

## ONLINE ADVERTISING – HISTORY, EVOLUTION, AND CHALLENGES

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**Abstract:** *The rise of the Internet was closely followed by the emergence of a new advertising medium – Online Advertising. Its rapid growth owes much to the tremendous advancements of the so-called Advertising Technology or AdTech. The AdTech improvements led to a substantial reduction in the cost of targeting and, consequently, to increased media investments from advertisers. Programmatic advertising, the most technologically advanced form of online advertising, makes use of advanced media trading algorithms, including machine learning. It involves a high degree of technological complexity coupled with a lack of transparency and has many advertisers complaining that it works like a 'black box'. The main technological evolutions that shaped the industry will be critically analysed, with a focus on the effects of this growing technological complexity over the market structure. The emergence of ever-more complex industry algorithms was fuelled by a growing quantity of user data and led to complaints from the general public and, recently, to legal actions against the two companies that dominate the market, Google and Facebook. Following an overview of the settled and ongoing legal cases, we conclude that the impact of the rulings, especially the potential ban on the use of 3rd party cookies, could present a huge challenge for advertisers and completely transform the industry. Non-cookie based solutions will need to be developed, but this could negatively impact the advertisers' results. The Online Advertising industry, as a whole, will need to completely rethink its way of functioning, evolving towards a more sustainable and privacy-respectful business model. Our paper aims to present the emergence of Online Advertising, its evolution in the past three decades, the role of Advertising Technology (AdTech) in shaping the industry's practices and the impact of the legal actions it is currently confronted with.*

**Keywords:** *online advertising, digital advertising, programmatic advertising, online marketing, digital marketing*

**JEL classification:** *M31, M37*

### 1. Online advertising – defining the concept and the relevant markets

Defining what online advertising is is no easy feat. Although industry professionals use this term commonly, the meaning they confer to it varies. This is due to the fact that Online advertising technology evolved in time, following the industry's changes and adapting to its needs, but also due to the decentralized nature of Internet advertising, with regulations arising not from some universally accepted public institutions, but most often from the work of committees comprised of representatives of academia and industry professionals (Goldfarb and Tucker, 2019). Thus, in order to understand the meaning of this concept, the best way to proceed is to start by defining what advertising is and then to delimitate the area and meaning of each form of advertising sheltered under this umbrella – term.

Advertisement can be defined as “the process of calling user's attention to a product or service by way of paid announcements” (Alamo and Kallinikos, 2018). A more specific definition of advertising is the one given by Philip Kotler: “any paid form of non – personal presentation and promotion of ideas, goods and services through mass media such as newspapers, magazines, television or radio by an identified sponsor” (Kotler, 1984). This definition highlights one of the main

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characteristics of advertising: the fact that it requires the use of various media channels to broadcast a message.

Based on the characteristics of the media channel that is used, advertising can be broadly split into online and offline advertising. This is in line with the decisions of the European Commission who had repeatedly stated that, given the specifics of online advertising, it is not a part of the same relevant market as offline advertising (European Commission, 2010, paragraph 6). Online advertising technologies give advertisers access to more precise ad targeting capabilities, which are not available for offline advertising. The pricing mechanisms are also different. This statement is in line with the findings of academic researches, who have shown that, compared with "traditional", offline advertising, online advertising can provide better Return on Investment of marketing budgets (Eymé, Hoffmann and Coste-Manière, 2010). This does not mean, however, that the online and offline advertising markets cannot be used together by the same advertiser or media agency. In fact various the media channels (Internet, TV, Radio, printed advertising etc.) and devices (mobile phone, TV, radio, tablet) all offer advertisers the possibility of reaching the desired outcome and are often used together for a maximum effect. It is worth mentioning that for advertisers what matter is not necessarily the support of the message but the ability to reach the desired audience (Lacomblet and Dané, 2014).

Further pursuing the task of defining the concept, online advertising can be described as: "a form of marketing and advertising which used the Internet to promote products and services to audiences and platform users". This is the definition that we will use in this paper. One can notice that this definition shares many traits with the previously cited definition Kotler gave to advertising (Kotler, 1984). The medium – Internet, is emphasized here as the channel that enables the existence of this form of advertising. We will discuss more about the characteristics of Internet advertising compared with "traditional", that is offline, advertising, in a future section of this paper.

