Online advertising

Series of papers on "Competition and Consumer Protection in the Digital Economy "

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1. Introduction

Online advertising is defined as the various forms of advertising which are delivered through the Internet, both desktop and mobile. There are different types of online advertising: banner advertising, video advertising (either placed before or embedded within a video[1]), search engine advertising and social network advertising. These different manifestations are a consequence of the fast-paced development of the Internet and Internet technologies. An advertising banner which first appeared in 1994 is now regarded as marking the starting point of online advertising. Over the years technological developments in regard to the Internet combined with its increasing commercial use and the rapidly growing number of Internet users worldwide have not only shaped the evolution of online advertising and produced different forms of digital advertising, but also new advertising business models and new market levels and players. Online advertising is now a significant business sector with an estimated global turnover of more than 200 billion dollars in 2017.[2]

This paper first sketches the development of online advertising from a simple banner to the diverse advertising products available today (2. below) and then classifies the most common types of online advertising (3. below). The importance of online advertising as an economic sector is then explained based on turnover figures (4. below) and, finally, current issues of relevance to this sector which may have an impact on competition processes are outlined (5. below).

2. The development of online advertising

On 27 October 1994 AT&T placed the world's first clickable advertising banner on HotWired (now called Wired). This banner, which measured 468x60 pixels, laid the foundation for today's online advertising.[3] AT&T paid 30,000 US dollars for the banner's first three-month run. Estimates suggest that online advertising turnover worldwide today totals 204 billion US dollars and that it has for the first time overtaken linear television spending.[4] The number of people worldwide who have Internet access has also increased – from 16 million in 1995 to 3.9 billion in 2017.[5] This extraordinary increase in turnover is not least down to developments and innovations in the field of online advertising.

A year after the first online ad was placed, advertising agencies like WebConnect began developing

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[1] Known as "in-stream video ads" as distinct from video ads in banners, which are sometimes referred to as "in-page video ads".
[2] See https://www.wuv.de/medien/werbemarkt_2017_online_ueberholt_erstmals_tv
[3] See https://www.wired.com/2010/10/1027hotwired-banner-ads
[4] See https://www.wuv.de/medien/werbemarkt_2017_online_ueberholt_erstmals_tv
[5] See www.internetworldstats.com/emarketing.htm

systems which were able to group websites according to specific target groups, thus enabling tar-
geted online advertising. This formed the basis for what is today referred to as the targeting method,
that is delivering ads (wherever possible) to only specific target groups.

In 1996 DoubleClick (formerly known as the Internet Advertising Network) emerged as one of the
first return on investment (ROI) tools for online banners, making it possible to monitor the success of
ads in real time. Statistics could now, for the first time, be produced for impressions of and clicks on
ads. It enabled businesses to take down, replace or modify ads which were not hitting the mark. This
method also led to the implementation of a new pricing model. Fixed rental charges were replaced
by the cost per impression (CPI) model where a fee is levied each time an ad is viewed.[6]

In response to the drop in click rates on banners shortly after this type of advertising was introduced,
the advertising agency Tripod.com in 1997 launched pop-up advertising.[7] Ads embedded in a new
(pop-up) window were supposed to draw the Internet user's attention back to the ad and, at the
same time, to draw a clearer distinction between the advertiser and the ad on the one hand and the
website on which the ad is placed on the other. However, pop-up blockers became a standard fea-
ture of most web browsers in the early 2000s, leading to the sudden demise of pop-ups.[8]

The operators of the search engine GoTo.com are usually credited with developing the pay-per-click
(PPC) model in the late 1990s. Under this business model, GoTo.com gave advertisers the option of
bidding on placements in its search results. An advertiser had to pay the bid amount every time a
search engine user clicked on the relevant ad. The PPC model also incorporated an auction element:
The more the advertiser was willing to pay per click, the higher up in the list of search results the ad
appeared. PPC and the auction model are both still widely used today.[9]

