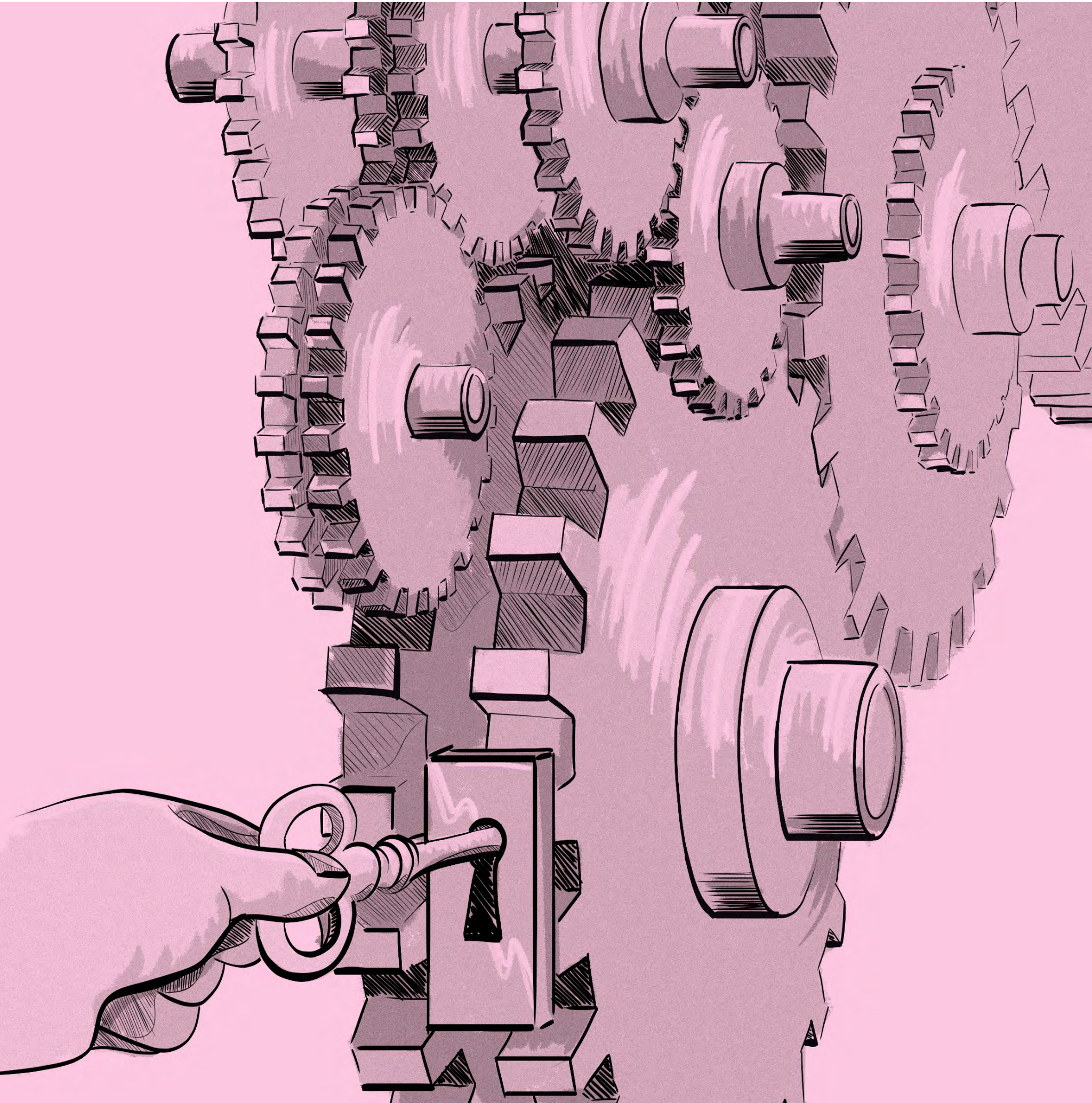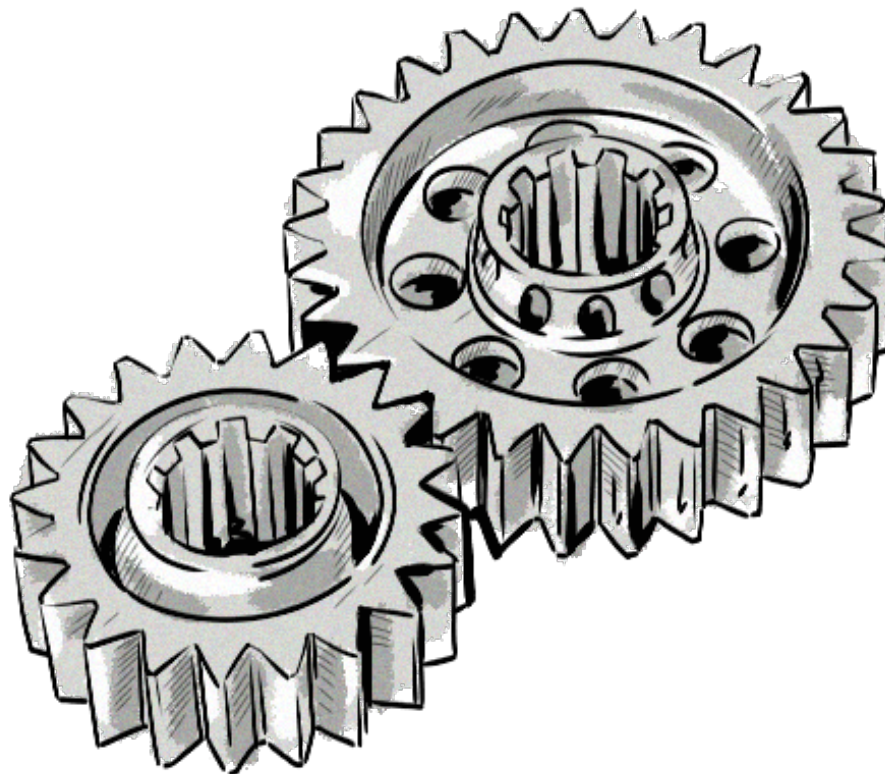# Programmatic and RTB Challenges and Opportunities