Although the advent of online advertising is blamed for a decrease of ad revenues for printed newspapers, which indicates a substitution effect between online and offline advertising markets (Athey, Calvano and Gans, 2013; Pigeat and Paracuellos, 2006; Borsenberger, Muller-Vibes, 2019), other studies showed that online and offline advertising are complements rather than substitutes (He, Lopez and Liu, 2015). This means that, although online and offline advertising are separate markets, they are often used by the same advertisers to promote their products and services, most often to the same audiences. Whether Internet acts as a substitute for offline advertising, causing a lesser spending on offline channels, or is in fact a complement to this form of advertising is still a matter of debate among the scholars, given the difficulty to accurately track the switch of users' attention between the two (Goldfarb and Tucker, 2010).

While offline advertising can be further divided based on the material support (Radio, TV, Printed press, Out of Door billboard advertising etc.), online advertising can split into search and display advertising, based on the ad formats used (Ratliff and Rubinfeld, 2010). This is also the position the European Commission considered in the 2008 case of Google acquiring Double Click (European Commission, 2008, paragraph 6). In the same case, the United States' Federal Trade Commission made a similar distinction between search and display advertising, noting that "the advertising space sold by search engines is not a substitute for space sold directly or indirectly by publishers or vice versa" (Federal Commission of Trade, 2007, paragraph 1). One could also argue that the ad intermediation services represent a different, however this distinction has not been thoroughly investigated and the various legal bodies that are involved in regulating the online advertising marketing have not yet given a verdict on the matter market (Geradin and Katsifis, 2019). A case can also be brought forth for further delimitating the online advertising market based on a further refining of the ad formats (Choi, Mela, Balseiro and Leary, 2020), however, for the scope of this paper, only the distinction between search and display advertising will be used.

A sub-section of online advertising, programmatic advertising sits at the crossroads between technology, advertisers and publishers. Programmatic advertising has been defined by the Interactive Advertising Bureau – IAB, as a form of online advertising that: "simplifies the buying and selling

process bringing operational and pricing efficiency by digitally connecting the buyer and seller, enabling the programmatic purchase of ads via trading platforms” (IAB, 2018). This is an industry definition by one of the leading authorities in the field of Internet advertising. It stresses the uses of automation in the process and the expected outcomes: connecting advertisers to publishers, thus connecting the supply with the demand for advertising space and creating the marketplace for this product. For the purposes of this paper we will use the following definition for programmatic advertising, the one given by the European Parliament’s Policy Department for Citizens’ Rights and Constitutional Affairs (2021): programmatic advertising is “the automated selling and buying of advertisements through digital platforms”.

While these definitions that emphasize the role of technology and automation in the process of online advertisement buying are known and understood by the professionals in the industry of online advertising, disagreements arise when trying to map which advertising platforms belong to this category. Based on the definitions of programmatic advertising, Facebook Ads and Google Ads should be considered as belonging to this form of online advertising, (Geradin and Katsifis, 2019). However, based on multiple interactions with industry professionals, Google Ads (previously known as Google AdWords) and Facebook Ads are, in practice, not considered to be programmatic platforms. Given their importance, they are treated as standalone channels, who are outside of the scope of programmatic marketing. Programmatic campaigns are considered to be those who are made via a dedicated programmatic platform (examples: Google Display & Video 360, AdForm, RTB House, The Trade Desk). Although both Google Ads and Google Display & Video 360 are platforms owned by Google that enable the advertisers to create and run dedicated programmatic media buying campaigns, only DV 360 is considered to be a programmatic platform. This is due to the fact that Google DV360 allows the advertisers to enlarge the available ad inventory through access to other, non-Google owned, marketplaces and also because DV 360 offers better campaign automation capabilities.