The fully automated and individualised purchase of advertising space, known as programmatic adver-
tising, gained increasing ground over time. This kind of advertising involves the delivery of ads tai-
lored to the specific user on the basis of available user data. Advertising space is individualised via an
auction process which takes account of the relevance of the advertiser's campaign for users when
the space is awarded to the highest bidder.[10] Yahoo and Microsoft (MSN) were the first to apply this
approach, for which they made their inventory of advertising space available using the opportunities
which targeting opened up. In October 2000 Google then followed suit and launched its automated

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[6] See https://www.adpushup.com/blog/the-history-of-online-advertising
[7] https://www.theatlantic.com/technology/archive/2014/08/advertising-is-the-internets-original-sin/376041
[8] See https://www.adpushup.com/blog/the-history-of-online-advertising, https://blog.hubspot.com/market-
ing/history-of-online-advertising and https://www.theatlantic.com/technology/archive/2014/08/advertising-is-
the-internets-original-sin/376041
[9] See https://blog.hubspot.com/marketing/history-of-online-advertising
[10] See https://de.wikipedia.org/wiki/Programmatic_Advertising

ad program Google AdWords. In addition to search results, the program also shows ads which match certain search terms based on the advertiser's keywords (known as "keyword targeting").[11] The objective was to create meaningful search results for users and show ads which match those search results. In 2008 Google bought DoubleClick, the provider of programmatic advertising, and focused its attention on expanding real-time bidding for advertising space.[12]

Google Analytics, a web analytics tool for measuring site traffic and user behaviour, was launched in 2005. Here a specific HTML code is embedded within the website's source code, allowing site traffic, for example, to be recorded and reported. This information enables companies to place ever more targeted ads on their own and other websites and to optimise their own online marketing.[13]

Social network advertising represented an innovation in online advertising. Facebook, the best-known social network, was launched in 2004. In 2006 it placed the first ads, which took the form of small banners and sponsored links.[14]

In 2007 Google created AdSense for Mobile, allowing advertisers to place ads on mobile devices such as smartphones and tablets. Mobile terminals began gaining ever more ground that same year following the launch of the first iPhone.[15] Technical innovations and the development and speeding up of mobile Internet access also opened up better opportunities for targeting in mobile online advertising. As a result, mobile online advertising steadily became more relevant in the field of online advertising.[16]

Native advertising first appeared on the online stage in 2010, although it was not in fact a new form of advertising. Native advertising refers to the creation of articles or videos (content), for example for news sites or media pages, which provide information content and are not readily identified as advertising. These kinds of articles are supposed to be hard to distinguish from editorial content.[17]

Overall, the above-described developments in online advertising, taken together with the spread of the Internet, have contributed to considerably more services such as maps, translations and much more being available online and being financed partly or even exclusively through advertising. It is

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[11] See https://googlepress.blogspot.de/2000/10/google-launches-self-service.html
[12] See https://de.wikipedia.org/wiki/Programmatic_Advertising
[13] See https://www.golem.de/0511/41605.html and https://googleblog.blogspot.de/2005/11/circle-of-analytics.html
[14] See http://mashable.com/2013/08/15/facebook-first-ad/#Z0IfKx3ZjGqm
[15] See http://t3n.de/news/geschichte-mobiles-internets-537616
[16] See https://gimbal.com/history-evolution-mobile-advertising
[17] See https://contently.com/strategist/2014/03/28/a-brief-history-of-native-advertising and https://blog.hubspot.com/marketing/history-of-online-advertising

not least the business models emerging as a result which help to explain the growth in online advertising turnover.

3. Types of online advertising

Online advertising can be classified according to numerous different criteria, for instance the type of advertising medium (text, image, audio or video) or according to where it is embedded (in a website, pop-up window or another video). The classifications made below are common but by no means the only possibilities. Search engine advertising and display (or banner) advertising are among the most important types of online advertising in practice. Display advertising in social networks and general mobile advertising has recently gained considerably in importance.

