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This report provides an introduction to the key aspects of online advertising and highlights some of the main benefits and risks for consumers, drawing on behavioural insights as relevant. It was prepared by Anna Barker of the OECD Secretariat, initially to support discussion at the Roundtable on Online Advertising during the 95th session of the Committee on Consumer Policy (CCP) in April 2018.

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Executive Summary

Online advertising is now the dominant form of advertising in many OECD countries, and offers businesses the ability to reach consumers in ways that could only have been imagined previously. Online advertising has the potential to benefit consumers through more relevant and timely advertising, and by funding a host of "free" online services. However, it also raises some new and complex challenges for consumers and consumer protection authorities. The purpose of this paper is to provide an introduction to the complex landscape that is online advertising, and to outline the potential benefits and risks for consumers, drawing on the behavioural insights literature where relevant.

Existing consumer protections remain relevant

Consistent with the OECD Recommendation on Consumer Protection in E-commerce (2016[1]) (the "E-Commerce Recommendation"), most OECD countries have general protections against false and misleading information, which equally apply to online advertising. These provisions instead ensure that representations made by businesses (including those made in online advertising) are not false or misleading.

Further, the E-Commerce Recommendation includes a number of provisions relating to advertising and marketing. These provisions are intended to ensure that consumers understand when they are receiving online advertising or a commercial, promotional message, and that such advertising is not false or misleading. There is also a particular focus on consumer protection issues that can be challenging for consumers in the online context, such as pricing, digital content, and endorsements. While the E-commerce Recommendation's principles provide guidance on key online advertising issues, it is timely to examine current trends and practices in online advertising to determine how to apply the Recommendation's high level principles to new and emerging practices, drawing on behavioural insights where relevant.

But Internet and mobile penetration have fundamentally changed advertising

Advertising has been around as long as commerce itself and has funded a range of services that have long been enjoyed by consumers. However, increased Internet coverage and mobile phone penetration has fundamentally changed the ability of advertisers to reach a broad range of consumers at almost any time of the day and in any context through online advertising. In addition, developments in artificial intelligence (AI) and machine learning, coupled with the stores of personal data available online, have allowed for cost-effective targeted advertising at an unprecedented scale. The resulting online advertising supply chain, with its various technologies and services, is complex.

There are a number of forms of online advertising. The most popular include display advertising, search advertising, and social media "influencer" advertising.

- Digital display advertising allows businesses to place advertisements (ads) on websites, in apps, and on other online platforms either directly or via ad networks.

- Search advertising allows businesses to pay to have their listings included or prioritised among the results returned in response to a consumer's search query (in

contrast to "organic" search results, i.e., unpaid results returned by the search engine's algorithm based on their relevance to a consumer's query). Most online search engines, such as Google, Yahoo and Bing, produce results pages that contain a mixture of both organic and paid results.

- Ads can also be integrated into user-generated online content in a newer form of online advertising known as "influencer" advertising. Influencers can be fitness gurus, gamers, beauty bloggers, fashionistas, foodies, travel experts, who partner with brands and promote products to their social media audiences or "followers."

Affiliate ad networks facilitate some forms of online advertising by matching merchants with marketers who promote products to consumers on social media, on websites, and through email.

Online advertising can be easily identifiable as ads, or can be presented in a way that blends in with other available content and is therefore more difficult for consumers to identify as commercial messages; so-called "native" advertising.

Online advertising brings some tangible benefits for consumers

Online advertising has the potential to provide two key benefits for consumers. The first is the potential for more targeted, relevant and timely ads. Done well, such ads could bring consumer benefits in the form of reduced search costs, greater awareness of relevant products, and identification of and access to deals. The second is that online advertising funds a host of online services that consumers can access at zero price. Such "free" services include search services (e.g. Google); social networking services (e.g. Facebook); and news services (e.g. The Guardian). Many consumers use these services on a daily basis for a wide variety of educational, social, informational, and entertainment purposes.

But may also raise some potential new issues for consumers

Over the years, advertising has raised a number of issues for consumers, especially regarding its ability to mislead, either through unfounded claims, omissions of key terms or limitations, or misrepresentations regarding the nature of the material (i.e. as unbiased opinion rather than commercial content).

The E-Commerce Recommendation states that *"Advertising and marketing should be clearly identifiable as such"*. However, it can be difficult for consumers to identify online advertising material, especially newer types of online advertising such as native advertising, search advertising, and influencer advertising. Consumers need to be able to easily identify advertising material online so that they can:

- determine whether to interact with it
- make informed decisions about the weight to give to information conveyed about a product or service in the material
- make informed purchasing decisions.

This remains a challenge for consumer policy and enforcement. Behavioural experiments could be used to test the extent of current problems and to develop and test more effective ways of ensuring consumers can easily identify online advertising content.

The ability of online advertising to target consumers' behavioural biases at scale, and to potentially tailor them to a specific consumer's biases, means that consumer decision

making may be more prone to manipulation through online advertising than for other forms of advertising. When consumers are misled about the commercial source of a message, for example, it could lead them to assign greater credibility to the information communicated than they otherwise would have assigned to it. Further, online advertising may present new ways in which to mislead consumers regarding the full costs of a product or service, or in respect of unexpected terms and conditions of a sale. Consumer agencies will have to remain vigilant to these potential threats.

According to a number of surveys, consumer dissatisfaction and distrust of online advertising is relatively high. There are a variety of reasons for this. Some consumers dislike ads that interfere with their online experience (e.g., pop-up ads, ads that slow down loading times, video-ads that play automatically, ad placement that interferes with content on the screen space). Some have concerns about how ads might affect performance and security on mobile devices (e.g., using up data plans, serving as vectors for malware). Others point to privacy concerns about the collection and use of their personal data for advertising and retargeting or simply relay their concern that such ads feel "creepy." To the extent that this leads consumers to limit their online activity, this could potentially be a barrier to greater participation in e-commerce by consumers.

At this stage it is unclear whether there is a role for new consumer policies. It may be that a competitive market will be self-correcting in that online advertisers will improve their practices to improve consumer sentiment and trust. Alternatively, vigorous enforcement of existing truth-in-advertising laws by consumer protection authorities may lead to better practices by online advertisers. In addition, technological tools may be able to be used by consumers to protect against annoying or intrusive forms of online advertising, as well as threats from malicious forms of advertising (so-called "malvertising").

Other risks relate to the data collection that facilitates targeted online advertising. While personal data collection and use has implications for consumer privacy and security, in many OECD countries such issues are not the responsibility of consumer agencies. However, issues of deception related to the collection and use of such information are likely to fall within the remit of existing consumer laws on deceptive and unfair practices in a number of jurisdictions, and there are a number of consumer agencies in OECD countries (such as Australia, Canada, Norway, the United Kingdom and the United States) that have been working on these issues. In this regard, behavioural insights may offer lessons in how best to communicate data collection and use practices to consumers. In addition, to the extent that such data is used to unfairly discriminate against consumers, target vulnerable consumers for fraud, or weaken the effectiveness of consumer choice, this may also fall under the remit of some consumer agencies.

To fully understand and address these issues will likely require further analysis and discussion. One potential area for further work is to develop measures to empower consumers to better identify online advertising and then test their effectiveness. In addition, there is likely to be a role for the private sector in providing technological solutions, such as ad blockers and do not track browser mechanisms.

1. Background

Advertising is big business. In 2016, global advertising revenues were USD 493 billion (Letang and Stillman, 2016[2]). Advertising has been around as long as commerce itself but each time a new medium emerges, advertising undergoes a transformation. With the rise of the Internet and the widespread adoption of smartphones, online advertising has quickly become the dominant form of advertising in many OECD countries today. The purpose of this paper is to:

- explain how existing consumer laws and policies protect consumers in respect of online advertising, and to outline some of the key concepts and trends in online advertising (Chapter 1)
- describe the key forms of online advertising (Chapter 2)
- discuss the likely benefits and risks of online advertising for consumers as they relate to consumer policy (rather than other policy areas such as privacy and security, for example) (Chapter 3).

This paper is intended to provide an introduction to the issues and does not include policy recommendations.

1.1. Existing consumer protections relating to online advertising

Consistent with the OECD's (2016[1]) E-Commerce Recommendation, most OECD countries have general protections against false and misleading information, which equally apply to online advertising. For the most part, these provisions do not address issues specific to online advertising but instead ensure that all representations made by businesses (including those made in online advertising) are not false or misleading. In many cases, the failure to adequately identify online advertising material as such may risk falling foul of these consumer protections. In addition, to the extent that a business provides false or misleading information regarding its data collection, use and sharing practices, this could also breach these consumer protections (see Section 3.2).

In addition, the E-Commerce Recommendation includes a number of provisions relating to advertising and marketing (see Box 1.1). In general, these provisions are intended to ensure that consumers understand when they are receiving online advertising or a commercial, promotional message, and that such advertising is not false or misleading. The Recommendation also focusses on consumer protection issues that can be challenging for consumers in the online context, such as pricing, digital content, and endorsements.

Box 1.1. Selected OECD E-Commerce Recommendation principles on online advertising

Advertising and marketing should be clearly identifiable as such (para 13).

Advertising and marketing should identify the business on whose behalf the marketing or advertising is being conducted where failure to do so would be deceptive (para 14).

Businesses should ensure that any advertising or marketing for goods or services are consistent with their actual characteristics, access and usage conditions (para 15).

Businesses should ensure that advertised prices do not misrepresent or hide the total cost of a good or a service (para 16).

Endorsements used in advertising and marketing should be truthful, substantiated and reflect the opinions and actual experience of the endorsers. Any material connection between businesses and online endorsers, which might affect the weight or credibility that consumers give to an endorsement, should be clearly and conspicuously disclosed (para 17).

Businesses should take special care in advertising or marketing that is targeted to children, vulnerable or disadvantaged consumers, and others who may not have the capacity to fully understand the information with which they are presented (para 18).

Source: OECD (2016, pp. 11-12[1]).

A number of OECD countries – for example, Canada, Costa Rica, the European Union (EU), Japan, the Nordic countries and the United States – have adopted specific requirements that businesses must satisfy to ensure that advertising material does not mislead consumers. Such requirements can include details of the types of disclosures that are necessary in order to ensure consumers are not misled (see Section 3.2 for some examples of this). In addition to these general protections relating to online advertising, a number of jurisdictions have also enacted additional protections for particular vulnerable consumer groups, such as children. Given the central role of consumer data in online advertising today, the E-commerce Recommendation's provisions related to privacy and security are also relevant (see Box. 1.2).

Box 1.2 OECD E-Commerce Recommendation Principles on Privacy and Security

Businesses should not engage in deceptive practices related to the collection and use of consumers' personal data (para 8).

Businesses should comply with any express or implied representations they make about their adherence to industry self-regulatory codes or programmes, privacy notices or any other policies or practices relating to their transactions with consumers (para 11).

Businesses should provide consumers with a clear and full statement of the relevant terms and conditions of the transaction. Where applicable and appropriate given the transaction, such information should include the . . . privacy policy (paras 34-35)

Businesses should provide consumers with easy-to-use payment mechanisms and implement security measures that are commensurate with payment-related risks, including those resulting from unauthorised access or use of personal data, fraud and identity theft (para 40).

Businesses should protect consumer privacy by ensuring that their practices relating to the collection and use of consumer data are lawful, transparent and fair, enable consumer participation and choice, and provide reasonable security safeguards (para 48).

Businesses should manage digital security risk and implement security measures for reducing or mitigating adverse effects relating to consumer participation in e-commerce (para 49).

1.2. How has the Internet and mobile penetration changed advertising?

Consumers across the OECD are more connected than ever before (OECD, 2017[3]). In 2016, the average US consumer spent 150 hours online each month, or around 35 hours each week (Google Partners, 2016[4]). Time on the Internet has overtaken time spent on traditional media channels in many countries. This is largely driven by growth in the use of mobile devices, with mobile searches outstripping desktop searches in the last few years (Heitzman, 2017[5]).

Traditional avenues for reaching consumers (especially younger consumers) are becoming less relevant and are being replaced by online channels. Recent growth in advertising revenue has been largely driven by double digit growth in online advertising (Letang and Stillman, 2016[2]), and for the first time in 2017, global expenditure on online advertising outstripped television advertising expenditure (Slefo, 2017[6]). To give an idea of the importance of advertising to some of the biggest tech companies, advertising is Google's primary revenue source, accounting for USD 79 billion in 2016 (Statista, 2018[7]).