Many online advertising agencies have separate departments for Google and Facebook ads and for programmatic advertising. Empiric evidence from multiple interactions with Romanian online advertising agencies owners and professionals suggest that a work specialization exists in these agencies. Programmatic advertising specialists usually come from Google and Facebook Ads specialists, but they develop a different skill set and they end up doing exclusively programmatic campaigns. Some industry professionals who run Google and Facebook Ads campaigns also expressed a reluctance to do programmatic advertising campaigns. From their feedback, it seems like they consider programmatic to be a different type of online advertising, one that requires complex skills. The skills needed for running “classic” Google and Facebook ads campaigns are not completely transferable to programmatic campaigns, which means that a learning period is required. As programmatic advertising involves a higher degree of complexity, many of the specialists we have talked to expressed their lack of desire of switching to this form of media buying.

This is important to mention because, as previously noted, Internet advertising is a decentralized technology with no universally accepted regulation bodies. Academic definitions do not always follow the reality of the industry, and a careful attention must be paid to making sure that the papers that investigate programmatic advertising do take into account the practices of the advertising professionals.

## **2. History and evolution of online advertising**

Programmatic advertising is a relatively new technology, being one of the latest in a series of evolutions that happened in the online advertising market. It is the answer to several of the dysfunctions online advertising was confronted with and it can only be properly understood if we look at the changes that this market went through throughout the years.

Online advertising is a relatively new form of advertising, with a history of less than three decades. Its origins are to be found in the rise of a new communication technology, the Internet and the various evolutions and improvements it registered throughout the years closely mirror the evolution of Internet standards and capabilities (Ratliff and Rubinfeld, 2010). As such understanding the evolution

of Internet provides the key to understanding the evolution of online advertising, from its earliest and most basic stage, a mimicking of newspaper advertising business models, to its most recent and technologically advanced stage, programmatic advertising.

Internet began as a project of the United States' Advanced Research Projects Agency Network – ARPANET. A few milestones are worth mentioning: the first email was sent in 1971 and by 1985 Internet was a well-established technology (Leiner et al., 1997) that had ceased to be an army monopoly and was already used for research purposes. However, it was only in 1993 that the restrictions were lifted and Internet was made available to the grand public and for commercial purposes.

The basis of online advertising was laid in the same year, 1993, when Mosaic web browser was launched. Mosaic enabled the display of images and graphics on web pages. Previously web pages were only capable of displaying text content. The creation of this browser offered the first advertisers the ability to use banner ads, which are a mainstay of online advertising. The launch of Mosaic can be considered to be the beginning of Display advertising.

One of the main challenges Internet users faced in the early years was the lack of a reliable way of finding the right information. Users had no way of knowing what kind of content a particular website hosted. In order to access these websites, users had to somehow be informed of its URL address and often these addresses were passed through word of mouth from one user to another. Putting some order into this system was a challenging task and various methods were used. Yahoo, one of the early Internet's giants, employed a "staff of experts" whose task was to analyse and classify the content of websites into a directory, a hierarchical structure that organized content based on subject, geographic distribution and demographics. Although it registered a decline in popularity, Yahoo continues to be one of the leading internet portals, based on the traffic it registers (Statista, 2021). It is worth mentioning that Yahoo is one of the players in programmatic advertising, running a marketplace called Gemini that enables advertisers to buy ad space on websites such as AOL properties, ESPN, ABC News, Apple News and MSN. Yahoo claims to generate more than 60 billion ad impressions monthly and it is, as such, a major player in programmatic advertising.

A different approach was taken by Google's founders, Larry Page and Sergey Brin. While studying at Stanford University, the two began working on a research project that completely changed the way Internet works. The algorithm they developed drew heavily from the way academic works are graded. While it is not in the scope of this work to explain how Google's algorithm works, we will mention that its most basic principle is that of a public library, that indexes and classifies the content of each website (which can be equivocated to a book). The same way more a book or a scientific article is cited, and more the citations come from prestigious publications, the book is considered authoritative, a website that is quoted by other, high authority websites will be considered as being a very relevant resource and has a higher chance to be featured in the top results of a Google search query (Redding, 2018). This has opened another form of internet advertising, which is search advertising.

