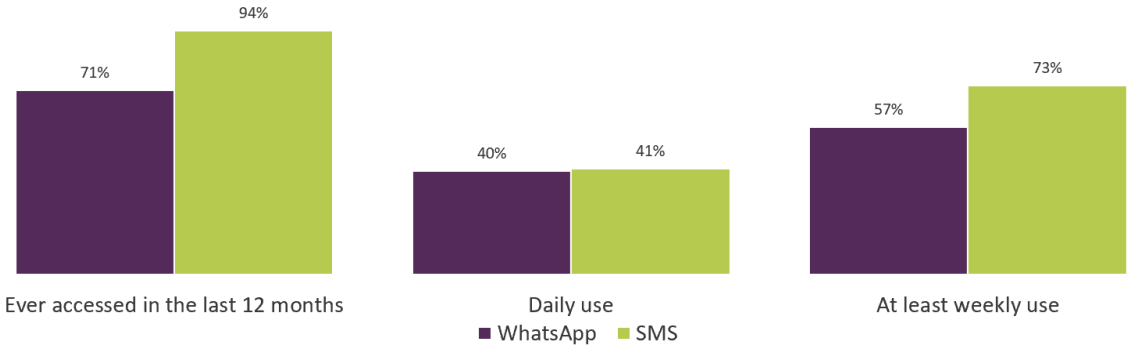
Figure 5.9: Frequency of using an online service/app for text messages



Source: Ofcom Online Communication Services research 2020. Question: Q7. In the last 12 months how often have you used these services or apps to send text messages? Base: Adult internet users (2094).

The level of daily use of WhatsApp for text messaging (40%) is now similar to the daily use and reach of SMS among adult internet users (41%), although more online adults have used SMS in the last 12 months (94%) than WhatsApp (71%).

Figure 5.10: Comparative use of WhatsApp and SMS for text messages in the last 12 months, by frequency



Source: Ofcom Online Communication Services research 2020. Question: Q6. In the last 12 months how often have you used these services to send text messages? Q7. In the last 12 months how often have you used these services or apps to send text messages? Base: adult internet users (2094).

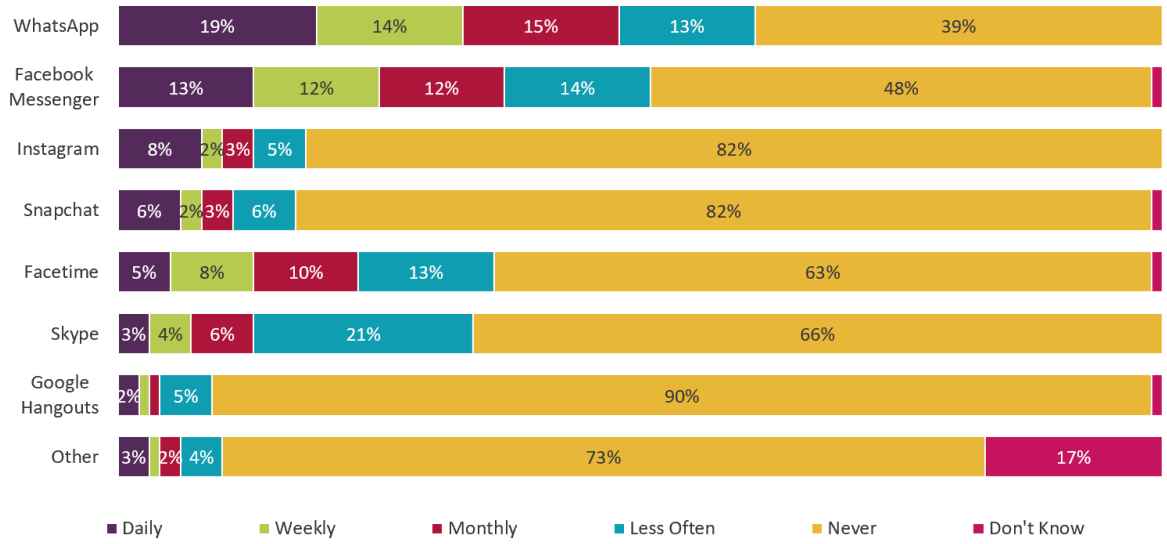
WhatsApp and Facebook Messenger are the most-used services for voice calling

WhatsApp was the most popular service for online voice calls over the past year, with a third of adult internet users (33%) using the service at least weekly and one in five doing so on a daily basis (19%). A further 15% used it for voice calls on a monthly basis, meaning that nearly half of adult internet users (48%) are making regular, if not frequent, use of this service for voice calls.

Facebook Messenger is the second most popular service for online voice calls, used by a quarter of adult internet users at least weekly (25%), and more than half of all adult internet users (51%) accessed the service during the year. The next most-used services for voice calls, all with over 10%

reach during the past 12 months among UK online adults, are FaceTime (36%), Skype (34%), Instagram (18%) and Snapchat (17%). With Apple iOS iPhones having approximately 50% UK market share,[395] this indicates that most iPhone users have accessed the pre-installed Facetime calling service at some point in the past 12 months.

Figure 5.11: Frequency of using an online service/app for voice calls



Source: Ofcom Online Communication Services research 2020. Question: Q2. In the last 12 months, how often have you used these services or apps to make voice calls? This does not include calls made using video. Base: Adult internet users (2094).

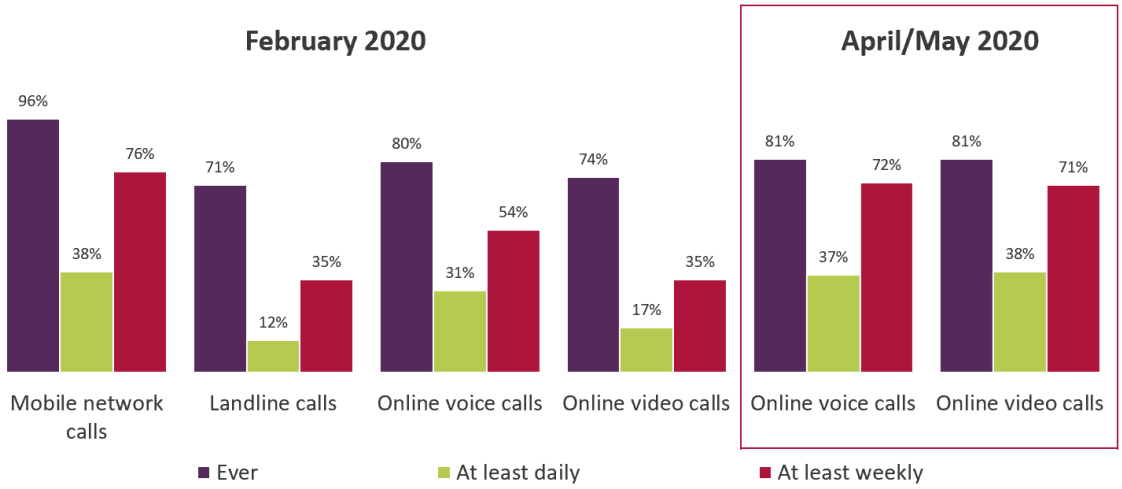
Almost four in ten adults (38%) have been making daily video calls since the imposition of measures around the coronavirus

The coronavirus pandemic has driven many consumers to try new online communication services for personal use for the first time. In particular, video calling use has doubled, with 71% of online adults using online video calling services at least weekly and almost four in ten adults (38%) using them at least daily.[396] In addition, the proportion of adults who have ever used online video calling increased to 81%, indicating that 7% of adult internet users have started using video calling for the first time as a result of 'lockdown' measures resulting from the coronavirus outbreak.

This growth trend is particularly noticeable among older consumers; online adults aged 65 and over have increased their use of video calling at least weekly from 22% in February 2020 to 61% in April/May 2020.