The omnipresence of the Internet and smartphones has also fundamentally changed the way that consumers search for and purchase goods and services, both online and off. Consumers now tend to consult multiple information sources. For example, many consumers read online reviews before making a purchase (Heitzman, 2017[5]). In addition, social media now has a strong influence on purchasing behaviour (Heitzman, 2017[5]; PwC, 2017[8]), as

do bloggers and "social influencers" (see Section 2.3) (Rakuten Marketing, 2017[9]). Further, Rakuten Marketing (2017[9]) found that almost 90% of consumers search for discount codes on voucher/coupon sites before making a purchase.

The Internet also allows for new ways in which to present text, images, video and audio, and provides for interactive and individually tailored advertising in a way that no other medium has before, using the vast amounts of personal data collected online. In addition, the reach of online advertising is potentially much wider, especially for mobile advertising, which can reach consumers at almost any time of the day and in almost any context.

1.3. Use of personal data to target advertising in real time

One of the main advantages of online advertising is the potential to personalise advertising at scale, in real time. This has been referred to as Online Behavioural Advertising (OBA), online profiling, and behavioural targeting. Boerman et al. (2017, p. 364[10]) define OBA as *"the practice of monitoring people's online behavior and using the collected information to show people individually targeted advertisements"*. The types of information that are being used in OBA include age, gender, location, education level, interests, online shopping behaviour, and search history (Boerman, Kruikemeier and Zuiderveen Borgesius, 2017[10]).

OBA relies on the tracking of consumer behaviour online. Traditionally, "cookies" (essentially a bit of digital code that records certain user behaviour) have been used to track online behaviour via desktop browsers. Cookies can be first-party or third-party. First-party cookies originate from (or are sent to) the website the consumer is currently viewing, whereas third-party cookies originate from (or are sent to) an unrelated website (Beal, 2008[11]). However, cookies are less effective at tracking online activity on mobile devices. This is because cookies are not necessarily shared between mobile apps; and some mobile browsers, such as Safari, block third-party cookies by default (IAB, 2013[12]).

As consumers now tend to use a range of devices to access online services, businesses are using other means to track individuals online. These methods are often categorised at "deterministic" or "probabilistic". Deterministic methods use consumer-identifying characteristics, such as a log-ins, to track consumers across devices (Federal Trade Commission, 2017[13]). Probabilistic methods instead infer an consumer's identity through means such as IP address (since a computer, smartphone, and tablet that use the same public IP address are likely to belong to the same household); geolocation information; browser or device fingerprinting; and general usage patterns (Boerman, Kruikemeier and Zuiderveen Borgesius, 2017[10]; Shakeel, 2016[14]; Whitener, 2015[15]; Ghosh and Scott, 2018[16]; Federal Trade Commission, 2017[13]). US Federal Trade Commission (FTC) staff found that, of 100 popular websites across two devices: at least 87 used cross-device tracking; 96 allowed consumers to submit a username or email address; and 16 shared user names or emails with third-parties (Federal Trade Commission, 2017[13]).

Tracking technologies allow for highly detailed profiles to be developed about individual consumers. This can have several uses for online advertising. First, it can be used to target (and retarget) ads.[1] Second, it can be used to track how users interact with ads, which can be used to determine the effectiveness of advertising campaigns. Third, tracking of consumer reactions can be important for advertising payments that are related to specific user outcomes, such as "clicks", webpage visits, or purchases, for example. Tracking technologies tend to make use of AI and machine learning (Box 1.3).

1.4. Complex new supply chains

One of the main challenges in understanding online advertising is understanding the complex supply chains that underpin it. With traditional forms of media advertising, the supply chain was usually quite straightforward and might have been as simple as the advertiser (i.e. the brand) going directly to a publisher (perhaps via an advertising agency). In comparison, the supply chain for online advertising can involve many services (some of which are facilitated with technology) and many players, and there is often a lack of transparency around who (and indeed, what) is involved.

To give an idea of the range of players and services on offer, some of the key services that are offered to advertisers (i.e. the brand) (also called "demand side" operations) and publishers (also called "supply side" operations), are summarised in Table 1.1.

While in some cases a single advertising agency or ad network may manage all of these decisions on behalf of the advertiser/brand, in other cases, the decisions taken at each point could lead to multiple different supply chains. The interaction of decisions made on the demand and supply sides of the market can introduce further complexity in determining, for example, who is responsible for an ad's format or data collection practices (Luttrell, 2018[17]). Supply chain complexity could make it difficult for regulators and law enforcers to identify the responsible parties and determine liability to the extent that an ad is misleading.

Box 1.3. Artificial intelligence and machine learning in online advertising

While acknowledging that "There is no universally accepted definition of AI", the OECD's 2017 Digital Economy Outlook (2017, p. 295[18]) used the definition provided by Nilsson (2010, p. 13[19]):

> *… artificial intelligence is that activity devoted to making machines intelligent, and intelligence is that quality that enables an entity to function appropriately and with foresight in its environment.*

Machine learning is a way of creating the problem-solving systems that underlie AI. Historically, computers were manually programmed to provide outputs given certain inputs. Instead, machine learning teaches machines to learn without having to be programed. This is done by providing repeated examples to the machine until it starts to "learn" from them (Chow, 2017[20]). Hence, the effectiveness of machine learning is influenced by computing power and access to data (Metz, 2015[21]; Sun et al., 2017[22]).

AI can facilitate better personalisation of online advertising. Chow (2017[20]) notes:

> *A big part of the opportunity for marketers is how AI will help us fully realize personalization—and relevance—at scale … scale, combined with customization possible through AI, means we'll soon be able to tailor campaigns to consumer intent in the moment. It will be like having a million planners in your pocket.*

For example, AI can allow for a variety of ad components (e.g. background, images, text etc.) to be dynamically assembled in real time according to the audience (through a process called "dynamic creative optimisation") (Levine, 2016[23]).

Machine learning can also be used to determine the likely success of an online ad (see e.g. He et al. (2014[24]); McMahon et al. (2013[25])). This has significant implications for user experience and advertising revenue (Ling et al., 2017, p. 1[26]):

> *Accurate estimation of the click-through rate (CTR) in sponsored ads significantly impacts the user search experience and businesses' revenue, even 0.1% of accuracy improvement would yield greater earnings in the hundreds of millions of dollars.*

Machine learning can also facilitate A/B testing, which allows marketers to test what form of ad is most effective by running multiple versions over a testing period. In addition, machine learning is being used to run the bidding auctions underlying the purchase of online advertising (Noyes, 2016[27]).

Table 1.1. Online advertising supply chain services

Service	Description	Offered to
Ad blocking services	Allow advertisers to block ad delivery if there are concerns about view-ability, brand safety or fraud, for example. Blocking can occur before or after an advertiser submits a bid to publish an ad.	Advertisers (i.e. brands)
Pre-bid targeting services	Allow advertisers to evaluate the quality of a publisher before bidding (this can be coupled with ad blocking services).	Advertisers
Advertiser ad serving technology services	Provide for the storage, tracking, and delivery of ads onto a publisher's site on behalf of the advertiser.	Advertisers
Management services	Activities such as setting up, managing, and optimising ad delivery, as well as managing buy or sell side infrastructure.	Advertisers
Demand-Side Platforms (DSPs)	Manage the interaction with the publisher including bidding and data analytics services, on behalf of the advertiser.	Advertisers
Publisher ad serving software	Manages advertisers' priorities on behalf of the publisher to decide which ads to show.	Publishers
Sell-Side Platforms (SSP)	Allow publishers to aggregate, consolidate, and manage demand from advertisers, and to exchange inventory (this can include ad serving).	Publishers
Data targeting services	Use first and third party data to identify and target specific types of users or devices.	Advertisers and publishers
Data Management Platforms (DMPs)	Aggregate data sources to allow advertisers and publishers to track the success of ad campaigns.	Advertisers and publishers
Ad networks	Connect advertisers with publishers by aggregating publisher inventory and packaging it based on context or audience.	Advertisers and publishers
Ad exchanges (also called digital media exchanges)	Provide a virtual marketplace where publishers auction their impressions to eligible advertisers in real time.	Advertisers and publishers
Programmatic marketing	The algorithmic purchase and sale of advertising space in real time, usually through real time bidding.	Advertisers and publishers
Tagging services	Involve placing a pixel on a publisher's site to "tag" users as having visited those pages and to facilitate subsequent targeting/messaging.	Advertisers and publishers
Verification services	Measure target delivery, view-ability, brand safety and fraud on behalf of publishers and advertisers (this can be provided by the same party that provides ad blocking services for brands).	Advertisers and publishers

Source: IAB (2016[28]); Graham (2017[29]) Minnium (2014[30]).

2. Types of online advertising

There are a number of different forms of online advertising. This section aims to outline some of the key types. While there are a number of different ways to classify the various types of online advertising, two of the main forms include display advertising and search advertising, both of which are explained below. In addition, content providers and social media platforms offer new forms of search advertising, such as native advertising as well as user-generated ads, including "influencer" advertising. These are also discussed below. These ads appear on both desktop and mobile devices, though brands may choose to target one particular medium, and there may be slight differences in how the ads are presented on the various mediums. Affiliate ad marketing networks can facilitate these forms of advertising by matching merchants with marketers who promote products to consumers on social media, on websites, and through email.

2.1. Digital display advertising

Digital display advertising is the term used to describe the advertising "boxes" on websites, apps or platforms that appear along the top of a screen as a "banner ad", along the right or left hand side of a screen, or elsewhere on the screen. Content can include text, images or videos. Spending on digital display advertising surpassed spending on search advertising in the US in 2016 (eMarketer, 2016[31]). However, despite its popularity, display advertising only achieves an average click-through rate of less than one percent (O'Brien, 2015[32]).

Google is one of the larger providers of digital display advertising through its Google Display Network, which includes access to over 2 million sites both within (e.g. YouTube and Gmail) and outside of its business (Google, 2018[33]). Placement of digital display ads on the Google Display Network is determined on the basis of website content rather than keywords (as compared to search advertising) (O'Brien, 2015[32]). Other online ad networks include other providers of search services, such as the Yahoo! Bing Network, social media platforms such as Facebook (discussed in the next section); and more traditional ad networks that act as middle-men between publishers (i.e. websites or apps) and advertisers (see Box 2.1). Alongside access to publishers, ad networks often offer other services such as those discussed in Table 1.1.

Digital display advertising can be billed in a number of ways, including on the basis of the number of:

- ads posted, or thousand "impressions", called "cost per mile" (CPM)
- "viewable" impressions (vCPM) (i.e. where 50% of the ad can be seen for at least one second), which overcomes the problem that 56% of all ads are not seen (Google, 2014[34])
- clicks, called "cost per click" (CPC)
- acquisition or act, called "cost per act" (CPA)
- views, called "cost per view" (CPV), for video ads.

Pricing can be fixed-rate or auction-based. Auction based sales are often facilitated with "programmatic marketing" (see Table 1.1).

Box 2.1. Online ad networks

Online ad networks connect advertisers (i.e. brands) with websites that want to host online advertising (i.e. publishers). There are many online ad networks. Often ad networks specialise by concentrating on a particular type of consumer, device, quality of service, or network of publishers.

For example, Apple's "Search Ads" provides access to advertising space in the Apple app store. In comparison, the Facebook Audience Network offers advertisers access to Facebook and Instagram and a large range of other apps and websites. Other advertising networks may specialise by offering advertising in online games, or in specific markets such as travel or beauty, for example. Alternatively, ad networks may offer a very cheap service with little transparency about where ads will appear.

From an advertiser's (i.e. brand's) perspective, there will be a number of factors to consider in choosing which advertising network to use. These may include:

- network reach (i.e. the number of sites and apps they would be able to access and the amount of traffic these sites and apps get)
- the ability to target ads to a particular audience
- price and type of payment
- reputation and trustworthiness
- ease of use, and what other services are offered by the ad network.

From a publisher's perspective, trustworthiness and reputation are also likely to be relevant considerations, as will payment amount and type.

For the consumer, understanding the basics about how online marketing works can help in determining who is really behind an ad and therefore in assessing whether it is truthful. Consumers may also want to understand who may be tracking information about their online activities.