When the first advertisement was shown on the Internet is a topic of ongoing debate. Two versions are most commonly brought forth. One would be that the first ad on the Internet was created in 1993 on the Global Network Navigator web portal (Ratliff and Rubinfeld, 2010). A more common version holds that the first banner bought by AT&T on the homepage of HotWired, an Internet magazine (Evans, 2009). Both companies still exist today, which is a testament to the power of Internet advertising: HotWired as Wired.com, a leading technology magazine, and AT&T as the world's largest telecommunications company.

At first, online advertising followed the rules and business practices of traditional offline media. The first online advertisers were recruited from the sales departments of leading newspapers, who brought with them the methods they used. This meant that banners were sold following two main pricing models: either a specific placement on the website was sold for a fixed period (example: a banner on the homepage of the website to be shown for a month to all visitors) or a fixed number of impressions (example: one million impressions of a banner, regardless of the time it took to reach this

number). The later model used a CPM Cost Per Mille – Cost per one thousand ad impressions, pricing model. This pricing model is still used in the online advertising industry (Evans, 2008).

In the following years, various other pricing models were developed. GoTo.com, a search engine launched in 1998, introduced an auction model that enabled advertisers to bid for a certain ad impression. In addition to this, advertisers were charged on CPC – Cost Per Click basis, meaning that they would only pay whenever their ad was clicked by the user. Advertisers would decide how much to bid for a potential click. Multiple advertisers submitted their bids and the platform allocated the ad impression to the highest bidder. This is the so-called “first – price auction” system. However, this system proved instable as advertisers quickly learned how to manipulate the system in order to try and decrease the paid CPC (Edelman, Ostrovsky and Schwarz, 2007).

Another breakthrough arrived in 2000, when Google launched AdWords, its search advertising service. By that time Google was already a leading search engine, and this service would soon become the company’s main revenue source. After more than 20 years after the launch of this product, Google Search ads still comprise more than half of Google’s revenues (The Verge, 2022). While in the first 2 years Google sold ads on a CPM basis, with fixed prices depending on the placement of the ad, in 2002 AdWords got a major update, which meant a switch from the CPM model to a CPC – Cost per click model. Although outside of the scope of this work, we will mention that this inherently led to a conflict between Google’s mission to offer users the most relevant result to their search query and its incentive to allow for more paid ads in order to increase revenues. Google developed a complex algorithm called “The Quality Score” to try and evaluate the relevancy of ads to a given search query while at the same time maximizing revenue (Jahan, Fruitwala and Vyas, 2016).

The origins of programmatic advertising are to be found in the launch by Google, in 2003, of a new advertising service, which was to become Google AdSense, which consisted in the ability of advertisers to buy ads outside of Google’s search results, on various websites on the Internet. A new technology was put in place for this service. While on Google search domain advertisers bided for search queries that users made, on AdSense they bided on the content of the websites where their ads were to be shown. Google’s systems scan and classify the content of a website. Advertisers can choose on what type of content they want their ads to be shown (examples: news, automotive, health etc.). This system is called “contextual advertising” (Choi et al, 2020).

The rise of Google AdSense and, by extension, of programmatic advertising, is due to dysfunctionalities in the buying of online ad impressions. As mentioned previously, the first online advertising professionals came from the sales departments of magazines and newspapers. As in printed media, the online ad inventory was at first sold through direct negotiations. This meant that the sales teams of publishers negotiated with the marketing teams of advertisers directly, most often over the phone, and the campaigns’ implementation was done manually (Crain, 2019). The process was slow and cumbersome, it implied that the advertisers had to reach out to the relevant publishers, agree on the deal’s terms, send the material (banners) to be implemented and make sure that the instructions included in the Insertion Order were respected. Additionally, in the early years of online advertising, there was no way to accurately check whether the number of impressions that was agreed upon and paid for was actually delivered by the publisher. Larger projects that involved displaying ads on dozens, if not more, websites were a real headache for media agencies and individual publishers did not have enough visitors to ensure a good audience coverage. In addition, negotiating with multiple web editors took a lot of time as the implementation of the campaigns was made difficult by a lack of standardization (example: banner sizes varied widely, each publisher had its own requirements regarding what kind of products/ services could be promoted on their website etc.).