Search advertising is the term used when ads are placed alongside search results based on a term keyed into a search engine like Google or Bing. It involves the placement of bookable ads (often text) either in a sidebar to the right of or above the actual (so-called organic) search results.[18] Google's product is called AdWords,[19] Microsoft's Bing Ads.[20] Search advertising is particularly interesting for advertisers because users have already indicated a concrete interest when making their search query, enabling ads to be tailored specifically to a certain group of Internet users. Search-based online advertising is especially suited to enticing users to buy a specific product.[21]

In search advertising, advertising space is generally sold through an auction process. The advertiser bids on a price per click (cost-per-click method, CPC). Search advertising is generally delivered by search engine operators. According to estimates, Google is the market leader in this field in Germany by a wide margin, as it also attracts the most search queries.[22]

Search engine optimisation (SEO) is related to search engine advertising. Advertisers use SEO to get their own website as high on the list of organic results as possible. It covers all those methods which improve a site's positioning in a search engine's unpaid organic results lists.[23] These include optimising the content of individual subpages of a website, incorporating the most appropriate keywords and other metadata, or keeping the volume of data to be transferred when a page is viewed to a minimum.

Display advertising (also known as banner ads) covers graphics, texts, images, animations or videos

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[18] Bundeskartellamt (Federal Cartel Office), decision of 8 September 2015, ref. B6-126/14, para. 9
[19] loc. cit.
[20] See https://advertise.bingads.microsoft.com/en-gb
[21] See Monopolies Commission, Special Report 68, Competition Policy: The Challenge of Digital Markets, p. 61
[22] See, as regards the latter, Bundeskartellamt, decision of 8 September 2015, ref. B6-126/14, para. 9
[23] See https://de.wikipedia.org/wiki/Suchmaschinenoptimierung

which are shown on any website and which can be matched with site content. One widely used form of display advertising incorporates a banner on a website, for example a skyscraper (a long sidebar banner) or a content ad (embedded into a site's content).[24] Because in the past display advertising held fewer opportunities for applying targeting, it was primarily used to boost brand recognition and brand awareness.

Key players in the field of display advertising are those advertisers who want to advertise products and services on the Internet, publishers who make ad space available for a fee, and those who fulfil a function between these two players, in particular intermediary media agencies, marketers, ad networks and ad exchanges. Media agencies tend to support larger advertisers when it comes to designing, placing, evaluating and paying for their ads. As they represent many publishers, marketers bundle advertising space to increase advertising coverage and market it to advertisers and media agencies so as to make optimal use of their ad inventory. Ads are then delivered via what are known as ad servers, which also record the number of clicks or ad deliveries (impressions). In addition to these traditional participants, other players and platforms have emerged which actually enable targeting and real-time advertising in the first place. Although it is hard to draw a clear distinction between them, prominent examples are the supply side platforms (SSPs), demand side platforms (DSPs) and data management platforms (DMPs) which have recently emerged. SSPs help publishers and marketers to better manage free advertising space and to offer it in the form of bundles to several advertisers via an interface using automated procedures. Analogously, DSPs allow advertisers and agencies to purchase advertising space from several providers as part of a bundle via an interface in an automated procedure.[25] DMPs serve to collect, collate and manage those large data volumes which modern targeting methods call for.

Mobile advertising refers to advertising which is specially designed to be displayed on smartphones, that is optimised for a smaller screen and other specific features particular to mobile use. Ads placed on mobile devices as part of an installed app may use additional user data such as location and contact data to adjust and control the delivered ad as required.[26]

Social media advertising covers those advertising activities which advertisers engage in on social media. It includes classic ads placed in social media and influencer advertising. This uses influencers whose blogs, posts and videos appear on YouTube, Instagram or Facebook to drive ad messages. Influencers are people whose comments younger Internet users in particular read and rate highly, and whom advertisers use to deliver their ad messages.

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[24] See https://de.wikipedia.org/wiki/Internetwerbung
[25] See Monopolies Commission, Special Report 68, Competition Policy: The Challenge of Digital Markets, p. 63
[26] See Monopolies Commission, Special Report 68, Competition Policy: The Challenge of Digital Markets, p. 65

4. The importance of online advertising

Online advertising has evolved into a significant economic sector with steadily growing turnover figures, as several studies into online advertising markets and turnover have shown. The studies arrive at different figures for total online advertising turnover, which is most likely due to the different methodological approaches applied and the different types of ads and market players they drew on. Nevertheless, they all identify similar trends, especially in regard to continually growing online advertising turnover.