[395] Statcounter Global Stats, Mobile operating system market shares for United Kingdom, accessed June 2020.
[396] Ofcom Covid-19 news and information: consumption and attitudes research 2020

Figure 5.12: Use of communication services for calling in the past 12 months (February 2020) and in April/May 2020, by frequency

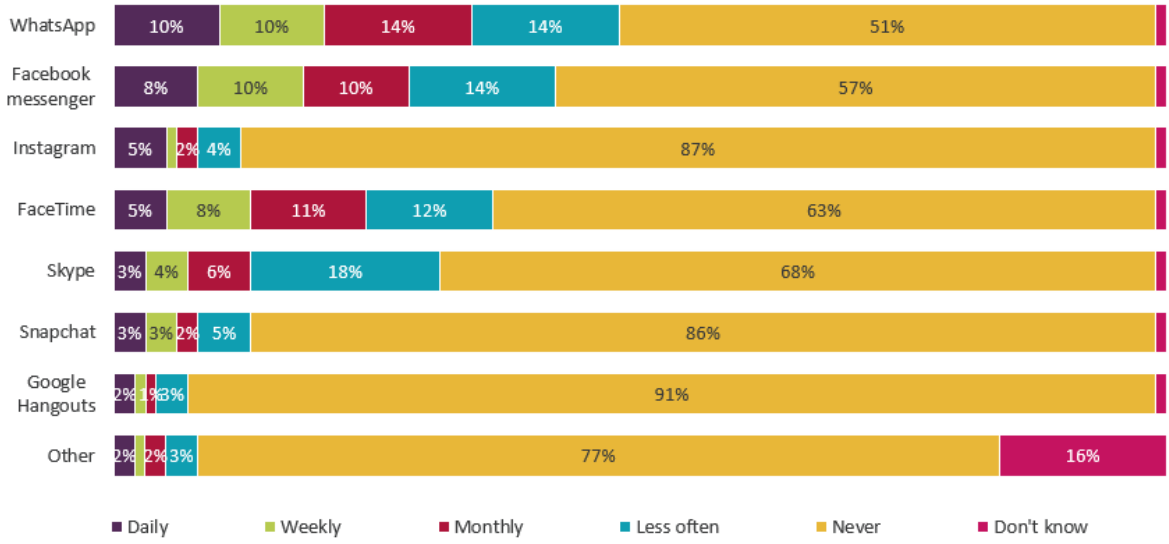


Source: Ofcom Online Communication Services research 2020. Q1. In the last 12 months how often have you used these services to make voice calls? This does not include calls made using video. Base: all respondents (2094). Ofcom Covid-19 news and information: consumption and attitudes research 2020. Base: all respondents (4256) Q14 Since the beginning of the lockdown, how often have you used these services to make voice calls? This does not include calls made using video. Q15. Since the beginning of the lockdown, how often have you used each of the following online communication services or apps to make video calls?

The use of many popular video calling services has more than doubled among UK consumers during the coronavirus pandemic, and new popular services have emerged

Ofcom's research shows that before the pandemic WhatsApp and Facebook Messenger were the most popular services for online video calling. However, WhatsApp was accessed for *video* calling to a much lesser extent than for *voice* calling, with only around half of adult internet users (48%) ever accessing the service in the 12 months to February 2020. Ten per cent used the service on a daily basis and a further 10% on a weekly basis. As with voice calling, Facebook Messenger was the second most popular service for video calling, accessed by 42% of consumers during the year.

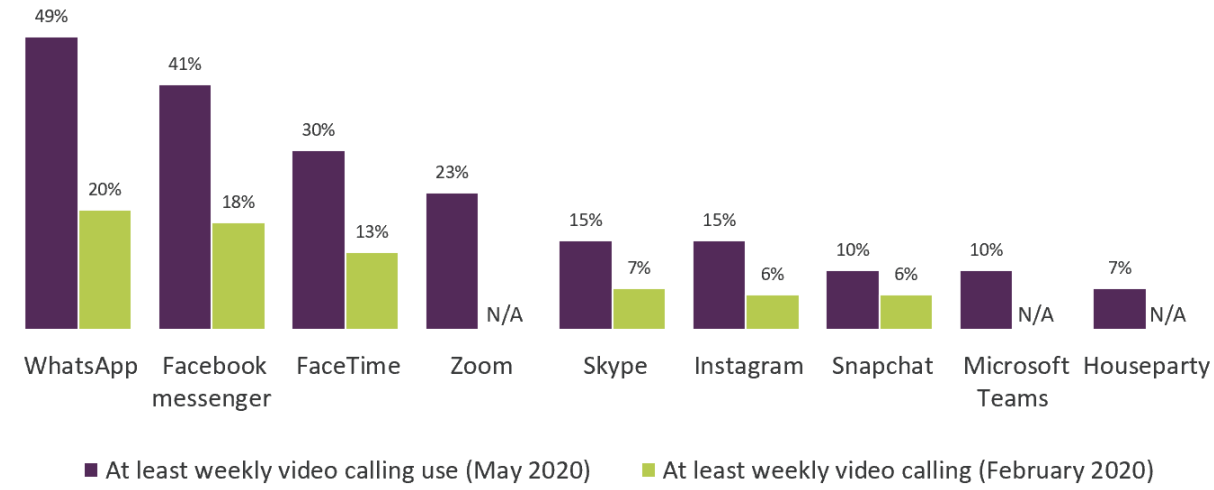
Figure 5.13: Frequency of using an online service/app for *video calls* in the 12 months to February 2020



Source: Ofcom Online Communication Services research 2020. Question: Q3. In the last 12 months, how often have you used each of the following online communication services or apps to make video calls? Base: All respondents (2094).

However, there has been a very significant increase in the proportion of consumers using these video calling services during the coronavirus pandemic. The 'at least weekly' use of many already popular video calling services has more than doubled, including use of WhatsApp (from 20% to 49%), Facebook Messenger (from 18% to 41%) and Facetime (from 13% to 30%). The number of consumers 'ever' accessing these services has also increased: WhatsApp (48% to 60%) and Facebook Messenger (42% to 52%) are now used by more than half of online adults for this type of call.[397]

Figure 5.14: Proportion of UK adults using an online service for video calls for personal use, at least weekly, before and after lockdown measures



[397] Ofcom Covid-19 news and information: consumption and attitudes research 2020. Question: Q3. In the last month, how often have you used each of the following online communication services or apps to make video calls? Base: All respondents (4256).

Source: Ofcom Online Communication Services research 2020. Question: Q3. In the last 12 months, how often have you used each of the following online communication services or apps to make video calls? Base: All respondents (2094). Ofcom Covid-19 news and information: consumption and attitudes research 2020. Question: Q15 & 16. Since the beginning of the lockdown, how often have you used each of the following online communication services or apps to make video calls? Base: All respondents (4256).

Note: N/A indicates data for Zoom, Microsoft Teams and Houseparty is not available for February 2020.

This shift in consumer behaviour has also affected business-focused video calling services

The coronavirus pandemic has encouraged consumers to turn to group video calling services to keep in touch with friends and family. One tenth of online adults (10%) used Houseparty, a group video calling app, for the first time during the lockdown period.[398]

Consumers have also turned to services that are primarily targeted at professional users, such as Microsoft Teams and Zoom, to benefit from enhanced video calling features such as large group video calling, screen sharing and virtual backgrounds. Our research indicates that 25% of online adults have used Zoom for the first time and 7% have used Microsoft Teams for the first time, for personal use. Houseparty, Microsoft Teams and Zoom have all more than doubled their reach with Zoom's UK user base growing from 7% of online adults to 31%.

At the same time as the significant growth in the popularity of video calling, business-focused video conferencing services such as GoToMeeting and BlueJeans have also seen significant growth. According to Comscore, video-conferencing sites reached more than 19.5 million adults in the UK in April 2020, more than one and a half times the number of adults reached in the UK in January (7.4 million). The most dramatic increases have been in the use of Zoom, which in April 2020 had a reach of 13 million among UK online adults, and Microsoft Teams, with a reach of 6.5 million.

Figure 5.15: Adult digital audience reach in the UK of selected video communication sites and apps*: December 2019-April 2020

	Dec-2019	Jan-2020	Feb-2020	Mar-2020	Apr-2020
Zoom	498k	659k	712k	6.7m	13m
Microsoft Teams	2.4m	3m	3.3m	5.3m	6.5m
Skype	2.5m	2.5m	2.2m	4.4m	4.9m
Google Duo app	1.3m	1.6m	1.5m	1.6m	2.3m
WebEx Communications	145k	208k	155k	356k	529k
GoToMeeting	168k	73k	82k	263k	347k
BlueJeans	-	-	-	55k	72k

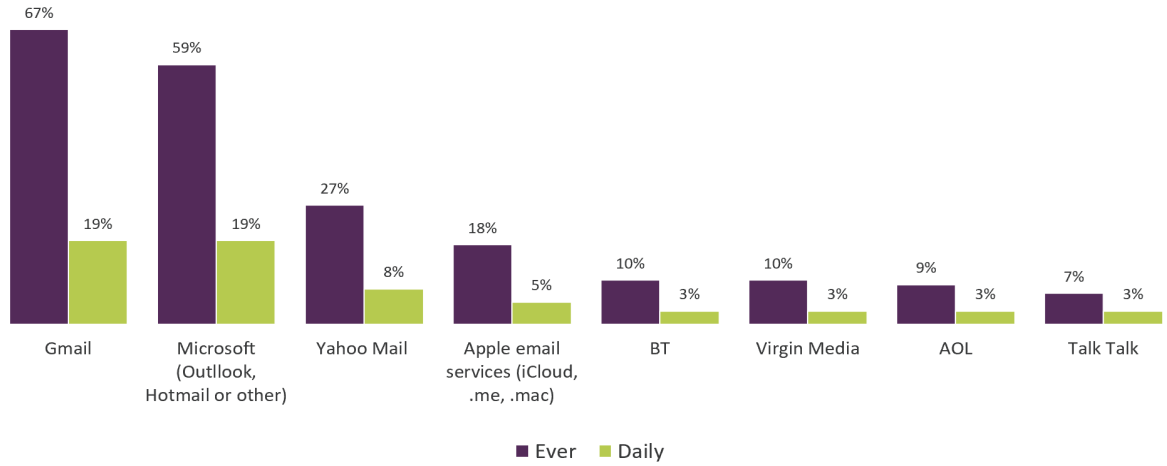
Source: Comscore MMX Multi-Platform, Age: 18+, Dec 2019 - Apr 2020, UK.
*Note: *Custom list of entities defined by Ofcom.*

[398] Ofcom Covid-19 news and information: consumption and attitudes research 2020 Q17. Since the beginning of the lockdown, have you used any of these online communication services or apps for the first time to make video calls with friends or family? This does not include previous use for work purposes.