2.2. Search advertising

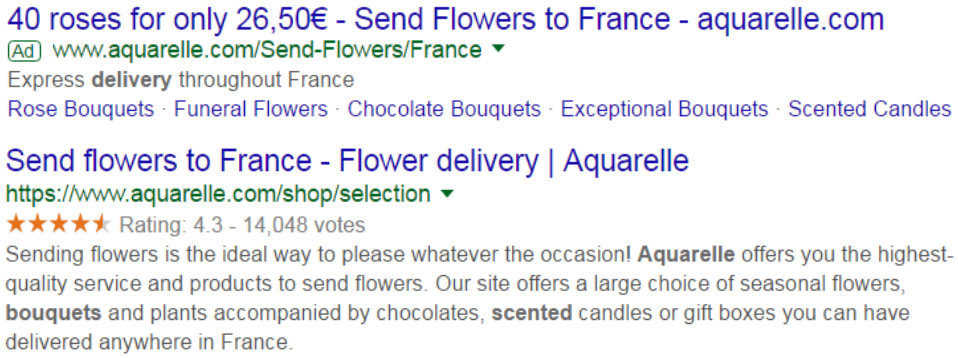
Consumers often use search engines, such as Google, Bing and Yahoo, to navigate their way around the Internet. Further, search engines are often used as a starting point for consumers looking to make an online (or indeed, offline) purchase. For this reason, search advertising, which allows brands to pay to have their listings included or prioritised among the results returned in response to a consumer's search query, can provide brands with direct access to consumers at the exact time when they are looking to make a purchase. Search ads are distinct from "organic" search results, which are unpaid results returned by the search engine's algorithm based on their relevance to a consumer's query. Most online search engines, such as Google, Yahoo and Bing, use results pages that contain a mixture of both organic and paid search results. This is why search advertising has traditionally been (and remains) such a popular form of online advertising. Indeed, before the tools and data required for targeted advertising became commonplace, search advertising was the dominant form of online advertising. However, despite its popularity, search ads still get fewer clicks than organic search results (Jerath, Ma and Park, 2014[35]; Yang and Ghose, 2010[36]).

Some of the larger search advertising platforms in OECD countries include Google Adwords, Bing Ads, Yahoo: Search Ads, and Naver (the largest search engine in South Korea). Search advertising works with the aid of keywords that are selected by the business, potentially with assistance from the search advertising platform. The order of paid search results (or search ads) is generally influenced by a number of factors. For Google Adwords, for example, the order is based on Google's estimated ad rank, which is based on the auction price nominated by the advertiser, the "expected click through rate", the brand's webpage (whether it has relevant and original content, is easy to navigate and is transparent), the ad relevance and the ad format (Google, 2015[37]).

Search ads are usually charged on a per click basis with the price being the amount required to just beat the next highest ranked ad. Advertisers can often choose whether to set their bid (the proposed cost per click) manually or automatically. Auctions occur in the short time it takes to load the search result and hence, make use of AI and machine learning (see Box 1.3).

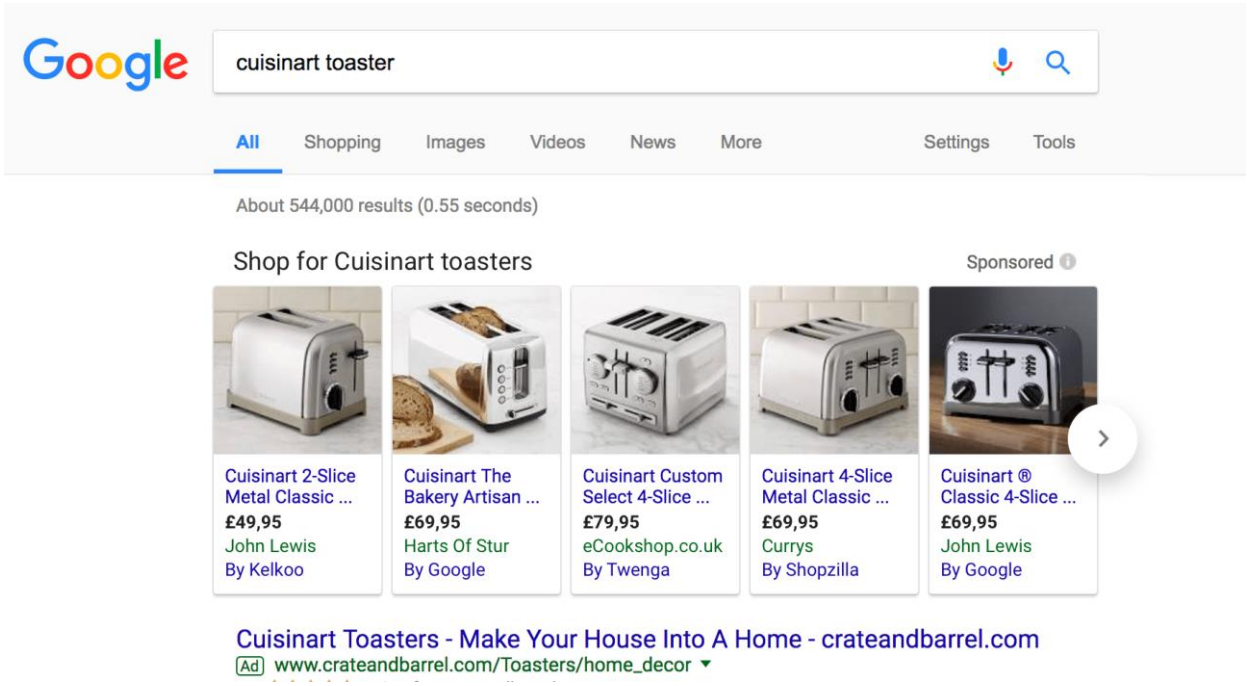
Paid search results are usually identified as ads. For example, in Google, a small green box with the word "Ad" in it identifies the search result as a paid ad. This is shown in Figure 2.1, which includes the first result that appeared for a Google search of "Flower delivery Paris": a paid ad for Aquarelle. In contrast, the organic Aquarelle search result is presented underneath. The organic result appeared behind four paid search ads, a list of florists in Google Maps, and one other organic search result.

Figure 2.1. A paid and unpaid search result in Google



Another display format involves the use of a carousel labelled "Sponsored" that usually appears at the top of the results but can also appear with the regular search results (Figure 2.2).

Figure 2.2. Displaying "Sponsored" results



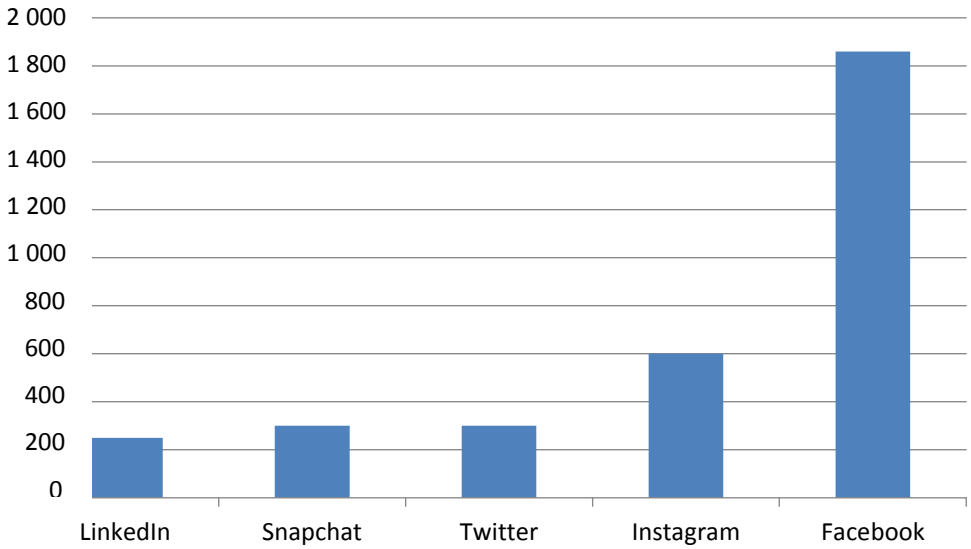
Source: Search Engine Land (2018).

2.3. Social media advertising

Around one in every three people globally used social media networks in 2017, up 8.7% from 2016 (eMarketer, 2018[38]). This was largely driven by an increase in mobile phone adoption and mobile network coverage. Advertising on social media is increasingly being used to reach particular target audiences, building on the rich data sets amassed by these services (both the personal data provided by a user and the data provided by users in their network). Some of the biggest social media platforms at the moment in OECD countries include Facebook, Instagram, Snapchat and LinkedIn (see Figure 2.3).

Each of the networks referred to in Figure 2.3 offer online advertising services. In April 2017, Facebook announced it had over 5 million active advertisers, up from 4 million just seven months earlier, and its advertising revenue in 2016 was USD 26.9 billion, second only to Google (Chaykowski, 2017[39]). In September 2017, Instagram reached 2 million advertisers, growing over 900% since early 2016 (Heine, 2017[40]). The number of active advertisers on the other platforms appears to be much lower. For example, there were only 130 000 active advertisers on Twitter in 2016 (Yeung, 2016[41]).

Figure 2.3. Monthly active users (millions)

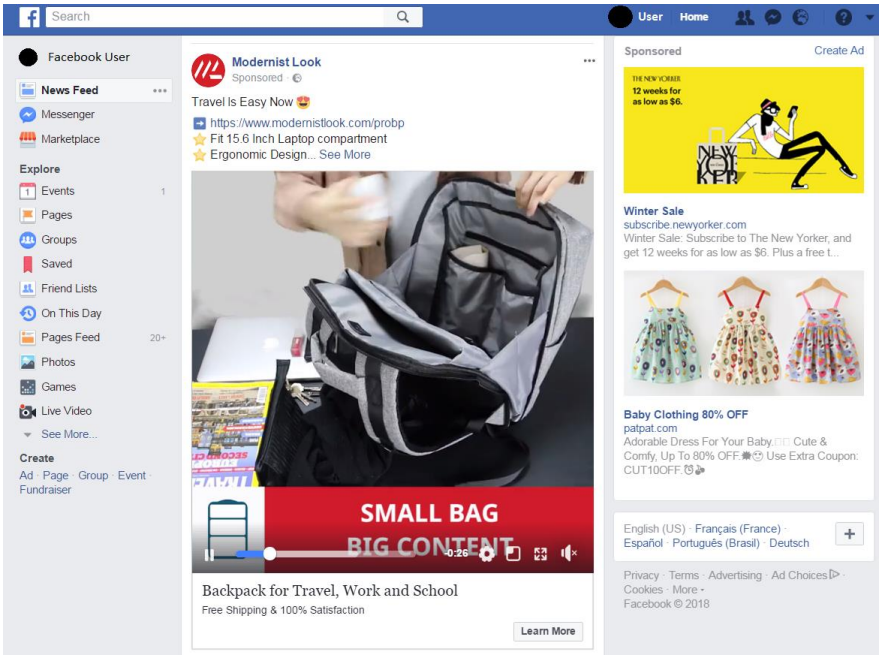


Sources: Omnicore (2018[42]); Omnicore (2018[43]); Statistica (2018[44]); Facebook IQ (2017[45]).

Online social networks offer various forms of online advertising including:

- Easily identifiable digital display advertising (also called "segregated ads"). An example of these types of ads is provided in Figure 2.3 where ads (for the New Yorker and a baby clothing retailer) appear to the right of the user's news feed. These ads are labelled as "Sponsored".
- "Native" or "in-stream" ads are disseminated by the platform on behalf of paying advertising. The ad for the backpack in Figure 2.3 is an example of a native ad on Facebook. It appears in the Facebook user's news feed between "organic" posts and is labelled as "Sponsored". While the net impression of this particular ad probably communicates its commercial nature to consumers, these types of ads may not always be easily identifiable as ads to consumers (see Sections 2.4 and 3.2).
- "Influencer" ads are user-generated ads or endorsements from social media users that have a large social media following and hence can "influence" consumer trends. While influencers may have autonomy about what, how, when and where they post, influencer ads involve some commercial relationship between the brand and the influencer (including free products or services or otherwise being offered "in kind" rewards). Influencer ads, being user-generated, will appear in the feeds of users that follow the influencer and hence, can be difficult to identify as advertising if the influencer does not clearly disclose the commercial nature of the post. An example of an influencer ad on Instagram is provided in Figure 2.4. The brand is identified with an @ ("@naturaljuiceuk") and it is identified as an ad with the text "#ad".
- User-generated marketing can also come from less influential social media users to the extent that users are incentivised to endorse a product or service, perhaps through the use of competitions, prizes or give-aways. Of course, if there is no commercial relationship underpinning such endorsements, they are not advertising content.

Figure 2.4. Native advertising and digital display advertising on Facebook



Notes: In this example while the brand "Modernist Look" does not have high brand recognition and a consumer could misinterpret it as a product review, as explained in paragraph 46, it does contain phrases such as "fits 15.6 Inch Laptop; ergonomic design, and 'free shipping & 100% satisfaction" that clearly signal it is an ad.