Introduction

Programmatic is more than just a buzzword; it's the future of online-media buying and selling. Digital advertising is an exciting and ever-evolving industry comprising of a number of intermediaries and technology platforms.

In this guide, you'll learn about the programmatic landscape, the various ways online media can be purchased, and the different forms of online advertising. We'll also outline the challenges currently facing the industry and highlight the many opportunities that lie latent, ready for the right party to bring them to life and change the online advertising industry.

Table of Contents

The Beginning of OnlineDisplay Advertising

In the early days of online display advertising, the exchange between the advertiser (the brand) and the publisher (the website owner) was a direct sales process. The advertisers would contact the publisher and purchase ad space (inventory) on its website on a fixed cost-per-thousand basis – known as cost per mille, or CPM. This system meant advertisers would pay a certain price for every 1,000 impressions (meaning 1,000 ad views).

The first ever banner by AT&T appeared on HotWired (known now as wired.com) on October 27, 1994.

And if a user **clicked on the ad**, they were taken to this page, known as a **landing page**:

AT&T's landing page for their You Will ad campaign.

The image on the left: The first ever banner ad by AT&T appeared on HotWired on October 27, 1994. The image on the right: AT&T's landing page for their **You Will** ad campaign.

Difficulties emerged when the number of websites, and therefore publishers, began to increase. The once-straightforward direct sales process started to become more complex, unhinged, and drawn-out.

While premium ads — those bought by advertisers directly from the publishers — were still common, publishers soon found that a lot of other available inventory wasn't being filled and fell victim to oversupply.

To counter this problem, technology platforms such as advertising networks started to materialize, providing an easier, more efficient, and more automated way to buy and sell available inventory.

The introduction of ad networks, and the later evolution of other advertising technology, such as ad exchanges, marked the beginning of what is known today as the programmatic advertising landscape.