The analytics and consulting firm Magna, for instance, projected that advertising worldwide will generate some 505 billion dollars in turnover in 2017.[27] For the first time, online advertising has become the highest-grossing sector, with turnover of 204 billion dollars worldwide; TV advertising has slipped to second place. Magna expects mobile advertising, a sub-category of online advertising, to generate turnover totalling 110 billion dollars. Magna expects online advertising turnover to total 7.6 billion euros in Germany, out of 20.5 billion euros advertising expenditure overall.[28]

The market research firm eMarketer expects advertising expenditure in Germany to total 18.4 billion euros in 2017. Online advertising accounts for some 30 per cent, that is around 5.5 billion euros. eMarketer estimates that mobile advertising will generate turnover of 3.2 billion euros, that is more than half of all digital advertising spending.[29]

Statista forecasts online advertising turnover of around 6.5 billion euros in Germany in 2017. It projects that search advertising will represent the largest market segment with 3 billion euros, followed by display advertising.[30]

According to NetzwerkReklame's forecast for digital advertising expenditure, as much as 9.5 billion euros will be spent on digital advertising channels in 2017. This analysis made an addition to the Nielsen advertising statistics to enable projections for the turnover generated by US providers such as Google and Facebook, which do not publish their turnover for Germany. [31]

In terms of individual players, eMarketer forecasts that Google and its products, including YouTube, will generate global advertising income of some 73 billion dollars in 2017.[32] According to this forecast, the social network Facebook will, in turn, achieve 34 billion dollars in turnover worldwide.

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[27] See https://www.wuv.de/medien/werbemarkt_2017_online_ueberholt_erstmals_tv
[28] See https://www.wuv.de/medien/werbemarkt_2017_online_ueberholt_erstmals_tv
[29] See http://de.statista.com/outlook/216/137/digitale-werbung/deutschland
[30] See http://de.statista.com/outlook/216/137/digitale-werbung/deutschland
[31] See http://www.netzwerkreklame.de/digitalspendings2017/
[32] http://www.faz.net/aktuell/wirtschaft/macht-im-internet/prognose-fuer-2017-google-und-facebook-sollen-100-milliarden-mit-werbung-verdienen-14935725.html

Google focuses on search engine and video advertising, while Facebook places its focus on display advertising. Depending on the perspective taken, Facebook's display advertising can also be classed as social media or mobile advertising. According to eMarketer, the fact that Google and Facebook are expanding their market positions in mobile and video advertising plays a key role in this. It also estimates that Snapchat, which recently went public, will generate approx. 900 million dollars through advertising.

5. Current issues in online advertising

Given technical developments and the way in which Google has positioned itself with regard to the mobile Internet, players regard **mobile advertising** as an important issue. This is due to the increasing shift especially when it comes to private Internet use to mobile devices.[33] The web on mobile terminals competes against services delivered via apps, which sometimes offer more and faster options for interacting with a service, or at least that is generally felt to be the case.

In response to this, Google launched **AMP** (accelerated mobile pages) in the autumn of 2015.[34] AMP is an HTML derivative developed specifically to support the creation of websites for mobile devices (mainly smartphones).[35] HTML is regarded as a key Internet technology. Compared to traditional websites which have been optimised for mobile devices or developed using responsive design[36] for use across devices, AMP-enabled documents, according to Google, are loaded significantly faster – even at lower broadband speeds – and are rendered more quickly on those browsers which are most commonly used on mobile devices. From the point of view of online advertising, AMP could help to increase user acceptance of mobile advertising, as it could speed up mobile ad load times.[37] One criticism, though, is that the AMP-enabled delivery of sites via Google's servers could also lead to advertisers being tied to Google.[38] Also, improved load time will mean that AMP-enabled sites will end up with a better Google ranking. The fact that AMP also impacts SEO has thus been criticised.