Figure 2.5. Influencer ad on Instagram

Source: Cook (2018[46]).

2.4. Native advertising

The FTC has defined native advertising as *"content that bears a similarity to the news, feature articles, product reviews, entertainment, and other material that surrounds it online"* (Federal Trade Commission (US), 2015[47]). Native advertising is growing in popularity given its reputation as a more effective way of engaging with consumers (see, e.g. Sharethrough (2015[48])). Business Insider has estimated the by 2021, native advertising revenue in the US will make up 74% of display advertising revenue, up from 56% in 2016; estimated to account for some USD 21 billion in 2018 (Munda, 2017[49]).

Native advertising is generally more difficult for consumers to identify as advertising compared to other forms of online advertising. This is because such ads are *"designed to blend in with their surroundings in order to appear more authentic"* (O'Brien, 2015[32]). Further, they *"often resemble the design, style, and functionality of the media in which they are disseminated [and] may appear on a page next to non-advertising content"* (Federal Trade Commission (US), 2015[47]). As the FTC (2016[50]) has recognised, *"The effect is to mask the signals consumers customarily have relied upon to recognize an advertising or promotional message"*.

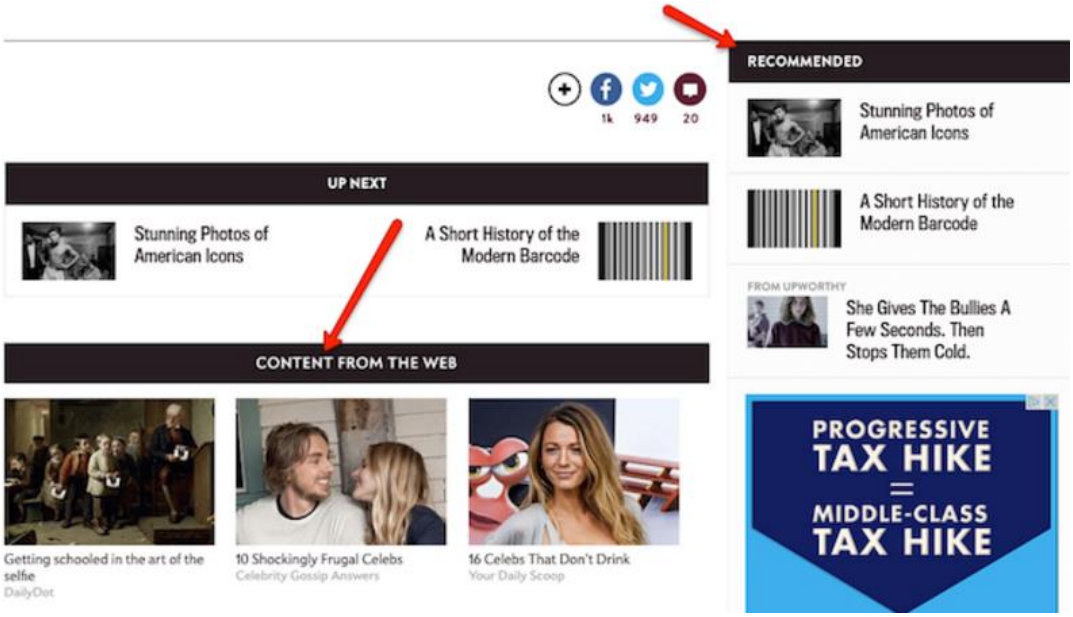
Native advertising can occur on any website but it is commonly used on social media platforms and news and other media and content sites. For example, native ads on online newspaper websites often appear in line with other articles but are identified with words such as "Advertisement", "Advertising Content" or "Sponsored". Figure 2.6 provides an example of a native ad from The Guardian's website. The native ad appears on the right hand side in the same style as the two feature articles to its left, and is only identifiable due to the label of "Advertisement" appearing above the ad, the inclusion of the advertiser's logo, and minor differences in text format and colouring.

Figure 2.6. Native advertising on The Guardian's website

Note: The native ad appears on the right and is identified with the text disclosure "Advertisement".

In addition, content sites frequently refer consumers to "Recommended" content or "Content from the Web" (see Figure 2.6). Clicking on these links usually sends a consumer to another website. To the extent that the new site contains advertising material, it may also be difficult for consumers to identify this if the appropriate disclosures are not prominent.

Figure 2.7. "In-feed" ad example



Source: Farnworth (2014[51]).

2.5. Advertising by email and text message

In addition to the above, more traditional forms of email advertising are still prevalent. Email advertising uses manual or automated messaging to target consumers. A key issue for advertisers wanting to use email advertising is obtaining the email addresses of consumers. In some cases brands will ask for a consumer's email address when they join a loyalty program, make an online purchase, sign up to a newsletter or special offer, or otherwise express interest in a brand, product or service. Email addresses can also be obtained from marketing companies.

In addition, many brands use text messages to advertise to consumers. Text messages are similar to email advertising in that they can be manual or automated and require the brand to have the contact details of the relevant consumers (in this case, their mobile number). Mobile numbers are obtained in similar ways to email addresses.

3. Consumer benefits and risks

This chapter provides an overview of some of the potential consumer benefits and risks from online advertising. It also notes the potential role of behavioural insights in better understanding, and potentially addressing, some of the potential risks; and the potential role of technological solutions. Finally, a short conclusion is included.

3.1. Consumer benefits from online advertising

Online advertising presents two key benefits for consumers: i) targeted and timely advertising, and; ii) "free" online services.

Targeted and timely advertising

Consumers can benefit from online advertising by receiving more relevant and timely ads. This may increase consumer welfare by introducing consumers to well-suited products and services, which could reduce consumer search costs. For example, if a consumer is looking to buy a particular product or service and receives personalised advertising associated with that good or service (based on their previous search activities, for example), this may reduce their need to undertake more extensive searching online (or off). To the extent that the advertising also highlights an offer related to that product or service that the consumer would not otherwise know about, it may also save the consumer money. Further, the timeliness of online advertising means that consumers can stay current about what offers are available in the market at relatively low cost.

There is some evidence that consumers appreciate these benefits. For example, a survey of 2 500 Internet users by Rakuten Marketing found that 70% of consumers believe that online advertising is beneficial when it connects them to more options and better discounts (Rakuten Marketing, 2017[9]). Similarly, PwC (2017[52]) found that 59% of consumers want real-time personal offers designed especially for them. Further, an online survey of 270 consumers by Choozle in 2017 found that consumers appreciated ads that: brought exposure to new products and products they are interested in; are more tailored and relevant to their interests; and that save them money through coupons or sales (Choozle, 2017[53]). A survey of 1 500 US consumers also found that personally relevant content marketing increased brand sentiment for 88% of consumers; purchase intentions for 78% of consumers; and willingness to pay for half of consumers (OneSpot, 2016[54]).

"Free" services funded from advertising revenue

Consumers also benefit from being the recipients of the many "free" services provided on the Internet that are funded from advertising revenues. For example, valuable consumer services such as those provided by Google, Facebook and Instagram are underpinned by significant advertising revenues. It is possible that without free access to these types of services, some consumers would not be able to (or willing to) access these services. It appears that many consumers appreciate these benefits. In particular, the above mentioned study by Choozle found that consumers appreciated that advertising keeps apps free (Choozle, 2017[53]). Further, many consumers understand that such free services come at a cost: Pew found that 55% of Americans would be willing to share some personal information to access online services for free (Madden, 2014[55]).

3.2. Consumer risks from online advertising

However, online advertising also raises a number of potential risks for consumers, as outlined below. These include:

- the potential for misleading advertising online
- consumers may not be able to identify some forms of online advertising
- online advertising could reduce consumer sentiment and trust online
- online advertising may prey on consumer biases and vulnerabilities
- threats from "malvertising"
- threats associated with increased data collection.

False or misleading advertising is still a concern online

Fraud and misleading advertising remain a problem online, often keeping pace with digital developments. In addition to earlier frauds such as Internet-based pyramid schemes and business coaching programs, for example, new online frauds such as deceptive cryptocurrency operations and tech support scams are targeting consumers online through display and search ads and on social media. In some cases larger online firms, like Google and Facebook, have responded directly, for example, by banning ads for cryptocurrencies (O'Reilly, 2018[56]). Online advertising could be misleading by failing to disclose the full price of an offer, failing to highlight unexpected terms and conditions, or misleading consumers into negative option or subscription traps that may make it difficult for consumers to cancel. In addition, reference pricing, drip pricing and bait pricing are all potentially detrimental practices that could occur in the context of online advertising.

Misleading advertising in the form of reference pricing has been an issue online, with consumer authorities in many jurisdictions pursing enforcement action against this form of conduct (OECD, 2018[57]). Reference pricing occurs where a price is listed in reference to another (higher) price. This could be the pre-sale price, a competitor's price, the recommended retail price, or a post-sale price. While the inclusion of accurate reference prices can be useful, inflated or inaccurate reference prices may distort consumer perceptions of value (Ahmetoglu et al., 2010[58]). Given this, it is important that businesses only use true reference prices that consumers would be likely to encounter in the market.

Other practices such as drip pricing and bait pricing may also mislead consumers; especially given these practices can take advantage of consumer biases (OECD, 2018[57]) . Drip pricing occurs where a company advertises its product at a certain (low) price but later adds on additional non-avoidable fees or surcharges. Drip pricing preys on the anchoring and endowment effects. It can result in consumer loss as consumers feel committed to the purchase decision and stick with it despite the price increasing during the transaction process. According to one online study, it can increase purchase intentions, price and value satisfaction and reduce search intentions (Xia and Monroe, 2004[59]). Bait pricing occurs where a business advertises a product at a low price to attract consumers to their store/site but there is only a low volume of products on sale (that sell out) and consumers end up making a more expensive purchase once there. Like drip pricing, this also makes use of the endowment effect and may be detrimental to online consumers (Ellison and Fischer Ellison, 2009[60]). For these reasons, a number of jurisdictions have taken enforcement action against, or have laws that prohibit, drip pricing and bait pricing (OECD, 2018[57])

In addition, if advertising disclaimers are not prominent and salient, this could potentially mislead consumers. In this respect, Japan's Consumer Affairs Agency (2017[61]) undertook

a study to understand the effectiveness of marketing disclaimers. The study's findings suggest that few consumers notice such disclaimers and even when they do, many do not read them (perhaps due to overconfidence bias or information overload). Key reasons for missing disclaimers included i) use of small font size (in general and compared with the claim font size); ii) disclaimers not appearing close enough to the claim; and iii) difficulty in reading disclaimers against a patterned background. In addition, for video ads, additional issues included i) insufficient time to read the disclaimer; ii) disclaimers not appearing in the same scene as claims; iii) disclaimers only appearing in text form (when claims were read out); and iv) general information overload. The study was based on a consumer survey and consumer experiments involving various forms of disclaimers.

Consumers may not be able to identify some forms of online advertising

The E-commerce Recommendation makes clear that *"Advertising and marketing should be identifiable as such"* (OECD, 2016[1]). Consumers, however, may find it difficult to identify some forms of online advertising. In particular, native advertising can be difficult to identify given that it is designed to blend in with other (non-advertising) content on a webpage or app, as can "influencer" marketing and other user-generated advertising. While this can be a concern both on and offline, the proliferation of native and user-generated ads online makes it a potentially greater risk now than ever before.

As a general rule, businesses should clearly identify advertising material to allow consumers to make informed decisions regarding such material. In particular, it is important that a consumer is able to identify whether or not a representation is advertising (Competition Bureau Canada, 2018[62]). In the US, the FTC (2013[63]) has produced guidance on how to make effective disclosures for online advertising. The guidance highlights the need for businesses to make advertising disclosures *"clear and conspicuous"* and provides examples of what this means in practice. For example, disclosures should be near the triggering claim, take into account the device on which the ad appears, be noticeable to consumers, and be in plain language. The FTC (2016[50]) has also published an "Enforcement Policy Statement on Deceptively Formatted Advertisements". Similar standards, policies and guidance material apply in the Nordic countries (see, for example, Kilpailu- ja kuluttajavirasto (Kilpailu- ja kuluttajavirasto, 2013[64]; Kilpailu- ja kuluttajavirasto, 2016[65]), and in Japan. In relation to native advertising specifically, the FTC (2015[66]) has published staff guidance regarding native advertising for businesses, which highlights that native advertising should be easily identifiable to consumers and provides examples showing when disclaimers would and would not be required.