Gmail and Outlook are the most used web-based email services, exceeding broadband providers' email services

Gmail, and Microsoft email services such as Outlook and Hotmail, are the most-used personal email services. There is a substantial gap between the top two and the next most-used online email services, Yahoo Mail and Apple email services such as iCloud. Thirty-five per cent of email users reported using both Gmail and Microsoft Outlook services, indicating that a substantial number of users prefer to use more than one main personal email address. Of the consumers surveyed, only 7% had used an email service other than those asked about in our research in the past year.[399]

Figure 5.16: Use of personal email services in the past 12 months



Source: Ofcom Online Communication Services research 2020. Question: Q17. In the last 12 months, how often have you used these online services or apps to send emails? This does not include emails sent for a work purpose. Base: All respondents who have used email services to send letters, documents, emails or long messages in the past 12 months (1878).

Some online communication services are considered essential by many consumers

While traditional communications services continue to be used by most people in the UK, there is widespread adoption of online communication services, some of which are considered by many people to be essential. Ofcom qualitative consumer research in March 2020 indicated that consumers considered email and online text messaging to be essential services, alongside mobile network calls, and research in May 2020 found that consumers have come to consider video calls essential as a result of measures to contain the coronavirus.[400]

Our research suggests that consumers see email as an essential service because of its role for formal, administrative communications. Online text messaging services are seen as a priority communication channel, especially for social communications, because of their enhanced features and functionality, including group chat, picture and video sharing and voice messages. Video calling,

[399] Ofcom online communication services research 2020.
[400] Futuresight Qualitative Research on Online Communication Services, May 2020. The consumer sample comprised 56 consumers that used at least one online communication service regularly and was a full representation of UK adults, aged 16+.

during the lockdown, is perceived to provide a better replacement for face-to-face interaction, whereas previously it was mainly used to communicate with friends or family abroad or far away.

Consumers indicated that they do not see online voice calls as essential in the same way as instant messaging or as video calling. This is partly because online voice calling is seen by some not to be as reliable as calls on the mobile network, particularly outside the home; mobile network calls are perceived to offer reliable connections, and consumers may also prefer to use the inclusive minutes in their mobile contracts rather than use their mobile data allowance by making online calls.[401]

Consumers need to use more than one online service to reach wider social networks

Traditional communication services ensure any-to-any connectivity – anyone can call or send a message to anyone else, irrespective of the fixed or mobile network provider. But currently, any-to-any connectivity between different online communication services is generally limited to email, because online calling and messaging services are not 'interoperable' – users can generally only communicate with other users of the same service.[402]

One way for a consumer to overcome the lack of any-to-any connectivity is by using more than one online communication service. Our research indicates that UK consumers use an average of two online communication services on a weekly basis (excluding email), which enables them to communicate with friends and family who use different services. Younger consumers are more likely to use a greater number of services or apps, with 18-24 year-olds using an average of five different services at least weekly, whereas over-54s use an average of only one service or app.

Figure 5.17: Average number of online communication services/apps (excluding email) used, by age group and frequency

Average number of services/apps used for online communications	18-24	25-34	35-44	45-54	55-64	65+	All online adults
At least weekly	5	3	3	2	1	1	2
Ever (in the last 12 months)	7	5	5	4	3	2	4

Source: Ofcom Online Communication Services research 2020. Q2. In the last 12 months, how often have you used these services or apps to make voice calls? This does not include calls made using video.Base: All respondents who have used online communication services or apps in the past 12 months (1692). Q3. In the last 12 months, how often have you used each of the following online communication services or apps to make video calls? Base: All respondents (2094). Q7. In the last 12 months how often have you used these services or apps to send text messages? Base: All respondents who have used online communication services or apps in the past 12 months to send text messages (1804). Q15. In the last 12 months how often have you used these services or apps to send picture or video messages? Base: All respondents who have used online communication services or apps to send picture or video messages (1570). Q18. In the last 12 months how often have you used these online communication services or apps to send long messages? This does not include messages sent for a work purpose. Base: All respondents who have used Other online communication services or apps to send long messages in the last 12 months (1243).

[401] Futuresight Qualitative Research on Online Communication Services.
[402] This has been the case since the early instant messaging services such as AIM, ICQ and Yahoo! Messenger popular in the late 1990s and early 2000s.

Our research indicates that consumers appear to distinguish between different online services and appear to value using more than one service to provide a sense of order and structure to manage multiple simultaneous conversations, in particular in relation to online text messaging. Consumers also appreciate that the leading service, WhatsApp, has extensive reach; our research suggests that they tend to use WhatsApp as a default service for day-to-day interaction with close friends and family, while Facebook Messenger is used for communicating with broader audiences and people they may not be in such regular contact with, sharing personal news, thoughts and content often found on the Facebook social platform.[403]

Market context and business models

Digital platforms and monetisation of consumer data

Growth in smartphone use has led to widespread take-up of online communication services, including new services that compete with traditional and established communication services

Online communication services for calling and messaging proliferated with the increasing use of smartphones and mobile data in the 2000s,[404] including Skype (released in 2003) and WhatsApp (launched in 2009 for iPhone users). The use of online communication services via mobile devices largely followed the use of desktop-based instant messaging services such as AOL Instant Messenger (AIM), ICQ, MSN Messenger and Yahoo! Messenger in the late 1990s, and the introduction of Skype and social networks in the 2000s. With widespread smartphone availability, consumers could replace desktop-based services with versions available as apps on their mobile phones.

A large number of online communication services are available in the UK and globally, and there is no apparent shortage of new entrants. But only a small number of services have become very popular, and most gain relatively little traction with consumers.

In particular, many of the most popular online communication services are associated with popular social networking services such as Facebook, Twitter and Instagram – Facebook Messenger, Twitter Direct Message and Instagram Direct – or with large digital platforms or ecosystems which own more than one service, such as Google, Facebook, Microsoft and Apple.[405] These and other popular online communication services exhibit positive 'network effects'; the size of a service's user base makes it more attractive to new users.

The large digital platforms tend to pursue business models where they leverage online communication services in support of their main business activity. Apple, for example, sells devices with online communication services designed for its iOS device ecosystem; Apple device users can use pre-installed Facetime and iMessage applications to communicate directly with other Apple device users, thereby increasing the attractiveness of Apple services and products. Facebook

[403] Futuresight Qualitative Research on Online Communication Services, May 2020.
[404] WIK-Consult Online Interpersonal Communication Service Report (2020)
[405] For example, Skype was acquired by Microsoft in 2011 (Microsoft press release, May 2011); Instagram was acquired by Facebook in 2012 (Facebook press release, April 2012); WhatsApp was acquired by Facebook in 2014 (Facebook press release, February 2014).

leverages the data it collects across its social media and communication services to sell online advertising, as explained further below.

At the same time, there also appears to be regular turnover in other services seeking to compete: in a study of selected online communication services between 2016 and 2020, a third had ceased operating – although there appeared to be no shortage of new and sometimes innovative online communication services when the study was updated in 2020.[406] Some of the more recent services launched include Signal (launched in 2014), which aims to provide consumers with a high level of security and privacy; and Houseparty (launched in 2016) which combines group video calls with in-app games, and provides a good examples of the ability of some emerging services to grow in scale very quickly (as outlined in the online consumer chapter, in January 2020, 175k UK adults visited the Houseparty app; by April 2020 this had increased to 4 million).[407]

The most popular online communication services in the UK are among those that have gained the largest number of global users

The most popular online communication services in the UK are the same services that have attracted large user bases worldwide: WhatsApp recently announced that it had 2 billion users. Other online services, also owned by Facebook, that enable online text messaging, voice and video calling have reached similarly large user bases: Facebook Messenger and Instagram have 1.3 and 1 billion users respectively. The only other services of similar size globally are Tencent's WeChat (1.2 billion users in Q3 2019) and Viber (1 billion registered users globally). Global user numbers for other services include Snapchat at 293 million, Twitter at 330 million, and LINE at 187 million.[408]

Against this backdrop, it is not surprising that the five most popular online communication services hardly differ across countries. Recent analysis carried by WIK-Consult indicates that across 45 countries/regions in Europe, the Americas, the Middle East, Africa and Asia-Pacific, five services – (1) Instagram, (2) Facebook Messenger, (3) WhatsApp, (4) Snapchat and (5) Skype – hold 74% of all the available places in the 'top five' lists in each of these countries.[409] In some regions other services feature in the top five, including WeChat, which features in 14 countries including China, LINE, which is the leading messaging service in Japan, and Zalo, which is the most popular service in Vietnam.[410]