On the editors’ side, selling the online ad inventory was no easy feat. The editors’ sales team would contact the advertisers to propose them to buy their ad space, however, as Internet adoption grew and with it the traffic to websites, only a small fraction of ad space could be sold this way (Google white paper, 2010). Although these direct deals did, on average, yielded a higher CPM for the editor, the low fill rate meant that the revenues were low. In order to streamline the process and increase the revenues for editors, specialized companies known as “Ad Networks” emerged. This

advertising networks aggregated the ad space offer, introducing multiple, related websites into “bundles”. These bundles were proposed to advertisers which allowed them to simplify the ad buying process and to better cover their target audience (Ouakrat, Beuscart and Mellet, 2010). Their work also contributed to the aggregation of the demand for ad inventory. Instead of having each publisher sell directly his ad inventory to the advertiser, ad networks conducted negotiations on the behalf of multiple publishers and sold volume in bulk. Ad networks’ success depended on the quality and reach of the websites’ inventory they managed and on the ability of their sales teams to conclude favourable deals. In practice, ad networks often bore the brunt of the market dynamics, as advertisers insisted on obtaining the lowest price possible while publishers wanted to sell their ad inventory as expensive as possible. We should add that ad networks exist to this day, including in Romania (examples: Internet Corp, ZYX Group).

A related model is the one in which bigger online publishing groups “transferred” their sales team to online advertising and created integrated, in-house ad networks that sell the whole inventory of the group to the advertisers. Such publisher ad networks are: Ringier România, PRO TV România, Antena Group. From discussions with industry leaders we have learned that sometimes they purchase or create from scratch new content websites that will be integrated into their ad network, in order to be able to offer advertisers specific, valuable audiences. This leads us to a defining trait of the online advertising market: that advertisers indirectly subsidize the content creation by publishers in order to be able to tap into a mass of relevant users.

Although ad networks did improve the fill rate of publishers’ ad inventories, many ad spaces were still left unsold. In their ever growing quest for revenues, publishers looked for alternatives, for other demand sources that could help increase their fill rate and revenue. The answer came from Google AdSense which is, in fact, one of the world’s largest ad networks. The success of Google AdSense came from the fact that it promised to fill 100% of editor’s ad space including, if needed, paid self-promotion of Google products. Initially editors only sold ads on less visible, “tier B” ad placements, as they reserved the most sought-for, premium ones to direct deals or to ad networks’ clients. This was due to the fact that the RPM – Revenue Per Mille that AdSense generated was lower than what was sold directly. However, as the competition among online media outlets increased and the market fragmented further, advertisers began to earn the upper hand (Ouakrat, Beuscart and Mellet, 2010). This has led to a decrease in the RPM publishers were able to obtain from direct deals and ad networks alike. Concomitantly, as the budgets the advertisers invested in Google Ads increased, the RPM web editors derived from AdSense also improved, which made this solution more attractive.

The websites that join Google AdSense’s network are part of the so called Google Content Network – GCN. A snowball effect began, in which, as more and more publishers joined GCN and the available inventory increased, more and more advertisers began buying online media space through the network, as campaigns’ implementation was simplified. The revenues from Google AdSense led to a decrease in entry barriers online publishers, meaning that websites were created specifically with the aim of generating revenues from AdSense (Chen and Chen, 2010). In addition to this, the technical advances implemented by Google meant a higher degree of ad targeting precision was obtained, which in order led to increased Return On Investment for advertisers. This incentivized them to spend ever growing budgets on online marketing, specifically through Google’s advertising products. Mathematically, more and more revenue flew into the publishers’ coffers and Google AdSense grew rapidly.

The advent of Google AdSense signalled the rise of programmatic advertising. AdSense is de facto a programmatic advertising platform, although this is not always the case in industry professionals’ perception. The platform automated the trading of ad space. No direct interaction is needed between the advertiser and the publisher when using AdSense. Ad space is bought and sold automatically, through complex mathematical algorithms, at scale and in a fraction of a second. The inventory is traded in real-time. It is the advertising technology, the so-called “AdTech” that enables this process and creates the marketplace for the ad space, similar to a commodities exchange.