In addition, it can be difficult for consumers to know whether posts made on social media, in blogs or in other "word-of-mouth" contexts are an unbiased opinion from the poster or a paid endorsement. This has become especially problematic given that many businesses often provide free products or services to "social influencers" who have a large following on social media networks (as discussed in Section 2.3). This has been recognised in a number of OECD countries. For example, the FTC (2009[67]) has guidelines that govern the use endorsements and testimonials in advertising and has produced numerous FAQs that explain how these guidelines apply to new forms of advertising such as social media marketing (Federal Trade Commission, 2017[68]). In addition, the FTC has brought numerous enforcement actions in this area. In September 2017, for example, the FTC settled charges with two well-known social media influencers who deceptively endorsed an online gambling service on multiple social media platforms (e.g., YouTube, Twitter) while failing to disclose they jointly owned the company (among other deceptive

advertising tactics), and issued warning letters to 21 social media influencers regarding their Instagram posts.

Other forms of online marketing material may also be difficult for consumers to identify and recognise as commercial content. Advertisers use several different techniques whereby commercial representations *"masquerade as the authentic experiences and opinions of impartial consumers, such as fake consumer reviews and testimonials"* (Canadian Competition Bureau, 2015[69]). This practice, sometimes called "astroturfing", can include a range of online strategies including fake consumer ratings and reviews, fake consumer testimonials, fake user accounts with associated fake content (such as posts and tweets) and fake blog posts or comments, for example. In some cases, an advertiser may fund seemingly independent organisations to propagate content to advance a businesses' commercial interests (Leiser, 2016[70]). Consumers may find it difficult to identify this content as commercially motivated content, and may be misled into thinking that such content is unbiased (rather than marketing material from the business trying to sell the product or service).

Behavioural insights literature suggests that anchoring and framing effects may be particularly relevant to the identification of online advertising. Anchoring occurs where consumers "anchor" a decision around the information that they think is the most important, often at the expense of other information (Tversky and Kahneman, 1974[71]; Kahneman, Lovallo and Sibony, 2011[72]). This can lead consumers to make mistakes in valuing an offer or in comparing offers. Framing is a broader concept that refers to the fact that consumers are influenced not only by the content of the information but also by how the information is presented (Tversky and Kahneman, 1981[73]; Sunstein, 2011[74]). In relation to native and user-generated advertising, when commercial messages largely look the same as the other content on a site, consumers might not understand that that this content is advertising and may give the information conveyed in the content greater weight than they otherwise would have given it due in part to anchoring or framing effects.

The issue of consumer identification of online advertising has been studied by a number of organisations including the FTC (2017[75]) and Consumption Research Norway (SIFO) at Oslo and Akershus University College of Applied Sciences (Tangel and Alfnes, 2016[76]).

The FTC (2017[75]) study suggests that there are a number of ways to improve consumer identification of native and search ads, consistent with the relevant FTC staff guidance (see FTC (2013[77]) and FTC (2015[66])), such as through:

- using distinctive background colour and borders that distinguish ad content from other content
- increasing the text size of ad labels and using text colour that sufficiently contrasts with the background (e.g. for labels such as "Advertising" and "Ads")
- better placement of disclosures so it is clear what they relate to and so that they are not missed
- use of consistent and clear terminology.

The Norwegian study instead focussed on native advertising by newspapers, both on and offline. In particular, it raised concerns that consumers find it difficult to identify paid content as advertising material, which may have consequences for consumer trust in newspapers (Tangel and Alfnes, 2016[76]).

The Korea Fair Trade Commission (KFTC) has also undertaken work on the ability of consumers to identify advertising content in the context of paid search advertising. This was undertaken as part of an abuse of dominance investigation into search engines Naver

and Daum. In particular, the KFTC alleged that the failure of these platforms to distinguish between paid and unpaid search results was an abuse of dominance (Kim, Baek and Kim, 2017[78]). To support this claim the KFTC conducted research with 1 000 consumers, finding that approximately 85% of consumers could not identify the paid advertising results (Kim, 2018[79]). The case was settled via a consent decision in March 2014 that required Naver and Daum to, among other things, clearly distinguish between organic search results and paid ads (Korea Fair Trade Commission, 2014[80]).

Online advertising could reduce consumer trust in some online transactions

Online advertising has become more and more pervasive over time. As with any form of advertising, if taken too far, the pervasiveness of online advertising could be a source of annoyance for Internet users. Further, the use of OBA can be seen as "creepy" by some consumers, which could undermine trust in online advertising, and the Internet more broadly. (KPMG, 2016[81]) A number of consumer surveys have highlighted distinct consumer concerns about online advertising as compared to traditional advertising.

In particular, a number of surveys suggest that consumers trust online advertising less than traditional forms of advertising. For example, Table 3.1 shows levels of consumer trust for various types of advertising in 2016 (MarketingSherpa, 2016[82]; Olenski, 2016[83]). Similarly, a study undertaken in Australia in 2017, showed that consumers were relatively untrusting of digital content and advertising as compared to more traditional forms of media (except for television) (NewsMediaWorks, 2017[84]). Within the digital content providers, digital news media sites were more trusted than social, search and other websites.

Table 3.1. Which advertising channels are trusted by consumers?

Traditional media	Print ads	82%
	Television ads	80%
	Ads/catalogues I receive in the mail	76%
	Radio ads	71%
	Ads in outdoor and public areas (billboards, transit ads, posters, etc.)	69%
Digital media	Search engine ads	61%
	Videos that appear prior to an online video	47%
	Sponsored posts on a blog that I read	43%
	Ads embedded in social media (Facebook, Instagram, etc.)	43%
	Online banner ads	39%
	Mobile phone ads	39%
	Ads in podcasts	37%
	Online pop-ups	25%

Source: MarketingSherpa (2016[82]); Olenski (2016[83]).

In addition, there appears to be a level of consumer dislike of, or dissatisfaction with, online advertising. A 2017 survey of 2 500 Internet users by Rakuten Marketing found high levels of consumer dissatisfaction with online advertising ([9]). In particular, 82% found online advertising disruptive to the online experience with dissatisfaction particularly high for pop-up ads, ads that cover content, pre-roll video ads, and ads delivered through push notifications. Further, 56% felt that a single brand was advertising to them too frequently and 67% associated online advertising with other disruptive content, including fake news. In addition, an online survey of 270 consumers by Choozle in 2017 found that 41% did not trust online ads, and one in three disliked online ads (Choozle, 2017[53]). Dislike was driven

by ads slowing down web and mobile pages, too much ad repetition, ads taking up too much screen space, and the ease of accidentally clicking on an ad.

Consumers also tend to have concerns about data being collected for online advertising purposes. For example, over 60% of consumers across the European Union in 2016 were concerned about their online activities being monitored for the purpose of personalised advertising (Eurostat[87]; OECD, 2017[19]). Further, a Pew survey undertaken in America in 2014 found that 80% of social network users were concerned about third parties like advertisers or businesses accessing the data they share on these sites (Madden, 2014[55]). Further, 64% believed the government should do more to regulate advertisers.

It seems that these negative attitudes are inspiring some consumers to take action against online advertising. For example, in the Rakuten Marketing survey mentioned above, 50% of respondents said that they proactively opt-out of online ads. In addition, some 40% said they had abandoned a website due to what they considered to be a "bad experience" relating to online advertising (Rakuten Marketing, 2017[9]). Further, in the European Union in 2016, 40% of consumers claimed that they limited the use of their personal data for advertising purposes (Eurostat[85]) OECD (2017)[19].

One of the ways that consumers can protect themselves against online advertising is through the use of "ad blockers", which remove advertising content from websites and apps, usually through the use of software. eMarketer found that more than a quarter of online consumers in the US were using ad blockers in 2017, up from 16% in 2014 (eMarketer, 2017[86]) whereas Choozle found 53% of respondents used ad blockers (Choozle, 2017[53]). In comparison, the European Commission found that over a third of European consumers (37%) used software to block online ads in 2016 (European Commission, 2016[87]).

Publishers can attempt to circumvent ad blockers through appeals to the consumer or through ad block walls, which only grant access to a site if the ad blocker is disabled. However, 74% of ad block users polled in 2016 said they leave websites when faced with an ad block wall (PageFair, 2017[88]). Some ad blockers employ a model that enables sites or services to pay to be excluded from blocking. There is debate in the industry about the use of ad blockers as many online services are underpinned by a business model that relies on advertising revenue, as discussed above (Krashinsky, 2015[89]).

Online advertising may prey on consumer biases and vulnerabilities

Concerns have also been raised about the ability of online advertising to manipulate consumer decision making. As noted by the OECD (2015, p. 220[90]):

> *… concerns have been raised that the information inferred through data analytics may also facilitate aggressive or predatory marketing practices, whereby a company exploits the vulnerabilities of consumers in a way that induces them to purchase goods or services that they would not otherwise have bought.*

For as long as advertising has existed, advertisers have looked at ways to persuade, encourage or manipulate consumers into making purchases. Online advertising is no different. However, online advertisers have more personal information than ever before. Some commentators have raised concerns about online advertisers using "persuasion profiling" to take advantage of the social norms that resonate best with a particular consumer, given what a business knows about the consumer. Such persuasion profiling could be used to target a consumer in real time given what a business knows about the consumer's habits, current location, and general vulnerabilities (Calo, 2014[91]). Such

targeting could take advantage of time-inconsistency biases, where consumers pursue short-term urges at the expense of their long-term interests. If this form of targeting is used to mislead consumers, then there could be potential for consumer harm.

A related issue is the degree to which advertisers use personal data to target children and vulnerable consumers with online advertising (Competition Bureau Canada, 2018[92]). In particular, some observers have stated that it may be easier than ever to identify and target children online (Calvert, 2008[93]) although in some circumstances it might be difficult for an advertiser to know they are dealing with a child, especially if a child is using a parent's device and accessing a non-child oriented app. In addition, children may find it particularly difficult to identify online content, such as video games with commercial messages ("advergames") or native ads, as advertising material (Calvert, 2008[93]). Indeed, the US FTC's Enforcement Policy Statement on Deceptively Formatted Ads, for example, recognises that "special considerations may be relevant in determining whether a natively formatted ad directed to children would be misleading."

In addition, the ability to better target online advertising could potentially allow businesses to take advantage of other vulnerabilities, be they transitory or more persistent. However, there is no evidence that such targeting of vulnerable consumers is occurring at scale.

More generally, default biases may lead consumers to disclose and share more personal information than they would otherwise choose to. Default or "status quo" bias is the tendency for individuals to go along with whatever the default (or status quo) choice or setting is, even when this may not be in their best interest, and even when they have the ability to make a different choice or opt-out of the default (Kahneman, Knetsch and Thaler, 1991[94]; Sunstein, 2011[74]). Default privacy settings that lead to a high level of disclosure and sharing could hence result in consumers disclosing and sharing more personal information than they would choose to, had they actively considered the choice (Calo, 2014[91]). Conversely, default privacy settings that are more protective of consumers may be an effective way to improve consumer privacy online.

Threats from "malvertising"

Online ads can potentially be used to infect devices with malware. Such "malvertising" can be used to collect personal data or lock a device's hard drive until a "ransom" is paid (Blue, 2016[95]). What is particularly concerning is that a consumer can fall victim just by visiting a website with malvertising on it (United States Senate, 2014[96]). Further, it is not just small obscure websites that have been affected by this type of "drive-by" malvertising; it has occurred on YouTube and Yahoo, for example (United States Senate, 2014[96]). Back in 2013, Symantec estimated that around half of publishers had experienced a malvertising incident (including "drive-by" and "click through" incidents) (Thye, 2013[97]). Given the inability of consumers to know which websites are safe and which are not, some claim that the only way for consumers to protect themselves is through the use of ad blocking software (Blue, 2016[95]; Trend Micro USA, 2015[98]). So far policymakers have experienced difficulties in identifying and holding accountable the entities responsible for damages resulting from malvertising (United States Senate, 2014[96]).

Threats associated with increased data collection

As in other areas of the digital economy, online advertising is associated with the collection of vast quantities of personal data about an individual's activities online. This obviously has implications for consumer privacy and security. In particular, consumers care about privacy and want to be informed about the collection, use, and sharing of their personal

data (Gomez, Pinnick and Soltani, 2009[99]; KPMG, 2016[81]; Turow et al., 2009[100]). However, while these issues have the potential to cause consumer detriment, they are not unique to online advertising and largely fall outside of the responsibilities of consumer agencies in many OECD countries.