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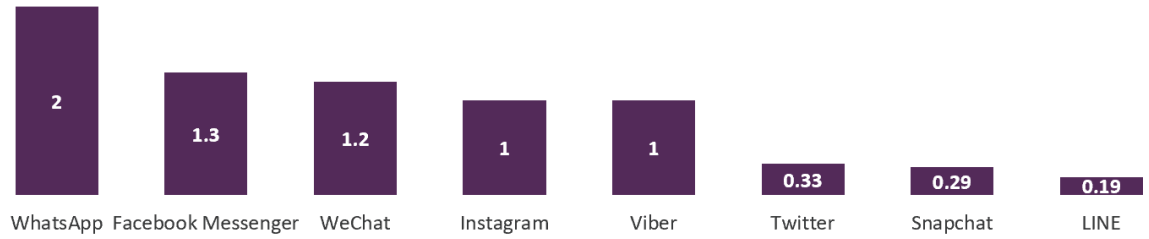
[406] WIK-Consult Online Interpersonal Communication Service Report (2020).
[407] Comscore MMX Multi-platform, Houseparty, app only, Age: 18+, Sep 2019 and Mar 2020, UK.
[408] Statista.com and as reported by LINE press release, June 2019.
[409] Source: WIK-Consult (2020) based on GWI (2020) referring to Q4 2019 and the following 45 countries: Argentina, Australia, Austria, Belgium, Brazil, Canada, China, Colombia, Denmark, Egypt, France, Germany, Ghana, Hong Kong, India, Indonesia, Ireland, Israel, Italy, Japan, Kenya, Malaysia, Mexico, Morocco, Netherlands, New Zealand, Nigeria, Philippines, Poland, Portugal, Romania, Russia, Saudi Arabia, Singapore, South Africa, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, UAE, UK, USA, Vietnam. Refers to mobile applications; iMessage and e-mail are not included.
[410] WIK-Consult (2020) based on GWI (2020) .

Figure 5.18: Subscribers worldwide (billions)



Source: WIK-Consult (2020) based on company websites, and Statista.

The breadth of functionality of online communication services is steadily increasing, and moving beyond calling and messaging

One way for online communication services to compete is by developing new functions or targeting a specific user group. Houseparty is an example of a new entrant successfully establishing a novel way to interact, combining group video calling with in-app gaming. In early 2019, Houseparty's developer, Life on Air Inc., partnered with the party game app *Heads Up!* to bring the game to the platform. Both apps were acquired by Epic Games, the developer and publisher of *Fortnite*, in June 2019. Messenger Rooms is also a recent example of a functionality introduced by Facebook to meet consumer demand for large group video calls during the coronavirus pandemic. A recent indicative study of online communication services by WIK-Consult suggests that the average number of functions on popular services (excluding email) has increased since 2016.[411] The most common functions relate to sending messages by text or picture, and group chat, followed by functions based on voice and video calling. However, services increasingly include a range of additional functions, including profile pictures and timelines, translation, payment and purchasing functions, integrated games, integrated news feeds and information chatbots.[412]

Another strategy for new entrants is to focus on specific user groups and provide functionality catered to their particular needs. For instance, Slack targets work collaboration within enterprises, Messenger Kids provides a dedicated environment for youth and families to communicate,[413] and Care Messenger and Hospify are examples of services that target the health and social care sectors.

Many online communication services that are used without direct monetary payment rely on the monetisation of consumer data

In contrast to traditional communication services, online communication services are often available to download and use without any direct payment. Principally, direct monetary payment is limited to: (a) services that offer increased security and privacy features, such as Threema; (b) services that are targeted at professional users, such as Cisco Webex; (c) devices that are supplied with pre-installed

[411] WIK-Consult Online Interpersonal Communication Service database. This consists of 180 popular online communication services and tracks the presence of 35 functions with at least 3% penetration of the services in the database. The database has been updated three times. Starting in 2016 (23 functions), it was updated in 2018 (30 functions) and 2020 (35 functions). This excludes email services.
[412] WIK-Consult Online Interpersonal Communication Service Report (2020).
[413] Messenger Kids is not currently available in the UK.

online communication services, such as iMessage; or (d) services that offer the ability to call telephone numbers, such as Skype Credit.[414]

However, many online communication services are provided at no direct monetary cost, often relying on the monetisation of data collected from consumers' use of the service or device, such as via targeted search or display advertising. The data collected can be used to create a social graph, identifying connections or contacts between consumers.[415]

Common approaches for earning revenue from 'free' online services include:

a) **Online advertising** – third-party sellers pay the provider to advertise on its service, for example when a user clicks on an advertisement, known as 'pay-per-click'. In some cases, advertisements are targeted at consumers based on the data collected from that user, such as on Snapchat[416] and Facebook Messenger.[417].

b) **In-app purchases** – purchases made by consumers via the service, either directly from the provider or from third parties, including additional features to enhance the service such as stickers, games or retail goods. For example, Snapchat users can purchase filters to overlay on top of Snaps (or pictures) to add colour effects or show venue information, or lenses to add 3D effects, objects and characters.[418] iMessage users can purchase stickers and games within the App Store for iMessage to play chess, 4 in a row and many other games.

c) **Sponsored content** – providers are paid to include sponsored content from third parties, such as advertising or messages.[419]

d) **Third-party partner agreements** – some services partner with third parties like retailers or other online shops. Those third parties might provide in-app offers, promotions or customer service through the communications service, such as an online retailer using Facebook Messenger to communicate with customers.[420]

e) **Application-to-person (A2P) messaging** – A2P messaging is a way for businesses or organisations to communicate directly with consumers by sending messages to their mobile phones. SMS, which is not an online communication service, is still the most common form of A2P messaging, but this is a potential source of revenue for online communication services. The global A2P messaging market is forecast to grow from US $24bn (£18bn) in 2018 to US $40bn (£31bn) in 2024, and OTT A2P messaging

[414] Skype.com and About Skype, accessed June 2020.
[415] WIK-Consult Online Interpersonal Communication Service Report (2020) .
[416] Snapchat Support, Advertising and interest preferences, accessed June 2020.
[417] Facebook Data Policy, accessed June 2020.
[418] Snapchat Support, Buy a Filter Online, accessed June 2020.
[419] See for example, Facebook.com, About sponsored messages, accessed June 2020.
[420] See for example, Facebook for Business, Facebook Messenger, accessed June 2020 and mobilemarketingmagazine.com, accessed June 2020.

enterprise spend is expected to grow from US $1.2 bn (£900m) in 2018 to US $3.7bn (£2.9m) in 2024.[421]

Revenue from these monetisation strategies may be earned directly by the service itself, or indirectly by sharing data with and supporting other services or companies within a wider corporate group. Data may be provided by the communication service to other companies within the group or 'ecosystem' to improve products and services, including targeted advertising.

Popular UK services use a range of approaches to monetisation including targeted online advertising

WhatsApp, Facebook Messenger, Instagram Direct

WhatsApp, Facebook Messenger and Instagram Direct are provided to consumers without any direct monetary payment. Facebook products with online communications features earn revenue directly, through in-app advertising (Facebook Messenger and Instagram)[422], in-app purchases (Instagram) and application-to-person (A2P) messaging (WhatsApp).[423] Facebook's primary source of revenue is targeted advertising, comprising 98% of its average revenue per user,[424] with Instagram advertising contributing around a quarter of the Facebook group's total revenue in 2019.[425]

Snapchat

Snapchat earns revenue principally from advertising.[426] It allows consumers to turn off advertisements that are targeted, but not non-targeted advertisements.[427]

In addition to common online advertising formats, Snapchat has carved out a niche for its advertising business by offering sponsored lenses,[428] which build on the company's experience in integrating augmented reality features into the service. Snapchat is also seeking to develop functionality for purchasing Amazon products via the app, using image recognition to identify Amazon products in photos, and providing links to buy the products.[429]

FaceTime, iMessage, Apple (me, iCloud, Mac)

FaceTime, iMessage and Apple Mail are provided pre-installed on Apple hardware, which is Apple's main source of revenue, most notably the iPhone; in 2019, sales of hardware comprised 75% of

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[421] Enterprise spend refers to the amount of money (in GBP) spent each year by enterprises of all class sizes in A2P messaging services. Analysys Mason, January 2020, The application-to-person messaging market will grow, but operators may only benefit in the short term. Currency conversions by Ofcom at 2018 and 2019 Bank of England rates.
[422] Facebook Annual Report 2019.
[423] WIK-Consult Online Interpersonal Communication Service Report (2020) .
[424] WIK-Consult Online Interpersonal Communication Service Report (2020) referring to Facebook Q4 2019 results.
[425] See: The Verge, Instagram brought in $20 billion in ad revenue last year, more than a quarter of Facebook's earnings, Feb 2020.
[426] Snap Inc Annual Report 2019.
[427] Snapchat Support, Advertising and interest preferences, accessed June 2020.
[428] Snapchat Business, Lens AR Experiences, accessed June 2020.
[429] See: The Verge, Snapchat is testing a camera feature that lets you easily buy items from Amazon, Sept. 2018.