Google is also currently rolling out a new mobile-first index. In future, preferentially the content of the mobile version of a website, rather than that of the desktop version, will be added to databases

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[33] See, e.g., https://www.adzine.de/2017/11/gfk-halbjahresanalyse-mobile-first-ist-gelebte-nutzungsrealitaet/ as regards the current situation
[34] See https://www.ampproject.org/
[35] https://www.heise.de/newsticker/meldung/Google-will-mobile-Webseiten-beschleunigen-2840240.html
[36] Responsive design describes the process of constructing websites so that the layout can be changed in an ad hoc fashion to suit the specific features of the device being used.
[37] See http://www.campusmedia.de/amp-veraendert-die-digitale-werbung/
[38] https://www.heise.de/newsticker/meldung/Kommentar-zu-Google-AMP-Der-goldene-Kaefig-3657037.html; https://www.theregister.co.uk/2017/05/19/open_source_insider_google_amp_bad_bad_bad/

used to generate search results.[39] This development, which will directly affect Google searches, could have a considerable impact on SEO and thus on a key aspect of online advertising, critics claim.

Advertisers often refer to online advertising platforms like those run by Google and Facebook as **walled gardens**, that is closed platforms or systems on which producers or operators impose user restrictions. It is claimed that walled gardens deny users deeper insights into the platforms.[40] That is why these advertising platforms are less transparent for advertisers, the claim goes, which makes it more difficult to independently measure advertising coverage or impact, for instance.[41] Some claim that data collected during advertising campaigns cannot be exported from these systems[42] and that it will also be much harder to combat ad fraud. In addition, walled gardens are accused of prioritising their own inventory on their own platforms, although that is hard to make out given that the platforms are closed to third parties.[43]

Another topic of debate is the role of **access to data** for the success of online advertising.[44] Some even claim that the value of advertising is now first and foremost the value of the data and that the big platforms have huge market advantages on account of their combining reach with data depth.[45] The Monopolies Commission has pointed out[46] that the concentration of advertising-relevant data in individual companies could create problems. Where the quality and quantity of data increasingly become a fact which is critical for the success of placing targeted advertising, concentration in this field could have considerable competitive feedback effects on the online advertising market. This in particular applies where individual companies have exclusive access to particularly relevant data volumes, for instance on account of interacting directly with users. Network effects could also have a

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[39] https://www.forbes.com/sites/jaysondemers/2017/01/26/what-googles-mobile-first-index-means-for-your-seo-strategy/; https://searchengineland.com/faq-google-mobile-first-index-262751

[40] See https://www.adzine.de/2017/05/walled-gardens-hebeln-das-programmatic-konzept-aus/; https://www.adzine.de/2017/08/walled-gardens-nutzen-nicht-umgehen/; https://www.wuv.de/de-batte/wider_die_walled_gardens_im_digitalen_marketing/die_werbe-branche_im_wuergegriff_der_walled_gardens; https://www.wuv.de/debatte/wider_die_walled_gardens_im_digitalen_marketing/gafa_die_antwort_auf_america_first_darf_nicht_europe_first_sein

[41] See https://www.adzine.de/2017/08/im-irrgarten-der-allianzen/; https://www.wuv.de/digital/facebook_holt_ebiquity_ins_boot

[42] See http://www.absatzwirtschaft.de/ein-gesundes-marketing-oekosystem-braucht-unabhaengige-player-81323/

[43] See http://www.absatzwirtschaft.de/ein-gesundes-marketing-oekosystem-braucht-unabhaengige-player-81323/

[44] For more information on the issue of data access, see Autorité der la concurrence/Bundeskartellamt, Competition Law and Data (2016), http://www.bundeskartellamt.de/SharedDocs/Publikation/DE/Ber-ichte/Big%20Data%20Papier.html

[45] See https://www.wuv.de/medien/warum_vermarkter_ohne_daten_und_eigene_plattformen_ver-lieren_werden; http://www.horizont.net/medien/nachrichten/Buendnis-gegen-US-Digitalriesen-United-Inter-net-Media-schmiedet-Datenallianz-mit-deutschen-Vermarktern-159535

[46] See Monopolies Commission, Special Report 68, para. 161 et seqq.

role to play here.[47]