However, issues of deception related to the collection and use of such information are likely to fall within the remit of existing consumer laws on deceptive and unfair practices in a number of jurisdictions. In particular, before sharing information online, consumers should be able to understand what information will be collected from them, how this information will be used, how the information will be shared with other actors, and how such information will be stored. To the extent that a consumer is misled into providing information that they would not have shared had they known how that information would be collected, used, shared or stored, this could potentially be found to be a misleading practice by the relevant business. Further, to the extent that online businesses make false or misleading representations regarding their collection of personal data, this arguably falls under consumer protection laws in some countries, including in Canada and the US (Competition Bureau Canada, 2018[92]). Indeed, the E-commerce Recommendation provides that (OECD, 2016[1]):

> *Businesses should comply with any express or implied representations they make about their adherence to industry self-regulatory codes or programmes, privacy notices or any other policies or practices relating to their transactions with consumers.*

Consistent with the E-Commerce Recommendation, some OECD countries have found breaches of consumer protection when online businesses provide false or misleading representations regarding the ways in which they collect, use, store and share personal data. The FTC, for example, has brought more than 50 enforcement actions against companies that misrepresented or deceived consumers about their privacy practices (Federal Trade Commission, 2017[101]). For example, in 2017, the FTC settled charges against Uber Technologies Inc. that it deceived consumers by, among other things, failing to live up to its claims that it closely monitored employee access to the personal data of its consumers and drivers.

Further, Helberger et al. (2017[102]) have suggested that representing online services that rely on personal data and advertising as "free", could arguably be found to be misleading under the European Union's Unfair Commercial Practices Directive (European Parliament, 2005[103]). Hence, claims about the free nature of online services could potentially fall foul of consumer laws in some jurisdictions, but this is yet to be tested in court.

3.3. What is the role of behavioural insights in addressing new risks?

It appears that some of the potential risks highlighted in Section 3.2 could be better understood by undertaking behavioural experiments to determine the extent of the problem, and possibly to test potential solutions. In particular, behavioural experiments could be undertaken to:

- Test consumer identification of online advertising (building on the work already undertaken in the US, Norway and Korea).
- Test consumer understanding of privacy statements to better understand when such statements might result in consumer harm by misleading consumers.

- Testing how consumers react to receiving personalised ads or prices if businesses are required to communicate how those ads or prices have been personalised to the consumer.
- To test the effectiveness of measures that target behavioural biases (for example, "scarcity cues").

Where issues can potentially be addressed through improved disclosure, the CCP's recent work on improving online disclosures with behavioural insights is relevant (OECD, 2018[57]). In particular, this work highlights the importance of:

- Clear and accurate information (and pricing) – from looking at an ad, consumers should be able to clearly assess the key benefits and costs/prices involved in the products or services being advertised, and should be able to clearly and easily identify the ad as advertising material.
- Not relying on terms and conditions to convey important information – online ads should not mislead consumers about restrictions, limitations or conditions associated with an offer.
- Express and meaningful consumer consent – consumers should be able to clearly understand what they are signing up to (in terms of cost or data) when interacting with or responding to online ads.
- Simple information – disclosures identifying material as advertising should be simple and salient (as should important characteristics or limitations of the offer).
- Using images, audio and video, where appropriate, not just text – images or icons could potentially be used to identify online ads, such options could be investigated further and tested empirically.
- Timing – it is important that consumers get the right information at the right time. In particular, consumers should be able to identify advertising content immediately and should understand the key characteristics and limitations of an offer before they commit to it.

As is emphasised in the abovementioned work, empirical work and behavioural experiments are important to test the extent of any problems identified and to assess any potential policy solutions.

3.4. How has the private sector responded to new risks?

There are number of developments coming from the private sector which address some of the potential risks associated with online advertising. In particular, consumers can install ad blocking software to minimise their exposure to online ads and threats from "malvertising". Further, a number of online platforms offer settings that allow users to manage their exposure to online ads and their sharing of personal data. Some of these platforms, such as Apple's Safari browser, have default settings that provide a relatively high level of protection against the risks associated with online ads. Given the power of default settings, platforms that offer higher default levels of protection are likely to result in more consumers being protected online.

New business models may also reduce exposure to online advertising. Such models may emerge as a market response to increased use of ad blocking services. Subscription models, for example, can remove the need for online advertising (as in the case of Netflix), reduce ad exposure, or make a business less reliant on this revenue source (for example, many online newspapers now offer or require subscription but this rarely removes all ads on the site). In addition, new technologies are facilitating "micropayments" which may make

alternative business models more workable by allowing consumers to make small payments to site owners thus reducing the need for online advertising revenue.

Other tools are more focussed on allowing consumers to manage the sharing and use of their personal data. For example, "privacy managers", which are usually available as apps, are already being developed with promising results: see Almuhimedi et al. (2014[104]); Balebako et al. (2017[105]) and FTC (2016[106]). Further, researchers have recently launched "Polisis": a website and browser extension that uses machine learning to automatically read and make sense of online privacy policies for consumers (Greenberg, 2018[107]). It does so by presenting the policy as a graphic flow chart that identifies the type of data collected, where the data can be sent, and whether a consumer can opt out of data collection or sharing. There is also a chat interface which answers specific questions about a privacy policy. The EU has also funded research on the TYPES project: Towards transparency and privacy in the online advertising business, which concluded in 2017 (TYPES, 2015[108]).

4. Conclusion

While online advertising offers tangible and significant benefits for consumers, it also raises some risks. Some of these risks relate to traditional areas of consumer policy including protecting consumers against misleading online advertising and ensuring consumers can easily identify online advertising. Other risks may arise from the enhanced ability to personalise online advertising and to potentially target behavioural biases and other consumer vulnerabilities. Specific new risks come from "malvertising" threats, and more generic risks are associated with greater collection and sharing of personal data, as in many other areas of the digital economy.

While many of the existing consumer protections can be applied to newer forms of online advertising, there may be scope for policymakers to do more work to improve consumer understanding of the benefits and risks associated with online advertising. In particular, policymakers could undertake work to understand whether consumers can identify some of the newer forms of online advertising, such as online native advertising. This, in turn, may signal a need for further work on improving the disclosure of these forms of advertising, potentially drawing on behavioural insights. In addition, policymakers may need to do more work to understand how and when online advertising targeting consumer vulnerabilities and biases violates consumer protection law and causes consumer detriment, and to develop appropriate policy responses, as required.

References

Accenture (2013), *Accenture Study Shows U.S. Consumers Want a Seamless Shopping Experience Across Store, Online and Mobile that Many Retailers are Struggling to Deliver*, Accenture, https://newsroom.accenture.com/industries/retail/accenture-study-shows-us-consumers-want-a-seamless-shopping-experience-across-store-online-and-mobile-that-many-retailers-are-struggling-to-deliver.htm (accessed on 09 January 2018). [110]

Ahmetoglu, G. et al. (2010), *Pricing Practices: Their Effects on Consumer Behaviour and Welfare*, Prepared for the Office of Fair Trading, http://webarchive.nationalarchives.gov.uk/20140402172955/http://oft.gov.uk/shared_oft/business_leaflets/659703/Advertising-of-prices/Pricing-Practices.pdf (accessed on 02 August 2017). [58]

Almuhimedi, H. et al. (2014), *Your Location has been Shared 5,398 Times!: A Field Study on Mobile App Privacy Nudging*, http://dx.doi.org/10.1145/2702123.2702210. [104]

An, S. (2008), "Antidepressant Direct-to-Consumer Advertising and Social Perception of the Prevalence of Depression: Application of the Availability Heuristic", *Health Communication*, Vol. 23, pp. 499-505, http://dx.doi.org/10.1080/10410230802342127. [117]

Balebako, R. et al. (2017), "Nudging users towards privacy on mobile devices", *ACM Computing Surveys (CSUR)*, Vol. 50/3, http://dx.doi.org/10.1145/3054926. [105]

Beal, V. (2008), *What are Internet Cookies and What Do They Do?*, Webopedia, https://www.webopedia.com/DidYouKnow/Internet/all_about_cookies.asp (accessed on 11 January 2018). [11]

Blue, V. (2016), *You say advertising, I say block that malware*, p. 01, https://www.engadget.com/2016/01/08/you-say-advertising-i-say-block-that-malware/ (accessed on 08 February 2018). [95]

Boerman, S., S. Kruikemeier and F. Zuiderveen Borgesius (2017), "Online Behavioral Advertising: A Literature Review and Research Agenda", *Journal of Advertising*, Vol. 46/3, pp. 363-376, http://dx.doi.org/10.1080/00913367.2017.1339368. [10]

Calo, R. (2014), "Digital Market Manipulation", *The George Washington Law Review*, Vol. 82/4, pp. 995-1051, http://www.gwlr.org/wp-content/uploads/2014/10/Calo_82_41.pdf (accessed on 30 January 2018). [91]

Calvert, S. (2008), "Children as Consumers: Advertising and Marketing", *Future Child*, Vol. 18/1, pp. 205-34, https://files.eric.ed.gov/fulltext/EJ795864.pdf (accessed on 23 February 2018). [93]

Canadian Competition Bureau (2015), *The Deceptive Marketing Practices Digest*, http://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/03946.html (accessed on 21 February 2018). [69]

Chaykowski, K. (2017), *Sheryl Sandberg: Facebook Hit 5 Million Advertisers By Turning Users Into Marketers*, Forbes, https://www.forbes.com/sites/kathleenchaykowski/2017/04/10/sheryl-sandberg-facebook-hit-5-million-advertisers-by-turning-users-into-marketers/#18bf6ad0e99d (accessed on 09 January 2018). [39]

Choozle (2017), *Consumer User Experience Survey Results*, https://choozle.com/digital-advertising-impacting-user-experience-survey/ (accessed on 14 March 2018). [53]

Chow, M. (2017), *AI and machine learning get us one step closer to relevance at scale*, Google, https://www.thinkwithgoogle.com/marketing-resources/ai-personalized-marketing/ (accessed on 23 January 2018). [20]

Cialdini, R. (2014), *Influence : science and practice*, Pearson Education Limited. [112]

Competition Bureau (Canada) (2015), *False or Misleading Representations and Deceptive Marketing Practices*, http://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/03133.html (accessed on 09 February 2018). [115]

Competition Bureau Canada (2018), *Big data and innovation: key themes for competition policy in Canada*, http://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/vwapj/CB-Report-BigData-Eng.pdf/$file/CB-Report-BigData-Eng.pdf (accessed on 07 March 2018). [92]

Competition Bureau Canada (2018), *The Deceptive Marketing Practices Digest - Volume 1*, http://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/vwapj/cb-digest-deceptive-marketing-e.pdf/$FILE/cb-digest-deceptive-marketing-e.pdf (accessed on 4 December 2018). [62]

Consumer Affairs Agency (Japan) (2017), *Report on Reservation Representation (Overview)*, http://www.caa.go.jp/en/pdf/en_171213_0001.pdf (accessed on 14 December 2017). [61]

Cook, K. (2018), *10 Influencer Marketing Campaigns to Inspire and Get You Started With Your Own*, HubSpot, https://blog.hubspot.com/marketing/examples-of-influencer-marketing-campaigns (accessed on 27 March 2018). [46]

Ellison, G. and S. Fischer Ellison (2009), "Search, Obfuscation, and Price Elasticities on the Internet", *Econometrica*, Vol. 77/2, pp. 427-452, http://dx.doi.org/10.3982/ECTA5708. [60]

eMarketer (2018), *eMarketer Unveils Latest Wordwide Social Users Estimates*, https://www.emarketer.com/content/emarketer-unveils-latest-wordwide-social-users-estimates (accessed on 16 January 2018). [38]

eMarketer (2017), *As Ad Blocker Use Grows, Publishers Face New Challenges*, https://www.emarketer.com/Article/Ad-Blocker-Use-Grows-Publishers-Face-New-Challenges/1016076 (accessed on 10 January 2018). [86]

eMarketer (2016), *US Digital Display Ad Spending to Surpass Search Ad Spending in 2016*, https://www.emarketer.com/Article/US-Digital-Display-Ad-Spending-Surpass-Search-Ad-Spending-2016/1013442 (accessed on 09 January 2018). [31]

European Commission (2016), *Flash Eurobarometer 443: e-Privacy*, https://ec.europa.eu/digital-single-market/en/news/eurobarometer-eprivacy. [87]