Apple's total revenue.[430] Apple iMessage also earns revenue by allowing consumers to purchase additional functions and stickers from third parties on the App Store.[431]

Skype, Microsoft (Outlook, Hotmail)

Microsoft's online communication services include Skype and Outlook.com, as well as Teams, LinkedIn and Xbox Live Chat.[432] Skype Credit earns revenue by charging for calls made to telephone numbers, through credit purchased or a subscription. Outlook and Teams are provided with Office 365, which is purchased with a subscription. Alternatively, consumers can use outlook.com as a standalone service, either free of charge or by purchasing a premium version. The free version relies on online advertising shown on the account inbox screen; however, Microsoft states that it does not use the content of emails for targeted advertising.[433]

In contrast to other large online platforms, much of Microsoft's revenue comes from business customers and it is more focused on communications services that are integrated into its suite of business software. For 2019, Microsoft reported that Office 365 Commercial had 180 million users globally.[434] Teams' digital adult audience reached 6.5 million in the UK in April 2020 (as in Figure 5.15 above). In 2019, productivity and business processes, including Office 365, contributed around 33% to Microsoft's revenue.[435]

Google, Gmail, Hangouts

Gmail is the most-used email service in the UK, with 67% of adult email users accessing it in the 12 months to February 2020;[436] it is reported to have 1.5 billion users globally.[437] Consumers can set up a Gmail account online, without any direct monetary payment. The Gmail mobile application and Android Messages are pre-installed as the default services on various Android phones.

Gmail earns revenue directly through advertising on email accounts, and through subscription fees for the G-Suite package. Otherwise, Google's overall monetisation strategy is based on online advertising on the Google search engine. In 2019, 83% of Google's revenue came from online advertising.[438]

Google has also entered the messaging market, using Rich Communications Services (RCS) as a messaging protocol across the Android ecosystem.[439] It is working with carriers and the wider ecosystem to enable monetisation of RCS by providing A2P business messaging, called Rich Business Messaging (RBM).[440]

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[430] Apple Inc. (2020) Form 10-K Washington D.C.
[431] See for example komodigital.co.uk, accessed June 2020.
[432] Xbox includes a live chat feature, where gamers can communicate with one and other.
[433] Privacy at Microsoft, accessed June 2020.
[434] Microsoft Corporation Annual Report 2019.
[435] Microsoft Corporation Annual Report 2019.
[436] Ofcom online communication services research 2020
[437] Gmail on Twitter.com, October 2018.
[438] Google contributes more than 99% of the revenue of the Alphabet group. Alphabet Inc. 2020 Form 10-K Washington D.C.
[439] RCS (also known as "joyn", "message+", "SMS+" or "advanced messaging") refers to a suite of interpersonal communication functions specified by the GSMA. see Google RCS.
[440] Google business messaging, accessed June 2020.

User experiences and attitudes

UK consumers may be exposed to a range of potential harms when using online communication services

Consumers can access online communication services with ease but typically have limited information and understanding about the collection and use of their data

Consumers can access online communication services either pre-installed with a device or software, by downloading them from an app store, or by registering for them from a website. Services that are pre-installed include those on Apple and Android devices and the Microsoft Office suite. In most cases, consumers can easily download services from the Apple or Android app stores, including WhatsApp, Facebook Messenger, Instagram and Gmail.

When setting up an account, the user is typically asked to agree the terms of service and privacy policy before using the service.[441] As outlined in the consumer chapter, Ofcom research shows that generally, consumers accept terms and conditions online without reading them.[442] Our qualitative research on online communication services indicates some distrust among consumers about the transparency and clarity of the terms and conditions and/or privacy policies for some services. Some consumers felt that companies deliberately make contractual information obtuse and long, so that no-one would read it, and if they did, they would find it difficult to understand. [443]

A recent review of the terms of service and privacy policies of online communication services found that limited information is provided about the use of the data that is collected. Of the 12 services studied, each provided information about what data is collected and how it is done. But less information was provided about how the service uses and shares the data it collects. Many did indicate that they used both consumers' personal data and information gathered through their use of the service to support targeted online advertising.[444]

Ofcom research shows that 45% of online adult consumers are not happy for online companies to collect and use their personal data, and only 19% are happy for this to happen if they get something in return. Forty-two per cent of online adults said they disliked all online advertising.[445]

Our consumer survey found that three in five adult internet users understand that free online communication services, such as Gmail and Facebook Messenger, are funded through advertising on the website (60%), but one in four said that they did not know how those services are funded (25%).[446] Our qualitative consumer research on online communication services indicates that

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[441] WIK-Consult 2020. A link to these documents is provided and they can be accessed at a later time through the settings or administration function.
[442] In 2019, two-thirds of internet users (65%) agreed with the statement "When I visit websites or apps, I usually accept the terms and conditions without reading them". Ofcom Adults' Media Literacy Tracker 2019
[443] Futuresight Qualitative Research on Online Communication Services, May 2020.
[444] WIK-Consult 2020. The services reviewed were WhatsApp, Viber, Telegram, Instagram, Snapchat, Discord, iMessage, Facebook Messenger, Threema, Signal, Skype and WeChat.
[445] Ofcom Adults' Media Literacy Tracker 2019.
[446] Ofcom online communication services research 2020. Question: Q28. How do you think free online communication services, such as Gmail or Facebook Messenger, are funded? Base: All respondents (2094).

consumers tend to be aware that data is used for online advertising purposes but only a few consumers appeared to understand that some online communication services are 'free' to use in exchange for that service having access to their personal and communication data. Younger consumers were more likely to know that Facebook owned Facebook Messenger, Instagram and WhatsApp, and so had an expectation that their data would be used in some way to cross-market products and services. However, some older consumers indicated they found targeted advertising unnerving, particularly if it appeared to be based on conversations rather than a search on Facebook.[447]

In some cases, consumers can limit the collection of certain data when using an online communication service. Services may ask permission to access data about the consumer's contacts, so that they can be uploaded for use on the new service.[448] Some online communication services provide information about how and why targeted online adverts are displayed (for example, Instagram, Facebook, Snapchat, Viber, Discord), or allow consumers to turn off targeted advertising (for example, Snapchat, Viber, Discord).[449] Consumers can adjust the privacy settings and location or cookie tracking on their devices, e.g. through the general settings of their smartphone.

Past security incidents indicate that there are risks to the security of online communication services and consumer data

The risks to security and privacy for online communication services cover access to consumer data in aggregate and access to individual communications. Just like other online services, online communication services are a target for hackers, or may experience security leaks through human error or system malfunction. Third-party access can occur in different ways. Communications may be targeted in transit, as online communication services often use third-party servers or cloud storage. Another key risk is that communications might be accessed by third parties through consumers' devices – the third party may access, pass on and possibly alter the communication.

Figure 5.19: Recent reports of security incidents

Service	Year	Description
Signal	2019	A bug allowed attackers to call a target device. The call would have been answered automatically – "essentially letting the hacker" eavesdrop on its victim.[450]
WhatsApp	2019	A flaw enabled hackers to install "surveillance software on to both iPhones and Android phones by ringing up targets using the app's phone call function."[451]

[447] Futuresight Qualitative Research on Online Communication Services, May 2020.
[448] For example, Instagram asks the user to access her contacts twice, a second time if the consumer has selected the 'skip' button. In the case of Telegram, permission must be given in order to use the voice calling or instant messaging functions.
[449] This prevents only the targeting of the advertising, but not being exposed to adverts at all.
[450] Forbes.com, Signal Messenger Eavesdropping Exploit Confirmed, October 2019.
[451] FT.com, WhatsApp voice calls used to inject Israeli spyware on phones, May 2019

WhatsApp, Telegram	2019	A security flaw was found which could allow hackers to manipulate files that are exchanged between users. "[T]he flaw relates to the fact that the messaging apps can save files such as photos or videos automatically to" the phone's gallery or any other storage place. "It would allow hackers to intercept media files being sent between users and potentially alter them." [452]
Facetime	2019	A vulnerability potentially allows users to eavesdrop on people as a bug allows users to call anyone with FaceTime and immediately hear the audio coming from the person being called - even before the call is answered or rejected. [453]
WhatsApp	2019	A stalking-app for WhatsApp automatically retrieves the online status of target contacts and displays the usage habits graphically. [454]
Zoom	2020	There are reports of third parties joining and disrupting Zoom video calls, and reports of third parties exploiting screen-sharing features to share potentially harmful and disturbing video and audio content with participants. [455]

Sources: WIK-Consult (2020) based on desk research and Ofcom's desk research. Individual sources are provided in the accompanying footnotes.