Other programmatic platforms were created following the footsteps of Google's success. Google created various AdTech solutions for both publishers (Google AdManager, formerly known as Google DoubleClick for Publishers or DFP) and for advertisers (Google Display and Video 360, formerly known as DoubleClick Bid Manager or DBM). Independent players created new programmatic platforms, such as The Trade Desk, AdForm, RTB House, Criteo etc. The level of complexity of the technology used increased accordingly, as the various platforms created algorithms for optimizing the ad trading process. The algorithms further helped increase the automation of the market. New programmatic platforms looking to earn new clients from the established ones strived for differentiation through the integration of the whole media buying process, promising one-stop platforms for all the needs of the advertisers (banner creation, campaign implementation and optimization, results tracking and reporting). This degree of complexity made it increasingly difficult for industry professionals to fully understand how the algorithms work, especially since, as these are proprietary technologies, a high degree of opacity is maintained by design.

In the closing remarks of this section we will note that the rise of Google was not without frictions, which we will detail further down this paper. Google's dominance of: (1) search market, (2) display market through Google AdSense and (3) advertising technology used for creating the marketplace led to questions about possible abuses. This situation, although decried for years by industry professionals, has only recently gained the attention of policy makers (Geradin and Katsifis, 2019).

### 3. Current challenges

The challenges that the online advertising market currently faces can be broadly split into two categories: legal actions by various state entities that investigate the high market concentration and the de facto triopoly structure of the market (consisting of Meta, Google and Amazon) and technological regulations that threaten the way the industry collects, analyses and uses the users' data (especially the stringent regulations imposed by the General Data Protection Regulation which could effectively ban the use of third party cookies). As such, the industry's future is at a crossroad, since the results of the legal actions, especially the ban of the third party cookies, could completely change its way of functioning.

Google has been facing legal actions against its alleged monopoly of the ad intermediation market, both by the European Commission and the State of Texas. The investigations aim at shedding light onto the workings of the company, especially allegations of collusion and fraud. The ongoing legal battle includes inquiries into the so-called "Project Jedi Blue", an alleged quid pro quo agreement between Google and Meta. It is claimed that Google agreed to offer Meta privileged access to its ad network, including premium ad placements and undue real-time bidding auction advantages. In exchange, Meta agreed to not develop its own ad intermediation suite, as it could have rivalled Google's suite. While this charge has been recently dismissed by the court (United State District Court Opinion, 2022), the legal investigation continues, with allegations of that Google used its wealth of data and its control of the programmatic supply chain to edge out competitors and disrupt the normal market functioning. Google's alleged market collusion project, baptised "Project Bernanke", made use of the company's exclusive access to statistical data regarding past bids in the company's ad intermediation suite. Thus, Google was able to manipulate the bids, allegedly enabling it to pocket hundreds of millions of dollars of undue fees. Neither the publishers who were to receive the money, nor the advertisers who paid for the advertising space were informed about this secret project. Contrary to terms of the contracts it had signed with the publishers and the advertisers, Google effectively switched from a second price auction model to a third price model, pocketing the bid difference (Horwitz and Hagey, 2021). While the claims regarding an alleged monopolistic behaviour by Google in agreement with Meta have been dismissed, a September 2022 ruling confirmed that the investigation into the workings of the "Project Bernanke" continues.

In addition to this, the European Commission has also opened an investigation regarding possible anticompetitive conduct by Google. The company is alleged to favour its own online

advertising technology and, given its control of the programmatic advertising supply chain, to edge out other advertising technology providers. Given that Google operates the world's most used publisher ad server (Google AdManager) and advertising network (Google Content Network), the company has unrivalled data collection capabilities. It is alleged that Google restricted the access by third parties to the user data it collects, thus acquiring an important competitive advantage. This exclusive data was then proposed to advertisers with the promise that it will improve their campaigns' results and will help them achieve a better Return On Investment (European Commission Press Corner, 2021).