European Parliament (2005), "Directive 2005/29/EC of the European Parliament and of the Council of 11 May 2005 concerning unfair business-to-consumer commercial practices in the internal market and amending Council Directive 84/450/EEC, Directives 97/7/EC, 98/27/EC and 2002/65/EC of the European Parliament and of the Council and Regulation (EC) No 2006/2004 of the European Parliament and of the Council ('Unfair Commercial Practices Directive')", *Official Journal of the European Union*, http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32005L0029&from=EN (accessed on 09 February 2018). [103]

Eurostat((n.d.)), *Digital Economy and Society*, http://ec.europa.eu/eurostat/web/digital-economy-and-society/data/comprehensive-database (accessed on 14 March 2018). [85]

Facebook IQ (2017), *Why Creativity Matters More in the Age of Mobile*, https://fbinsights.files.wordpress.com/2017/03/fbiq_why_creativity_matters.pdf (accessed on 01 February 2018). [45]

Farnworth, D. (2014), *12 Examples of Native Ads (And Why They Work)*, Copy Blogger, https://www.copyblogger.com/examples-of-native-ads/ (accessed on 27 March 2018). [51]

Federal Trade Commission (2017), *Cross-Device Tracking*, https://www.ftc.gov/system/files/documents/reports/cross-device-tracking-federal-trade-commission-staff-report-january-2017/ftc_cross-device_tracking_report_1-23-17.pdf (accessed on 26 March 2018). [13]

Federal Trade Commission (2017), *Privacy and Data Security Update 2017*, https://www.ftc.gov/system/files/documents/reports/privacy-data-security-update-2017-overview-commissions-enforcement-policy-initiatives-consumer/privacy_and_data_security_update_2017.pdf (accessed on 27 March 2018). [101]

Federal Trade Commission (2017), *The FTC's Endorsement Guides: What People Are Asking*, https://www.ftc.gov/tips-advice/business-center/guidance/ftcs-endorsement-guides-what-people-are-asking (accessed on 22 February 2018). [68]

Federal Trade Commission (2013), *.com Disclosures: How to Make Effective Disclosures in Digital Advertising*, https://www.ftc.gov/sites/default/files/attachments/press-releases/ftc-staff-revises-online-advertising-disclosure-guidelines/130312dotcomdisclosures.pdf (accessed on 09 February 2018). [63]

Federal Trade Commission (2009), *Guides Concerning the Use of Endorsements and Testimonials in Advertising*, https://www.ftc.gov/sites/default/files/documents/federal_register_notices/guides-concerning-use-endorsements-and-testimonials-advertising-16-cfr-part-255/091015guidesconcerningtestimonials.pdf (accessed on 09 February 2018). [67]

Federal Trade Commission (U.S.) (2016), *Enforcement Policy Statement on Deceptively Formatted Advertisements*, Federal Trade Commission (US), https://www.ftc.gov/system/files/documents/public_statements/896923/151222deceptiveenforcement.pdf (accessed on 06 December 2017). [50]

Federal Trade Commission (US) (2017), *Blurred Lines: An Exploration of Consumers' Advertising Recognition in the Contexts of Search Engines and Native Advertising*, FTC Staff Report, Washington, https://www.ftc.gov/system/files/documents/reports/blurred-lines-exploration-consumers-advertising-recognition-contexts-search-engines-native/p164504_ftc_staff_report_re_digital_advertising_and_appendices.pdf (accessed on 18 December 2017). [75]

Federal Trade Commission (US) (2016), *Putting Disclosures to the Test Workshop: Staff Summary*, https://www.ftc.gov/system/files/documents/reports/putting-disclosures-test/disclosures-workshop-staff-summary-update.pdf (accessed on 02 August 2017). [106]

Federal Trade Commission (US) (2015), *Native Advertising: A Guide for Businesses*, https://www.ftc.gov/tips-advice/business-center/guidance/native-advertising-guide-businesses (accessed on 24 January 2018). [47]

Federal Trade Commission (US) (2015), *Native Advertising: A Guide for Businesses*, https://www.ftc.gov/tips-advice/business-center/guidance/native-advertising-guide-businesses (accessed on 18 December 2017). [66]

Federal Trade Commission (US) (2013), *FTC Consumer Protection Staff Updates Agency's Guidance to Search Engine Industry on the Need to Distinguish Between Advertisements and Search Results*, https://www.ftc.gov/news-events/press-releases/2013/06/ftc-consumer-protection-staff-updates-agencys-guidance-search (accessed on 18 December 2017). [77]

Ghosh, D. and B. Scott (2018), *Digital Deceit: The Technologies Behind Precision Propaganda on the Internet*, New America, https://www.newamerica.org/public-interest-technology/policy-papers/digitaldeceit/ (accessed on 16 February 2018). [16]

Gomez, J., T. Pinnick and A. Soltani (2009), *KnowPrivacy*, http://www.knowprivacy.org/report/KnowPrivacy_Final_Report.pdf (accessed on 15 February 2018). [99]

Google (2018), *About the Google Display Network - AdWords Help*, https://support.google.com/adwords/answer/2404190?hl=en (accessed on 12 January 2018). [33]

Google (2015), "Insights on the AdWords Auction", https://www.thinkwithgoogle.com/intl/en-145/perspectives/global-articles/insights-adwords-auction/. [37]

Google (2014), *The Importance of Being Seen: Viewability Insights for Digital Marketers and Publishers*, Think with Google, https://think.storage.googleapis.com/docs/the-importance-of-being-seen_study.pdf (accessed on 13 February 2018). [34]

Google Partners (2016), *Micro-Moments Workshop*, McDougal Interactive, http://www.mcdougallinteractive.com/wp-content/uploads/2016/05/Google-Partners-Micro-Moments-Workshop.pdf (accessed on 09 January 2018). [4]

Graham, K. (2017), *Programmatic Advertising: Key Terms, Examples and Trends Explained*, MonetizeMore, https://www.monetizemore.com/blog/programmatic-advertising-explained/ (accessed on 12 January 2018). [29]

Greenberg, A. (2018), *Polisis AI Reads Privacy Policies So You Don't Have To*, p. 9, https://www.wired.com/story/polisis-ai-reads-privacy-policies-so-you-dont-have-to/ (accessed on 12 February 2018). [107]

Ham, C. and M. Nelson (2016), "The role of persuasion knowledge, assessment of benefit and harm, and third-person perception in coping with online behavioral advertising", *Computers in Human Behavior*, Vol. 62, pp. 689-702, http://dx.doi.org/10.1016/j.chb.2016.03.076. [116]

Heine, C. (2017), *Instagram Now Has 2 Million Advertisers Following Explosive Growth During the Last 18 Months*, Adweek, http://www.adweek.com/digital/instagram-now-has-2-million-advertisers-following-explosive-growth-during-the-last-18-months/ (accessed on 09 January 2018). [40]

Heitzman, A. (2017), *How Digital Marketing Transformed the Consumer Buying Process*, Inc.com, https://www.inc.com/adam-heitzman/how-digital-marketing-transformed-the-consumer-buying-process.html (accessed on 09 January 2018). [5]

Helberger, N., F. Zuiderveen Borgesius and A. Reyna (2017), "The Perfect Match? A Closer Look at the Relationship Between EU Consumer Law and Data Protection Law", *Common Market Law Review*, Vol. 54, pp. 1427–1466, https://www.kluwerlawonline.com/document.php?id=COLA2017118&PHPSESSID=fue2e2pu9rq4uv6cos6s3gir76 (accessed on 01 February 2018). [102]

He, X. et al. (2014), *Practical Lessons from Predicting Clicks on Ads at Facebook*, http://dx.doi.org/10.1145/2648584.2648589. [24]

IAB (2016), *The Programmatic Supply Chain*, https://www.iab.com/wp-content/uploads/2016/03/Programmatic-Value-Layers-March-2016-FINALv2.pdf (accessed on 15 March 2018). [28]

IAB (2013), *Cookies on Mobile 101*, https://www.iab.com/wp-content/uploads/2015/07/CookiesOnMobile101Final.pdf (accessed on 26 March 2018). [12]

Jerath, K., L. Ma and Y. Park (2014), "Consumer Click Behavior at a Search Engine: The Role of Keyword Popularity", *Journal of Marketing Research*, Vol. 51/4, pp. 480-486, http://dx.doi.org/10.1509/jmr.13.0099. [35]

Kahneman, D., J. Knetsch and R. Thaler (1991), "Anomalies: The Endowment Effect, Loss Aversion, and Status Quo Bias", *The Journal of Economic Perspectives*, Vol. 5/1, pp. 193-206, https://www.princeton.edu/~kahneman/docs/Publications/Anomalies_DK_JLK_RHT_1991.pdf (accessed on 01 August 2017). [94]

Kahneman, D., D. Lovallo and O. Sibony (2011), "Before You Make That Big Decision…", *Harvard Business Review*, Vol. June, pp. 51-0, https://www.aub.edu.lb/units/ehmu/Documents/before-you-make-that-big-decision.pdf (accessed on 03 August 2017). [72]

Kaptein, M. (2013), "Adaptive Persuasive Messages in an E-Commerce Setting: The Use of Persuasion Profiles", *Personal and Ubiquitous Computing*, Vol. 17/6, pp. 1173–1185, http://www.persuasion-profiling.com/wp-content/uploads/2010/04/Kaptein_AdaptivePersuasiveMessages.pdf (accessed on 30 January 2018). [113]

Kaptein, M. and D. Eckles (2010), *Selecting Effective Means to Any End: Futures and Ethics of Persuasion Profiling*, PERSUASIVE 2010, http://www.persuasion-profiling.com/wp-content/uploads/2010/04/EffectiveMeans.pdf (accessed on 30 January 2018). [114]

Kilpailu- ja kuluttajavirasto (2016), *Nordic position on covert marketing*, https://www.kkv.fi/en/decisions-and-publications/publications/consumer-ombudsmans-guidelines/international/nordic-position-on-covert-marketing/ (accessed on 22 February 2018). [65]

Kilpailu- ja kuluttajavirasto (2013), *Recognisability of advertising in blogs*, https://www.kkv.fi/en/decisions-and-publications/publications/consumer-ombudsmans-guidelines/by-subject/recognisability-of-advertising-in-blogs/ (accessed on 22 February 2018). [64]

Kim, D. (2018), *KFTC's Regulations on Online Platforms*, OECD, http://www.oecd.org/daf/competition/workshop-on-competition-regulation-and-digitalisation.htm. [79]

Kim, H., D. Baek and M. Kim (2017), *The Handbook of Competition Enforcement Agencies 2017: Korea*, https://globalcompetitionreview.com/benchmarking/the-handbook-of-competition-enforcement-agencies-2017/1141695/korea (accessed on 02 February 2018). [78]

Korea Fair Trade Commission (2014), *Naver and Daum Cases of Consent*, http://www.ftc.go.kr/solution/skin/doc.html?fn=a48cba15b85b11ee62a3b4066f966a8bbb81ce0b42e2f50a55199e59191d7419&rs=/fileupload/data/result/BBSMSTR_000000002407/ (accessed on 02 February 2018). [80]

KPMG (2016), "Companies that fail to see privacy as a business priority risk crossing the 'creepy line'", https://home.kpmg.com/sg/en/home/media/press-releases/2016/11/companies-that-fail-to-see-privacy-as-a-business-priority-risk-crossing-the-creepy-line.html (accessed on 15 February 2018). [81]

Krashinsky, S. (2015), *Ad-blocking software threatens growing, critical realm of digital ads*, The Globe and Mail, https://www.theglobeandmail.com/report-on-business/industry-news/marketing/ad-blocking-software-threatens-growing-critical-realm-of-digital-ads/article26627946/ (accessed on 15 January 2018). [89]

Leiser, M. (2016), "AstroTurfing, 'CyberTurfing' and other online persuasion campaigns", *European Journal of Law and Technology*, Vol. 7/1. [70]

Letang, V. and L. Stillman (2016), *Global Advertising Forecast Winter Update*, Magna. [2]

Levine, B. (2016), *What are Creative Management Platforms (CMPs) and Dynamic Creative Optimization (DCO)?*, MarTech, https://martechtoday.com/martech-landscape-marketers-know-dynamic-creative-optimization-dco-creative-management-platforms-cmps-182352 (accessed on 24 January 2018). [23]

Ling, X. et al. (2017), *Model Ensemble for Click Prediction in Bing Search Ads*, http://dx.doi.org/10.1145/3041021.3054192. [26]

Llewellyn, G. (2016), *Behavioural economics and digital marketing*, Smart Insights, https://www.smartinsights.com/marketplace-analysis/consumer-buying-behaviour/behavioural-economics-digital-marketing/ (accessed on 01 December 2017). [109]