Security incidents relating to online communication services may have severe consequences for consumers because they have larger user bases and store data that may be sensitive, covering personal information, and rich communications such as photos and videos. For example, Facebook experienced incidents in 2018 and 2019 that enabled access to user accounts and personal information. [456]

Encryption is one approach to protecting online communication services, both end-to-end encryption (E2EE) and client-to-server encryption (C2SE). E2EE encrypts messages and files using specific keys which are known only by the devices participating in the communication; the service provider cannot access data from the message that is sent (although data may be taken by the provider from a backup). This secures data from third-party access in transit, but still enables the online communication services to access the data from the message that is sent.

A number of online communication services use E2EE, including iMessage, Threema, Viber, WhatsApp and WhatsApp Business. [457] Snapchat only encrypts photos taken within the app with E2EE; Facebook Messenger and Telegram offer E2EE as a manual option for person-to-person messages. [458] However, most providers backup messages on servers by default, although the user may opt out. These messages are typically only C2SE-encrypted, so may be accessed by the provider, even if the messages that are sent are protected with E2EE. [459]

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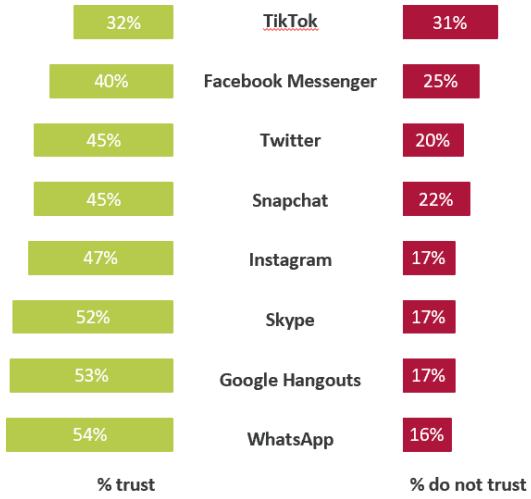
[452] Business Insider, A security flaw found in WhatsApp and Telegram on Android lets hackers mess with your photos, payments and voice notes, July 2019.
[453] Forbes, Apple confirms iPhone Facetime eavesdropping exploit, January 2019.
[454] T-online.de, WhatsApp: Spionage-App macht auf Datenschutzproblem aufmerksam, December 2019.
[455] FT.com, Privacy concerns grow over Zoom videoconferencing platform, March 2020.
[456] See for example: The New York Times (Sept. 2018); Tech Crunch (Sept. 2018); Facebook security update (Sept. 2018); CBS News (April 2019); Cnet.com (Dec. 2019). We have not been able to verify whether these incidents affected UK users of WhatsApp, Facebook Messenger and Instagram.
[457] End-to-end encryption protocols offered by select online communication services are: iMessage (1280-bit RSA and 128-bit AES), Threema (256-bit NaCl library), Viber (own "double ratchet" protocol, similar to Signal), WhatsApp and WhatsApp Business (Signal protocol); WIK-Consult 2020.
[458] WIK-Consult Online Interpersonal Communication Service Report (2020).
[459] WIK-Consult Online Interpersonal Communication Service Report (2020).

Consumers have a limited degree of trust in instant messaging services' use of data

Our online harms research looked at online communication services from the brands that consumers do or do not trust to use their data responsibly and/or protect their personal data (see the online consumer chapter). WhatsApp was the most trusted service, with 54% of consumers indicating that they trusted the service, while 16% said that they did not trust it. Although also owned by Facebook, Facebook Messenger was one of the least trusted, rated as trustworthy by 40% of consumers, and untrustworthy by 25%.

Figure 5.20: Percentage of adults who indicate they trust/do not trust each identified service to use their data responsibly and /or protect their personal data



Source: Ofcom-ICO research 2020. Question: E5) Using a scale of 1 to 5, where 1 means you "do not trust it at all" and 5 means you "trust it a great deal", please tell me how much you trust (brand) when it comes to using your data responsibly/protecting your personal data. Base: all adults randomly selected to answer about brand and using that brand: Instagram (490), Snapchat (312), Twitter (257), WhatsApp (1032), TikTok (59), Skype (174), Google Hangouts (44), Facebook Messenger (762).*

Email and instant messaging services are common sources of potential harm online

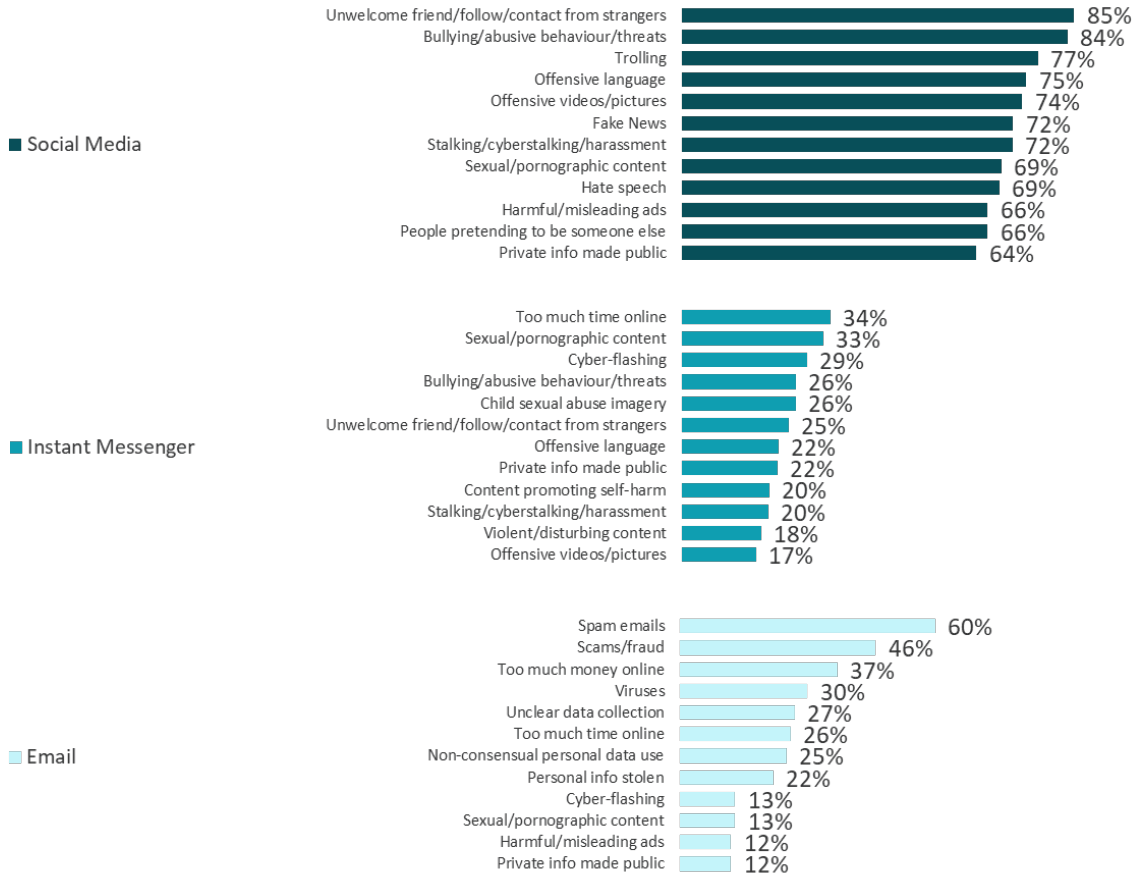
Our 2020 online harms research indicates that, among adult consumers who say they have had a potentially harmful experience of using the internet in the past year, 20% had their most recent experience of harm on a social media site (including Instagram, Snapchat and TikTok, which have a direct messaging function built in), 16% were using email and 8% were using one of the identified instant messaging services.[460]

When asked to consider the source of their most recent experience of potential harm, consumers tend to cite email, in relation to privacy and security harms, to a greater extent than instant messaging services (see further in the online consumer chapter). However, consumers more often cite instant messaging services as the source of their most recent content or conduct-related harm. Among UK adult internet users who have experienced the following potential harms, at least one in five associated this experience with an instant messaging service: unwelcomed contact from strangers; bullying/abusive behaviour/threats; offensive language; stalking/cyberstalking/

[460] Discord, Facebook Messenger, Google Hangouts, iMessage, Line, Snapchat, TeamSpeak, Telegram, Viber and WhatsApp.

harassment; content promoting self-harm; cyber-flashing; sexual/pornographic content; and child sexual abuse imagery.

Figure 5.21: Harms most commonly associated with social media, messaging or email, among those with experience of potential online harm



Source: Ofcom-ICO research 2020. Question: C4) Which, if any, of the following things have you come across on the internet in the last 12 months? PROMPTED. C7 Which site or service were you using when you came across your most recent experience of (XXX)? Base: All adult internet users (2080). Chart shows proportion of people who cited social media, instant messenger or email as the source of their most recent experience of harm.