While these investigations could shake Google and Meta's dominance of the online advertising market, it is the regulations arising from the GDPR that will probably decisively change the outlook of the industry. The GDPR full implications are yet to be understood by the market. One of the issues regards the usage of Google Analytics, the world's most widely used Internet tracking tool. According to some interpretations, the use of Google Analytics is illegal under the GDPR, as the data collected from the users could be shared with third parties without the users' explicit and informed consent. Another opinion states that it is not the use of Google Analytics per se that is illegal but the fact that the platform is based in the United States of America and the data flow from the Union European that arises from this fact. The latest version of Google Analytics, called Google Analytics 4, promises to ensure full compliance with the GDPR.

Beyond the use of Google Analytics, the most important result of the adoption of the GDPR could well be the end of the usage of third party cookies. Cookies are the cornerstone of online advertising, as this technology is widely used by every participant in the supply chain to collect data from multiple sources about the Internet users' behaviour. The data is analysed and used for matching the right ad with the right audience. Companies such as Google and Meta collect tremendous amounts of data which they cure and offer, at no cost, to advertisers for their acquisition campaigns. Access to huge amounts of high quality data, most of which comes from third parties (publisher and e-commerce websites) gives these companies an important advantage, in that the campaigns' performance is improved. The issue, as the European Commission's Data Protection Board puts it, is that, up until recently, the users were not informed that their data is collected, sold and used for advertising purposes. While the users do have a say now into who can collect their data and to which purposes it can be used, a recent statement by the European Commission's Data Protection Board strongly recommends the ban of third party cookies. The recommendation does not have, per se, a legal value but the European Commission is currently preparing new laws regulating the Internet, namely the Digital Services Act (DSA), the Digital Markets Act (DMA), the Data Governance Act (DGA) and the Artificial Intelligence Regulation (AIR). The extent to which this recommendation will be taken into account by the regulating bodies is unknown, as are the effects of a complete ban of third party cookies. What we do know for sure is that the rulings of these laws will shape the future of the online advertising industry, forcing advertisers to find new technologies that can replace the current model.

#### **4. Conclusions**

The online advertising market emerged in the early days of the open Internet and quickly adopted the main technological advancements that shaped the Internet. The evolution from the first web browser to the complex media trading algorithms that are used today was largely unregulated, as the Internet was seen as a libertarian place, one where the states' interventions could have a negative impact. While this freedom has helped online advertising grow at a fast pace and become one of the most important advertising mediums, it has also provided a ripe field for abuses. Many complaints regarding the industry's lack of transparency, alleged market collusion and improper use of private data have been heard throughout the years, but it is only recently that the legal authorities have started paying more attention to these subjects. In the meanwhile, the rise of programmatic advertising and its use of complex media trading algorithms made it very difficult to properly assess the market's functioning. The online advertising's future will be thoroughly shaped by the results of the ongoing legal cases, especially by the effects of the new Internet regulation laws which will be adopted by the



European Union. Sitting at a crossroad, the industry must now accept a higher state intervention into its functioning and make the effort to correct its questionable, if not outright illegal, practices.