The Programmatic Advertising Landscape
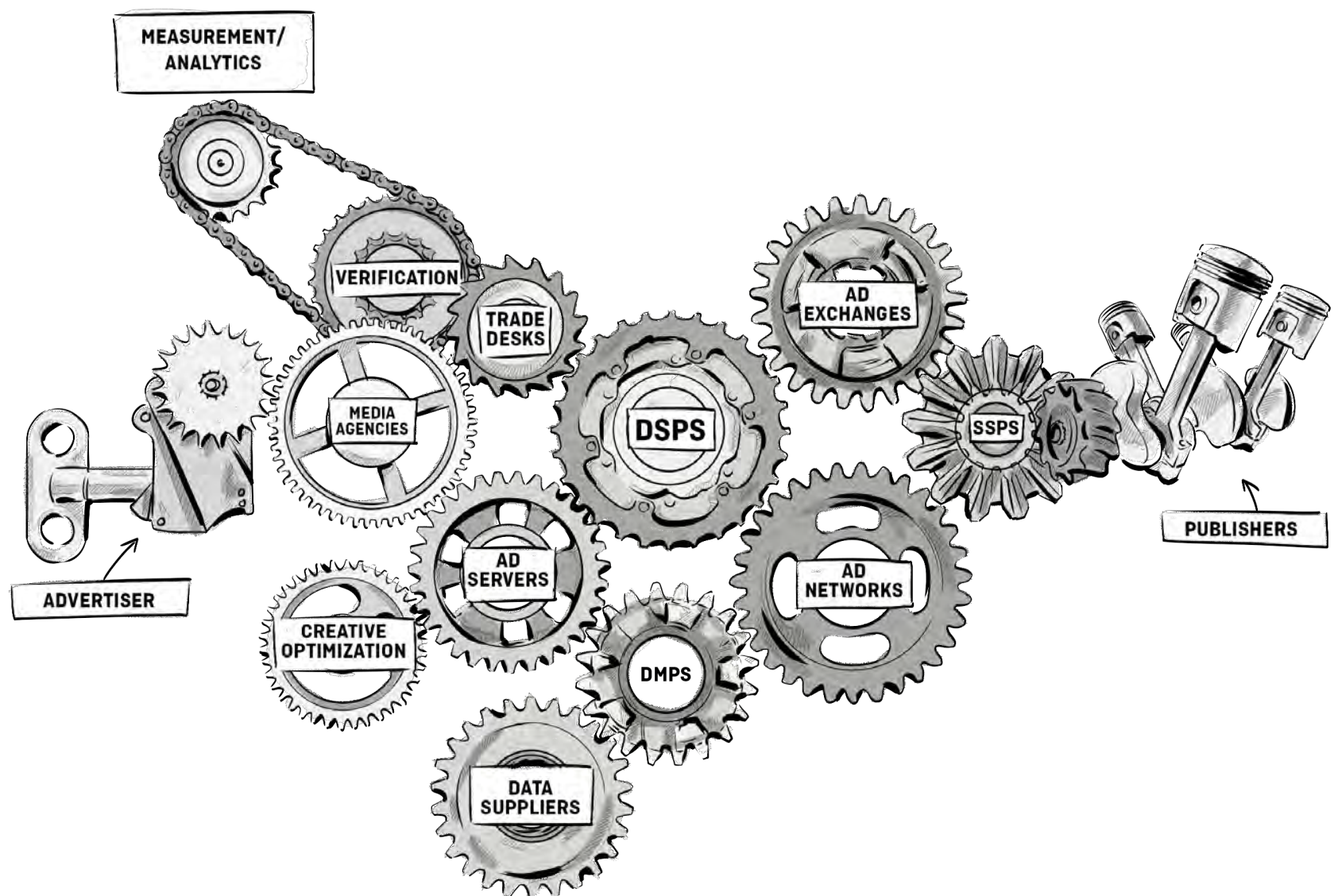
What started out as a close business relationship between advertisers and publishers is now a vast landscape that includes multiple companies and technology platforms.

Media Agencies

Media agencies are responsible for creating, planning, and executing online advertising campaigns for their clients (advertisers and brands).

Ad Servers

These technology platforms host the advertiser's creatives (ads) and assist in delivering them to the publisher. Many ad servers also provide in-depth campaign analytics, such as engagement metrics and conversion reports.

Retargeting

Retargeting platforms are responsible for displaying ads to users who have already searched for or viewed certain products and services. This is a very popular form of advertising and examples of retargeting are a lot more obvious than audience-targeted ads.

Demand-Side Platforms

A demand-side platform (DSP) allows media buyers to connect with various ad and data exchanges through one user interface. DSPs operate similar to stockbrokers, in that media buyers use them to purchase ad inventory from publishers through the ad exchange — just like investors use brokers to purchase stock from companies via the stock exchange.

Data-Management Platforms

DMPs are responsible for collecting, storing, and organizing massive loads of data for advertisers taken from a wide range of first-party, second-party, and third-party sources. This data is stored and pushed through the DMP's software and

undergoes a process called data classification. Each piece of user data is analyzed and put into different categories (also called data taxonomies) in order to build distinct user profiles.

Ad Exchange

Ad exchanges are dynamic technological platforms that facilitate the buying and selling process of available impressions between the advertisers (buyers) and the publishers (sellers).

Supply-Side Platform

The supply-side platform (SSP) is designed to help publishers sell their inventory to multiple ad exchanges and DSPs in an automated, secure, and efficient way. Even though publishers don't need to use an SSP to sell inventory on the ad exchange, the technology it uses offers the most yield from their inventory and helps them gain clearer insights into their audience.