A1. Methodology

Ofcom research sources

Adult Media Literacy Tracker

The Adults' Media Literacy Tracker is an annual face-to-face survey run between October and November each year, among c.1,900 UK adults aged 16 and over. The objective of the survey is to provide detailed evidence on media use and understanding among adults aged 16+. The data is weighted to the national UK profile, so that it is representative of adults aged 16+.

Children and Parents: Media Use and Attitudes

The Media Literacy Tracker with children and parents (Ofcom Parents' and Children's Media Literacy Tracker) is an annual quantitative tracking survey that provides detailed evidence on media access, use, attitudes and understanding among children and young people aged 5-15, as well as detailed information about media access and use by young children aged 3-4. The survey also includes findings relating to parents' views about their children's media use, and the ways that parents seek – or decide not – to monitor or limit use of different types of media. In 2019, fieldwork ran from April-July; a main quota sample of 1,393 face-to-face in-home interviews were conducted with parents of 5-15s and children aged 8-15, along with 604 interviews with parents of children aged 3-4. In addition, a further 542 boost interviews were conducted in Scotland, Wales and Northern Ireland to ensure a sufficient sample of internet users were achieved for the survey.

Covid-19 news and information: consumption and attitudes omnibus survey

This omnibus is a weekly quantitative interview among 2,000 UK adults aged 16+ via an online panel. The data provides Ofcom with a continuous understanding of how UK adults are getting news and information about the coronavirus. The fieldwork takes place each weekend, with the first wave taking place between 27-29 March 2020.

Populus' online panel consists of 185,000 UK adults and is the primary source of the sample. Invitations to complete the survey are sent out to a national representative online sample of UK adults aged 16+. Quotas are on set on age, gender, region and socio-economic group, and the data weighted to the known profile of the UK using age, gender, government office region, socio-economic group, whether taken a foreign holiday in the last three years, tenure, number of cars in the household and working status. Targets for quotas and weights are taken from the National Readership Survey, a random probability face-to-face survey conducted annually with 34,000 adults.

The fieldwork for the online communication service questions took place between 24-26 April and 1-3 May 2020. The total number of interviews was 4,000+.

New research for Online Nation 2020

Video-sharing platforms (VSPs) and online games research

The Ofcom video-sharing platforms and Ofcom online games research were a series of online surveys conducted in March and April 2020 by Populus via their online omnibus. Both consisted of a sample of 2,000 adults aged 18+ in the UK and 1,000 8-15 year-olds. The adults' fieldwork for online games took place from 13-15 March, and 20-22 March for VSPs. The children's fieldwork took place from 30 March to 5 April for both pieces of research. We note that restrictions around the coronavirus were put in place during this time, which may have affected the results of this research.

Online communication services research

Our consumer research on online communication services was conducted in two parts. The quantitative data was obtained from a sample of 2,000 adults aged 18+ in the UK, conducted by Populus via their online omnibus. The fieldwork took place from 17 to 18 February 2020.

Ofcom used Futuresight to provide further qualitative understanding of the use of online communication services. The research sample comprised 56 consumers, including nine accessibility users. The consumer sample for the qualitative study was recruited to represent UK adults aged 16+, using standard recruitment quotas (i.e. gender, life-stage and socio-economic status). Futuresight used gender, life-stage and socio-economic status as the main sampling variables and stipulated that all respondents must use at least one online communication service regularly (i.e. in the past week). The sample of end-users with disabilities included an equal split of those with sight, hearing and dexterity impairments. Futuresight also ensured that consumers and accessibility users were drawn from urban and rural locations in England, Wales, Scotland and Northern Ireland. The fieldwork was conducted in from 16 to 31 March 2020.

An in-depth qualitative method was used. The initial proposed approach was to conduct mini-groups in order to benefit from individual assessment and group interaction. However, after conducting just one mini-group out of the three designated for the pilot phase, social distancing due to the coronavirus was enforced and face-to-face fieldwork ceased immediately. Futuresight adapted the approach from mini groups to online interviews, conducting them individually, in pairs and as a family (generally with parents and children separately). All interviews were conducted via video and occasionally by telephone, when video was not possible or appropriate.

News Consumption Survey

The News Consumption Survey uses a mixed methodology which includes c.2,200 face-to-face and c.2,500 online interviews among adults aged 16+, as well as around 1,000 online interviews with children aged 12-15. The survey is carried out in two waves: in November-December and March. The data is weighted to correct for over-representation in the nations, with weights applied to age, gender and SEG within nation to match known population profiles. A final weight step is taken to calibrate between the face-to-face and online adult interviews.

Internet users' concerns about and experience of potential online harms ("Online harms research" / Ofcom-ICO research)

The online harms research is a face-to-face survey conducted between 3 January and 11 February 2020, among a representative sample of c.2,000 UK adult internet users aged 16+. The research also

included a representative online survey among c.2,000 UK children aged 12-15. Quotas were set and weighting applied (to the adults' survey) on age, gender, region, socio-economic group and urbanity.

Technology Tracker

The Technology Tracker is a face-to-face in-home survey run once a year with c.3,900 adults aged 16+ in the UK. It provides us with a continuous understanding of consumer attitudes and behaviour in the UK communications markets, helping us to monitor change and assess the degree and success of market competition. The data collected is weighted to the profile of UK adults.

The Technology Tracker provides data on:

- Take-up of devices
- Access and take-up of telephony and internet services
- Activities conducted on mobile phones and the internet
- Take-up of TV services, including paid-for and free TV, plus video-on-demand services
- Take-up and listenership of radio and audio services, including digital radio
- Bundling of services

Ofcom Communications Market Report

The Communications Market Report (CMR) is an annual publication providing data and commentary on key market developments in the UK communications sector. The narrative and interactive reports contain data and analysis on broadcast television and radio, fixed and mobile telephony, internet take-up and consumption, and post. We publish the CMR to support Ofcom's regulatory goal to research markets constantly and to remain at the forefront of technological understanding. The report addresses the requirement to undertake and make public our consumer research (as set out in Sections 14 and 15 of the same Act).

Third-party research sources

BARB

Broadcasters' Audience Research Board (BARB) is a panel of approximately 5,300 homes providing the official broadcast TV measurement for the industry.

RAJAR

The Radio Joint Audience Research (RAJAR) is the official body in charge of measuring radio audiences in the UK and is owned and controlled by the industry. The overall adult 15+ sample is about 100,000 each year, with each respondent participating for only one week.

TouchPoints

TouchPoints is an annual survey commissioned by the Institute of Practitioners in Advertising (IPA). With a sample of approximately 6,000 adults aged 15+ across Great Britain, it uses a seven-day diary

to capture media consumption and other daily activities every half hour. It also uses a self-completion questionnaire which includes attitudinal statements.

UKOM (Comscore)

The UK Online Measurement Company (UKOM) was formed in 2009 with a mandate from the advertising industry in the UK to establish measurement standards for digital media. UKOM appointed Comscore as its exclusive partner for some of its online media audience measurement products in the UK in 2012.

We have used three of the Comscore products:

1. For analysis of internet activity across platforms (laptops, desktop computers and mobile devices), we use Comscore MMX Multi-Platform which employs Comscore's Unified Digital Measurement (UDM) methodology, explained below.
2. For detailed analysis of internet activity on mobile devices (tablets and smartphones), we have used Comscore Mobile Metrix.
3. For analysis of viewing of online video content, we use Comscore Video Metrix (VMX) Multi-Platform.

Comscore's Unified Digital Measurement (UDM) methodology combines panel and census measurement techniques to obtain digital audience measurement statistics. UDM uses Comscore's UK measurement panel to determine audience reach and demographics. Census-level activity is captured from publishers' digital content, such as on websites, videos, and computer and mobile applications.

Comscore combines census-level data with those captured from the panel to help provide a more accurate view of audiences and their consumption habits. This approach allows Comscore to capture more accurate consumption activity from publishers, and attribute this to audience demographics in a way that is not affected by cookie deletion, blocking, or rejection.

There are varying levels of unification between panel and census data, including where publishers have chosen not to tag all entities they own; this can result in measurement for some entities being reliant on panel only data or being partially unified. Data for BBC News, for example, is partially unified.

In September 2017 Comscore updated the source for its UK universe estimates to the Audience Measurement for Publishers study run by The Publishers Audience Measurement Company (PAMCo). The Enumeration source is the data that Comscore uses to produce universe estimates for its Audience Analytics products. Effective with January 2020, Comscore updated its universe estimates for its MMX-Platform products as part of its periodic enumeration updates. The change affects the UK universe estimates in Comscore MMX Multi-Platform, Video Metrix and Mobile Metrix products. In October 2019 Comscore also introduced improved collection and reporting of its mobile data. Collectively, these changes may result in trend shifts for UK Audience data. Data changes will vary by entity and platform.

Comscore does not currently measure online activity via a TV set or smart devices in the UK.

Kids Insights UK

Kids Insights UK is a market research and insights resource on the attitudes, behaviour and consumption pattern of children aged 3-18 years old. More than 21,300 children a year in the UK take part in the survey.