Ad fraud occurs when computer programs (bots) generate fictitious traffic on websites with embedded ads or automatically generate clicks on banners. In both cases ads are delivered which no-one actually sees and which are then invoiced to the advertiser. Other types of fraud involve the masking of URLs (domains) and the manipulation of sites on which the invoiced ads are not even displayed to users. Ad fraud causes the advertising companies financial losses because they pay for ad delivery although the ads never actually reach the intended audience.[48] The digital market research firm Juniper Research has calculated that ad fraud will cost advertisers a total of 19 billion dollars globally in 2018. This is said to be due above all to the growth in programmatic advertising and the lack of transparency of walled gardens, where closed platforms restrict the flow of advertising performance data and thus make it more difficult or even impossible to control ad delivery.[49]

Brand safety refers to the placing of ads in an attractive environment relevant to the advertiser. In particular, placing real-time ads can lead to ads appearing on inappropriate websites (e.g. political platforms or gambling sites) or in an inappropriate editorial context. This can be detrimental to the advertising message or even harmful to the advertiser's brand.[50] Although pre-bid technologies such as blacklists are already in use so as to rule out certain environments from the outset, things get more difficult when automated booking makes it harder to define an environment as "unobjectionable" per se. There have been calls for fully automated solutions to be able to control programmatic advertising.[51] Against the backdrop of brand safety, Google's and YouTube's advertising clients are to be given more control and transparency as regards which third-party sites are displaying their ads.[52]

An **ad blocker** is a program which runs automatically in the background to ensure that ads placed on websites are not displayed to users. The use of ad blockers has a direct impact on the success of online advertising, to which the advertising industry has responded in various ways. Some advertisers are using technical means to counter ad blockers: website operators simply exclude users who enable ad blockers. On the other hand, the increased use of ad blockers can lead to advertisers not using particularly intrusive ads and developing forms of advertising which users are more likely to accept. This could reduce the incentive to use ad blockers. The debate around ad blocking will likely have a key role to play in future as the new generation of browsers like Google Chrome and Apple Safari will

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[47] See Monopolies Commission, Special Report 68, para. 163
[48] See https://www.internetworld.de/ad-fraud-915239.html
[49] See https://www.juniperresearch.com/press/press-releases/ad-fraud-to-cost-advertisers-$19-billion-in-2018
[50] See https://www.mso-digital.de/wiki/brand-safety/
[51] See http://www.absatzwirtschaft.de/brand-safety-wer-mit-wem-und-neben-wem-wenn-das-werbeumfeld-dem-markenimage-schadet-103717/
[52] See https://www.internetworld.de/onlinemarketing/google/kontrolle-anzeigen-platzierung-google-1206255.html

incorporate ad blocking technology. Google plans to introduce an ad blocker on its browser which is set on by default. Apple has announced that its updated Safari suppresses the autoplay function for videos, which is regarded as particularly intrusive, and ad targeting.[53]

6. Conclusions

Over the course of just 25 years online advertising has evolved from its niche existence into an important economic sector with continuously high growth rates. An estimated volume of between 5 and 9 billion euros in Germany alone indicates how relevant online advertising has now become.

At the same time, online advertising technologies have been continuously developed and refined. Advances made in regard to targeting methods are one example. These have evolved from the classic placement of ads based merely on the respective environment into today's options where highly differentiated criteria and information about specific users are used to place tailored ads. Advertisers bidding for advertising space when a user calls up a site, which can now be done in real time, is another step in this development process. Big players like Google and Facebook have emerged in the course of the process. Possibly also structures which can have an impact on competition in the markets concerned would be worth looking at in detail. They include, first, the consequences for competition of numerous services which tend to be quite technical and are interrelated and which are located somewhere between the two polar opposites which the advertiser and the ad recipient represent. These include options for measuring visibility, collecting data and preventing fraud, as well as services more on the level of the actual marketing and procurement of ad spaces, like SSPs and DSPs. Second, a degree of tension has arisen between the much discussed options frequently termed "walled gardens" which the big players make available and which are apparently highly significant for the market on the one hand and an ecosystem comprising diverse and open technical services made available by various providers on the other. With regard to the aspect of foreclosure, the behaviour of certain providers in response to this tension could be of interest in terms of competition. Also the issue of access to and the processing of data which are crucial for online advertising – especially as regards target group delivery – appears to be highly relevant from a competition point of view.

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[53] See http://meedia.de/2017/06/07/warnschuss-fuer-verlage-apple-und-google-sagen-nerviger-online-werbung-den-kampf-an/