Luttrell, W. (2018), *Why Brands Must Own the Advertising Supply Chain*, MarTech Advisor, https://www.martechadvisor.com/articles/ads/why-brands-must-own-the-advertising-supply-chain/ (accessed on 15 March 2018). [17]

Madden, M. (2014), *Public Perceptions of Privacy and Security in the Post-Snowden Era*, Pew Research Center, http://www.pewinternet.org/2014/11/12/public-privacy-perceptions/ (accessed on 14 March 2018). [55]

MarketingSherpa (2016), *MarketingSherpa Customer Satisfaction Research Survey*, MarketingSherpa, https://marketingsherpa.com/freestuff/customer-first-study (accessed on 08 January 2018). [82]

McMahan, H. et al. (2013), *Ad Click Prediction: a View from the Trenches*, ACM, http://dx.doi.org/10.1145/2487575.2488200. [25]

Metz, C. (2015), *Google Open-Sourcing TensorFlow Shows AI's Future Is Data*, Wired, https://www.wired.com/2015/11/google-open-sourcing-tensorflow-shows-ais-future-is-data-not-code/ (accessed on 23 January 2018). [21]

Minnium, P. (2014), *The Definitive Guide To The Digital Display Ad Ecosystem*, Marketing Land, https://marketingland.com/digital-simplified-new-advertising-supply-chain-104734 (accessed on 15 March 2018). [30]

Munda, T. (2017), *Here's the Native Advertising Trends 2017 You Need to Know*, Native Advertising Institute, https://nativeadvertisinginstitute.com/blog/native-advertising-trends-2017/ (accessed on 26 January 2018). [49]

NewsMediaWorks (2017), *The Company You Keep: A Study into Consumer Trust in the Media*, http://www.newsmediaworks.com.au/adtrust/ (accessed on 14 March 2018). [84]

Nicholson, A. (2015), *Using reciprocity to trigger customer loyalty*, Smart Insights, https://www.smartinsights.com/content-management/content-marketing-creative-and-formats/digital-psychology-can-increase-marketing/ (accessed on 15 February 2018). [119]

Nickerson, R. (1998), "Confirmation Bias: A Ubiquitous Phenomenon in Many Guises", *Review of General Psychology*, Vol. 2/2, pp. 175-220, https://pdfs.semanticscholar.org/70c9/3e5e38a8176590f69c0491fd63ab2a9e67c4.pdf (accessed on 15 February 2018). [122]

Nilsson, N. (2010), *The Quest for Artificial Intelligence: A History of Ideas and Achievements*, Cambridge University Press, Cambridge, UK. [19]

Noyes, K. (2016), "Google taps AI to help you bid for digital ads | CIO", *CIO*, https://www.cio.com/article/3100704/google-taps-machine-learning-to-help-you-bid-for-ads.html (accessed on 31 January 2018). [27]

O'Brien, M. (2015), *A beginner's guide to display advertising*, ClickZ, https://www.clickz.com/a-beginners-guide-to-display-advertising/89821/ (accessed on 12 January 2018). [32]

OECD (2018), "Improving online disclosures with behavioural insights", *OECD Digital Economy Papers*, No. 269, OECD Publishing, Paris, http://dx.doi.org/10.1787/39026ff4-en. [57]

OECD (2017), *OECD Digital Economy Outlook 2017*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264276284-en. [18]

OECD (2017), *OECD Science, Technology and Industry Scoreboard 2017: The digital transformation*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264268821-en. [3]

OECD (2017), *Use of Behavioural Insights in Consumer Policy*, http://dx.doi.org/10.1787/c2203c35-en. [120]

OECD (2016), *OECD Recommendation of the Council on Consumer Protection in E-Commerce*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264255258-en. [1]

OECD (2015), *Data-Driven Innovation: Big Data for Growth and Well-Being*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264229358-en. [90]

OECD (forthcoming), *Improving online disclosures with behavioural insights*. [124]

Olenski, S. (2016), *Why is Digital Marketing Still Fighting to Earn Consumer Trust?*, Convince & Convert, http://www.convinceandconvert.com/digital-marketing/why-is-digital-marketing-still-fighting-to-earn-consumer-trust/ (accessed on 08 January 2018). [83]

Omnicore (2018), *Linkedin by the Numbers (2018): Stats, Demographics and Fun Facts*, https://www.omnicoreagency.com/linkedin-statistics/ (accessed on 01 February 2018). [42]

Omnicore (2018), *Snapchat by the Numbers (2018): Stats, Demographics and Fun Facts*, https://www.omnicoreagency.com/snapchat-statistics/ (accessed on 01 February 2018). [43]

OneSpot (2016), *More Than Three-Quarters of Consumers Say Personally Relevant Branded Content Increases Their Intent Finds New Study by OneSpot and Marketing Insider Group*, PR Newswire, https://www.prnewswire.com/news-releases/more-than-three-quarters-of-consumers-say-personally-relevant-branded-content-increases-their-purchase-intent-finds-new-study-from-onespot-and-marketing-insider-group-300376444.html (accessed on 24 January 2018). [54]

O'Reilly, L. (2018), *Google to Ban Ads for Cryptocurrencies*, https://www.wsj.com/articles/google-to-ban-ads-for-cryptocurrencies-1521000060 (accessed on 4 September 2018). [56]

PageFair (2017), *The state of the blocked web: 2017 Global Adblock Report*, https://pagefair.com/downloads/2017/01/PageFair-2017-Adblock-Report.pdf (accessed on 10 January 2018). [88]

PwC (2017), *2017 Total Retail survey: Consumer markets: Industries*, https://www.pwc.com/gx/en/industries/retail-consumer/total-retail.html (accessed on 09 January 2018). [8]

PwC (2017), *Total Retail Survey*, https://www.pwc.com/gx/en/industries/retail-consumer/total-retail/total-retail-key-findings.html. [52]

Rakuten Marketing (2017), *Rakuten Marketing Advertising Insights: Consumers Associate Online Advertising With Fake News; Company Commits to 'Save the Web'*, https://rakutenmarketing.com/press-articles/rakuten-marketing-advertising-insights-consumers-associate-online-advertising-fake-news-company-commits-save-web (accessed on 14 March 2018). [9]

Regan, D. (1971), "Effects of a Favor and Liking on Compliance", *Journal of Experimental Social Psychology*, Vol. 7, pp. 627-639, http://www.communicationcache.com/uploads/1/0/8/8/10887248/effects_of_a_favor_and_liking_on_compliance.pdf (accessed on 15 February 2018). [118]

Schumann, J., F. Von Wangenheim and N. Groene (2014), "Targeted Online Advertising: Using Reciprocity Appeals to Increase Acceptance Among Users of Free Web Services", *Journal of Marketing*, Vol. 78/1, pp. 59-75, http://dx.doi.org/10.1509/jm.11.0316. [123]

Shakeel, K. (2016), *Connecting the Dots: Top 3 Cross-Device Tracking Methods*, Cardinal Path Blog, http://www.cardinalpath.com/connecting-the-dots-top-3-cross-device-tracking-methods/ (accessed on 15 February 2018). [14]

Sharethrough (2015), *A Neuroscience Perspective*, https://sharethrough.com/downloads/Sharethrough_Neuroscience_Report.pdf (accessed on 31 January 2018). [48]

Slefo, G. (2017), *Desktop, Mobile Ad Revenue Surpasses TV for the First Time*, AdAge, http://adage.com/article/digital/digital-ad-revenue-surpasses-tv-desktop-iab/308808/ (accessed on 27 March 2018). [6]

Sloane, G. (2017), *Snapchat Gives Advertisers New Tracking Tool to Target Ads*, AdAge, http://adage.com/article/digital/snapchat-advertisers-pixel-tracking-tool-target-ads/311129/ (accessed on 10 January 2018). [111]

Statista (2018), *Google: ad revenue 2001-2016*, https://www.statista.com/statistics/266249/advertising-revenue-of-google/ (accessed on 23 January 2018). [7]

Statistica (2018), *Twitter MAU worldwide 2017*, https://www.statista.com/statistics/282087/number-of-monthly-active-twitter-users/ (accessed on 01 February 2018). [44]

Sun, C. et al. (2017), *Revisiting Unreasonable Effectiveness of Data in Deep Learning Era*, Google Research, https://arxiv.org/pdf/1707.02968.pdf (accessed on 23 January 2018). [22]

Sunstein, C. (2011), "Empirically Informed Regulation", *The University of Chicago Law Review*, Vol. 78/4, pp. 1349-1429, http://chicagounbound.uchicago.edu/cgi/viewcontent.cgi?article=5551&context=uclrev (accessed on 22 August 2017). [74]

Tangel, T. and F. Alfnes (2016), *Når grensene mellom reklame og journalistikk blir utydelige i avisene*, Forbruksforskningsinstituttet SIFO, Oslo, http://www.hioa.no/Om-HiOA/Senter-for-velferds-og-arbeidslivsforskning/SIFO/Publikasjoner-fra-SIFO/Naar-grensene-mellom-reklame-og-journalistikk-blir-utydelige-i-avisene (accessed on 31 January 2018). [76]

Thye, L. (2013), *"Danger: Malware Ahead!- Please, Not My Site"*, Symantec, https://www.symantec.com/connect/blogs/danger-malware-ahead-please-not-my-site (accessed on 08 February 2018). [97]

Trend Micro USA (2015), *Malvertising: When Online Ads Attack*, https://www.trendmicro.com/vinfo/us/security/news/cybercrime-and-digital-threats/malvertising-when-online-ads-attack (accessed on 08 February 2018). [98]

Turow, J. et al. (2009), "Americans Reject Tailored Advertising and Three Activities That Enable It", Vol. 9, http://dx.doi.org/10.2139/ssrn.1478214. [100]

Tversky, A. and D. Kahneman (1981), "The Framing of Decisions and the Psychology of Choice", *Science, New Series*, Vol. 211/4481, pp. 453-458, http://links.jstor.org/sici?sici=0036-8075%2819810130%293%3A211%3A4481%3C453%3ATFODAT%3E2.0.CO%3B2-3 (accessed on 06 July 2017). [73]

Tversky, A. and D. Kahneman (1974), "Judgment under Uncertainty: Heuristics and Biases", *Science, New Series*, Vol. 185/4157, pp. 1124-1131, http://links.jstor.org/sici?sici=0036-8075%2819740927%293%3A185%3A4157%3C1124%3AJUUHAB%3E2.0.CO%3B2-M (accessed on 08 August 2017). [71]

Tversky, A. and D. Kahneman (1973), "Availability: A Heuristic for Judging Frequency and Probability", *Cognitive Psychology*, Vol. 5, pp. 207-232, https://msu.edu/~ema/803/Ch11-JDM/2/TverskyKahneman73.pdf (accessed on 15 February 2018). [121]

TYPES (2015), *Project Purpose – Types Project*, http://www.types-project.eu/about-types/projectpurpose/ (accessed on 09 February 2018). [108]

United States Senate (2014), *Online advertising and hidden hazards to consumer security and data privacy*, https://otalliance.org/system/files/files/resource/documents/report_-_online_advertising_hidden_hazards_to_consumer_security_date_privacy_may_15_20141.pdf (accessed on 08 February 2018). [96]

Whitener, M. (2015), *Cookies Are So Yesterday; Cross-Device Tracking Is In*, iapp, https://iapp.org/news/a/cookies-are-so-yesterday-cross-device-tracking-is-insome-tips/ (accessed on 15 February 2018). [15]

Xia, L. and K. Monroe (2004), "Price Partitioning on the Internet", *Journal of Interactive Marketing*, Vol. 18/4, http://dx.doi.org/10.1002/dir.20017. [59]

Yang, S. and A. Ghose (2010), "Analyzing the Relationship Between Organic and Sponsored Search Advertising: Positive, Negative, or Zero Interdependence?", *Marketing Science*, pp. 1-22, http://dx.doi.org/10.1287/mksc.1100.0552. [36]

Yeung, K. (2016), *Twitter brings in $710M in revenue as mobile advertising falls to 86%*, VentureBeat, https://venturebeat.com/2016/02/10/twitter-brings-in-710m-in-revenue-as-mobile-advertising-falls-to-86/ (accessed on 16 March 2018). [41]

Note

[1] Retargeting occurs when a consumer starts seeing advertising for a particular product or service on numerous sites and apps across the web. Consumers can feel like the product or service is "following them" around the Internet. Retargeting can take various forms and can be based on different information, such as search activities, responses to online advertisements, responses to email advertisements, and "clicks", for example (Sloane, 2017[111]).