App Annie

App Annie provides mobile app analytics data on how apps, platforms and markets are performing, and key metrics across the app lifecycle. The publisher and app rankings reported in the App Annie 2019 State of Mobile, the source of the data for this report, are based on the download, consumer spend and usage estimates available through App Annie Intelligence. Ofcom has used spend rankings for this report.

- App Annie 2019 State of Mobile consumer spend rankings are based on consumer spend that the iOS App Store and Google Play earned from paid downloads and in-app purchases. They do not include consumer spend earned from in-app advertising.
- Consumer spend rankings are based on consumer spend from individually downloaded paid-for apps as well as in-app purchase consumer spend from both individually downloaded apps and app bundles.
- Consumer spend is gross spend — the sum of payments made before Apple or Google takes a fee. iOS App Store and Google Play share of consumer spend on apps varies, but is generally 30%.
- For publishers acquired by another company during 2018, downloads and consumer spend are attributed to the new parent company from the start of the calendar month after the acquisition occurred.
- Monthly Active Users (MAU), download and consumer spend rankings in this report are based on unified apps provided by AppAnnie. In unified apps, similar versions of the same app with different names and on different platforms are unified.
- In the iOS App Store, an app can be categorized under a Primary Category as well as an optional Secondary Category. If an app has a Primary Category of Games and a Secondary Category of Entertainment, it is a candidate to be included only in the Games tables of the App Annie 2019 State of Mobile. If the app's Primary Category is Entertainment and its Secondary Category is Games, it is included within the more generalized Top Apps ranking.

Oliver & Ohlbaum (O&O)

Ofcom engaged strategy consultants Oliver & Ohlbaum ('O&O') to provide data collection, analysis and broader sector insight for eight key UK online sectors including search, social media, (free) video, news, shopping, entertainment, gaming, and online directories. O&O also provided estimates on UK-derived figures for each sector by device type and revenue segment, as well as data at a global level for each sector.

The data is based on estimates provided by O&O and therefore should be treated as indicative only; it is designed to provide a general context of the online industry in the UK. It has been sourced from publicly-available company reports and trade associations, or is estimated where applicable and

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

Underlying UK revenue figures have been adjusted for CPI (2019 prices) in accordance with standard Ofcom practice.

The eight sectors were sized by segment (revenue from advertising, subscription, transactional, public funding or other sources) at a global and UK-level using a variety of approaches:

- A top-down approach, whereby existing data from industry sources such as PwC and Zenith was generally used to estimate segment sizes;
- Where gaps existed in publicly-available data, a bottom-up approach, focusing on the revenues of the largest market participants, was used to develop estimates.

In each case, the combined total of each of the applicable revenue segments gave the total market size.

Estimations of revenues by device were based upon a quantification of the level of transaction activity likely to take place on a particular device type (informed indicatively by consumer survey data from sources such as IAB Touchpoints), rather than an apportionment of value based on usage.

In some cases, O&O used data from existing sources to break down revenue categories by device. In others, O&O used a range of estimation techniques depending on the sector and revenue category in question.

The selection of the top 40 companies in these online sectors was made initially by selecting the largest 40 companies online overall using Comscore data. We replaced some of those companies (such as banking and government sites) which are less relevant and included smaller or newer companies that are more sector-relevant (e.g. Snapchat, Deliveroo).

For the sizing of UK-derived company revenues for the top-40 UK online properties, as well as the breakdown of these figures by business model, O&O developed estimates through parent company filings and geographic reporting (where available). This included, where appropriate, filings to the UK's Companies House, and documentation provided to the United States Securities and Exchange Commission.

Where this information was unavailable, O&O used a range of techniques to estimate UK-derived revenues, and the proportion of these revenues that came from online activities – where the nature (and revenues earned) from online activities may have differed markedly between companies.

Worked example: the online shopping sector and Amazon (UK) online revenues

Estimating the size of the UK online shopping sector

To estimate the size of the UK online shopping sector, O&O included online shopping platform revenues earned through the sale of certain goods or services online. O&O did not size the value of these sales (also known as gross merchandise value) – only the revenues earned by these platforms for the sales of these goods and services.

O&O included revenues earned by platforms from two categories: e-commerce and e-services.

The e-commerce category included revenues from the sale of fashion goods, electronics and media, food and personal care, furniture and appliances, and toys/hobbies. It excluded revenues from digital media sales (e.g. downloads, eBooks), and digitally distributed services (e.g. the sale of plane tickets).

The e-services category included revenue from sales of leisure and events services, fitness, and online food delivery. It excluded offline bookings, online ticket services without a direct checkout process, and dating services (revenues from which were included in the social media sector).

Data for both e-commerce and e-services revenues were sourced from the same third-party for each market of interest and globally. Further analysis, based on survey data, allowed O&O to estimate the proportion of this revenue earned on different connected devices.

Estimating Amazon's UK online revenues

Amazon's UK online revenues were taken from the global company's annual 10-K filing (translated from US dollars to pounds sterling using the standard exchange rates from the Bank of England used throughout O&O's analysis). The reported totals represent net revenues made by Amazon through purchases from the Amazon UK online store, comprising physical product sales, digital media sales, subscription revenues and third-party seller services/commission. As such, it includes revenues that fall outside of the parameters of the online shopping sector sized (such as some digital media sales, which instead fall within the scope of the entertainment sector sized).

AA/WARC

AA/WARC is used as the primary source for UK online advertising revenues covering Search, Banner and classified. It is used as a benchmark for the sectoral revenue estimates. Actuals are used for 2018 and 2019. AA/WARC Forecasts for Q2'2020, full year 2020 and full year 2021 are referenced in the commentary.

SuperData, a Nielsen company

Ofcom sourced certain data on consumer expenditure on video games in the UK and global markets from SuperData, a Nielsen company. SuperData bases all its calculations on line-item transaction and acquisition data, collected on a monthly basis and relating to hundreds of digital games worldwide.

WIK-Consult

Ofcom engaged WIK-Consult to provide information on online communication services. Building on desk research, academic research and secondary data sources, it benefits from previous research on online interpersonal communication services (OICS) that WIK-Consult has conducted since 2015 and, in particular, its own database comprising data on the functions of 180 services.

WIK-Consult's OICS database consists of 180 popular OICS and primarily covers the various functions of these services. Wherever possible, the database also features relevant information concerning the providers of OICS, and establishment and innovation timelines referring to individual services. The focus of functions being tracked is on interactive functions which can but do not necessarily represent interpersonal communications.

The key secondary data source for the WIK-Consult report was GWI data. The data comprises extensive survey data for more than 50 countries worldwide including the UK and various European countries. WIK-Consult used the latest available figures in the report.

In addition to these key sources, the WIK-Consult report drew on secondary sources including Ofcom's market research. Wherever possible, information was verified on the respective official company or on OICS specific websites, developers' guides and investor relations' presentations, including official filings of the respective companies (e.g. 10-K forms).

The following sources also played a notable role in WIK-Consult's research: We Are Social digital reports; SimilarWeb; App Annie. For specific insights on OICS, the following resources were used: AppStore specifications of messaging apps; CarrierCommunity SMS and messaging sites and events; company reports and social media sites; GSMA reports on messaging and RCS, including the specification documents; Facebook report "The Message Heard Around the World"; Mobilesquared reports; TechCrunch; TheNextWeb; VentureBeat; TheVerge.

Other third-party sources

Ofcom references publicly available information and third-party data sources throughout the report. This includes press releases, blogs, earnings reports, transparency reports and other publicly available corporate information.

Other third-party providers cited in Online Nation include:

- Analysys Mason
- Alexa.com
- BBC News
- Business Insider
- The Cairncross Review, February 2019
- CMA, Online platforms and digital advertising: Market study interim report, 2019
- CNBC
- CNET
- Digiday
- Digital TV Europe
- doteveryone, The 2020 Digital Attitudes Report
- Entertainment Retailers Association
- Eurogamer
- European Audiovisual Observatory, Online video sharing: Offerings, audiences, economic aspects
- Financial Times
- Forbes
- GamesIndustry.biz
- Google Trends
- The Guardian
- IAB UK & PwC Digital Adspend Study 2019
- Internet Archive

- Interactive Schools Blog
- Intuit & Norstat, Attitudes to News Research
- New York Post
- The New York Times
- Newzoo
- Plum Consulting, Understanding video-sharing platforms under UK jurisdiction
- Rocktium Academy
- SimilarWeb
- TechCrunch
- Tubefilter
- Ukie
- Vox
- The Wall Street Journal
- World Health Organisation
- YouGov

Adjustments for CPI

In line with standard Ofcom practice to represent all monetary figures adjusted for inflation using the consumer price index, we have adjusted UK figures for inflation using figures available from the Office for National Statistics:

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
1.205817	1.154176	1.121748	1.094416	1.078	1.078	1.070506	1.042553	1.017941	1

Figures that have been converted from other currencies have not been adjusted for CPI, as we have used historical exchange rates from the Bank of England.