## References

- Alaimo, C., Kallinikos, J.,(2018): *Objects, metrics and practices: An inquiry into the programmatic advertising ecosystem*. Working Conference on Information Systems and Organizations. Springer, Cham.
- Athey, S., Calvano, E., Gans, J. (2013): *The impact of the internet on advertising markets for news media*. (No. w19419). National Bureau of Economic Research.
- Borsenberger, C., Muller-Vibes, C. (2019): *The Impact of the Internet on the French Printed Media—Is a Cover Price Increase a Good Strategy to Improve Profitability?*. *Revue d'economie politique* 129.6 937-965.
- Choi, H., Mela, C.F., Balseiro, S.R., Leary, A. (2020): *Online display advertising markets: A literature review and future directions*, *Information Systems Research*.
- Edelman, B., Ostrovsky, M., Schwarz, M. (2007): *Internet Advertising and the Generalized Second-Price Auction: Selling Billions of Dollars Worth of Keywords*, *American Economic Review*, 97(1), 242 – 259 .
- Evans, D.S. (2008): *The Economics of Online Advertising Industry*, *Review of Network Economics*, 7(3).
- Evans, D.S (2009).: *The online advertising industry: Economics, Evolution and privacy*, *Journal of Economic Perspectives*, 23(3), 37-60.
- Eymé, D., Hoffmann, J., Coste-Manière, I. (2010): *Internet dope le retour sur investissement du marketing*, *L'expansion Management Review*, 2010(3), 32 – 36.
- European Commission (2010): *Case No COMP/M.5727 Microsoft/Yahoo! Search Business*. Brussels February 18, available at:
- [https://ec.europa.eu/competition/mergers/cases/decisions/M5727\\_20100218\\_20310\\_261202\\_EN.pdf](https://ec.europa.eu/competition/mergers/cases/decisions/M5727_20100218_20310_261202_EN.pdf).
- European Commission (2010), *Case COMP/M.4631 Google/DoubleClick*. ,Available at: [https://ec.europa.eu/competition/mergers/cases/decisions/m4731\\_20080311\\_20682\\_en.pdf](https://ec.europa.eu/competition/mergers/cases/decisions/m4731_20080311_20682_en.pdf).
- European Commission (2021), *Antitrust: Commission opens investigation into possible anticompetitive conduct by Google in the online advertising technology sector*, EC Press Corner, available at: [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_21\\_3143](https://ec.europa.eu/commission/presscorner/detail/en/ip_21_3143).
- European Union's Policy Department for Citizens' Rights and Constitutional Affairs (2021): *Regulating targeted and behavioural advertising in digital services*, JURI committee study, available at: [https://www.europarl.europa.eu/thinktank/en/document/IPOL\\_STU\(2021\)694680](https://www.europarl.europa.eu/thinktank/en/document/IPOL_STU(2021)694680).
- Federal Trade Commision (2007): *Case Google – Double Click merger*, FTC file no. 071 – 0170, available at: [https://www.ftc.gov/system/files/documents/public\\_statements/418081/071220googledc-commstmt.pdf](https://www.ftc.gov/system/files/documents/public_statements/418081/071220googledc-commstmt.pdf).
- Gerardin, D., and Katsifis, D. (2019): *An EU competition law analysis of online display advertising in the programmatic age*, *European Competition Journal*, 15:1, 55-96.
- Goldfarb, A., Tucker, C. (2019): *Digital Economics*, *Journal of Economic Literature*, 57(1), 3-43.
- Jahan, F., Fruitwala, P., Vyas, T. (2016): *A study of Ad auctioning by Google AdWords*, *Advances in Intelligent Systems and Computing* 409.
- Kotler P. (1984): *Marketing Essentials*, Northwestern University. Prentice-Hall, Inc.
- Lacombed, D., Dané, C. (2014): *La substitution ou la co-evolution entre les divers supports publicitaires*, *Annales des Mines – Réalités industrielles*, 3, 40 – 44.
- Leiner, B.M., Cerf, V.G., Clark, D.D., Kahn, R.E., Kleinrock, L., Lynch, D.C., Postel, J., Roberts, L.G., Wolff, S. (1997): *A brief history of the internet*, Internet Society.

- Ouakrat, A., Beuscart, J-S., Mellet, K. (2010): *Les regies publicitaires de la presse en ligne*, La Decouverte, 2(160-161), 133-161.
- Pigeat, H., Paracuellos J.C. (2006): *Les marchés de la presse quotidienne en Europe*. Le Temps des Médias 1 072-086.
- Ratliff, J., Rubinfeld, D.L. (2010): *Online Advertising: Defining Relevant Markets*, Journal of Competition Law and Economics, 1-34.
- United States District Court Southern District of New York (2020): *Case 1:21-cv-06841-PKC Document 209*, available at:  
<https://storage.courtlistener.com/recap/gov.uscourts.nysd.565005/gov.uscourts.nysd.565005.209.0.pdf>.