The Rise of Programmatic

Ever since its introduction to the online display advertising ecosystem, programmatic has gone from strength to strength.

Figures from a recent study conducted by eMarketer show that programmatic digital-ad spending in the U.S is set to reach $39.10 billion in 2018[1].

US Programmatic Digital Display Ad Spending 2015-2019

Legend:
- Programmatic digital display ad spending
- % change
- % of total digital display ad spending*
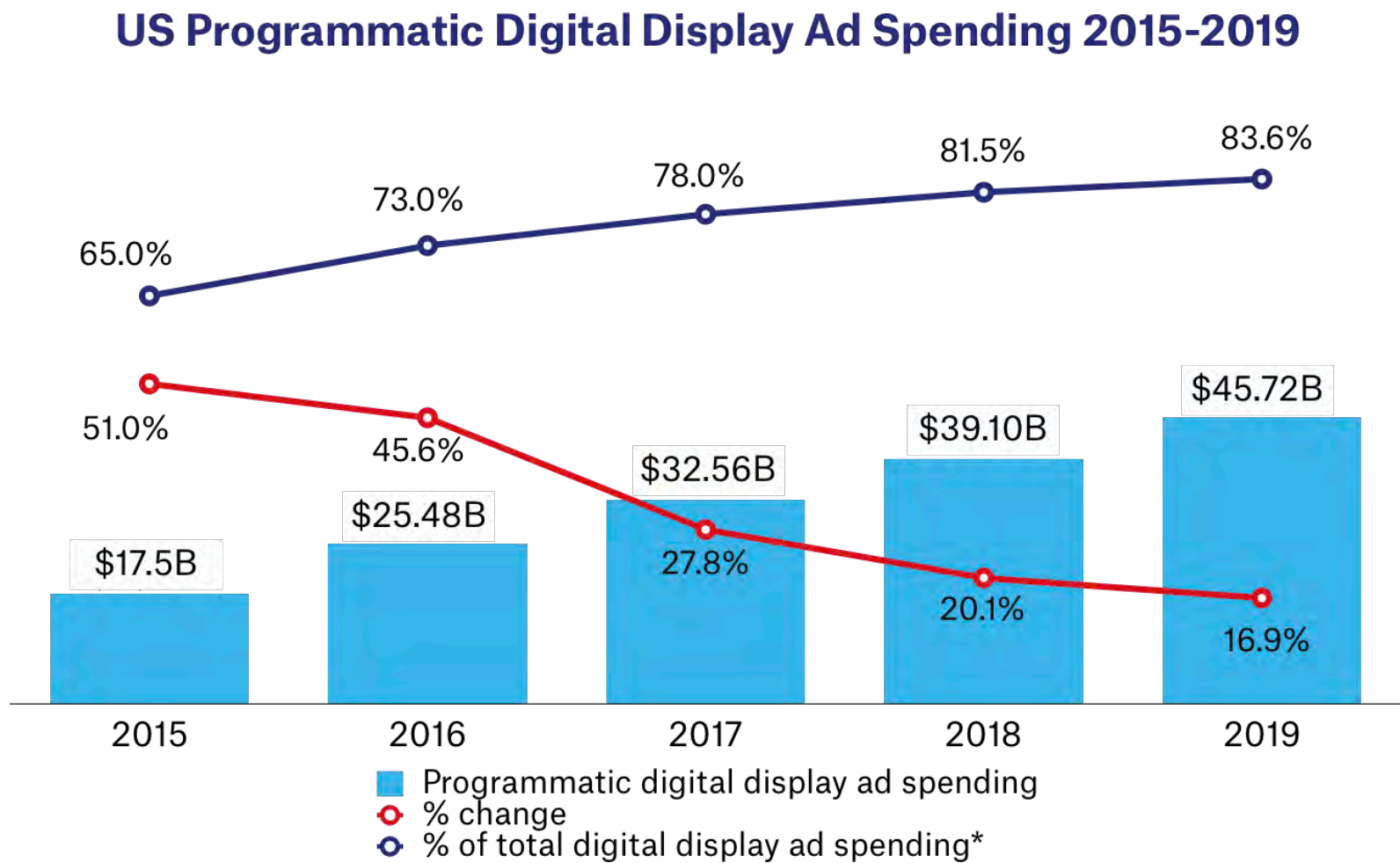
Source: eMarketer Releases New US Programmatic Ad Spending Figures, October 2017, eMarketer.com

[1] https://www.emarketer.com/Article/eMarketer-Releases-New-US-Programmatic-Ad-Spending-Figures/1016698

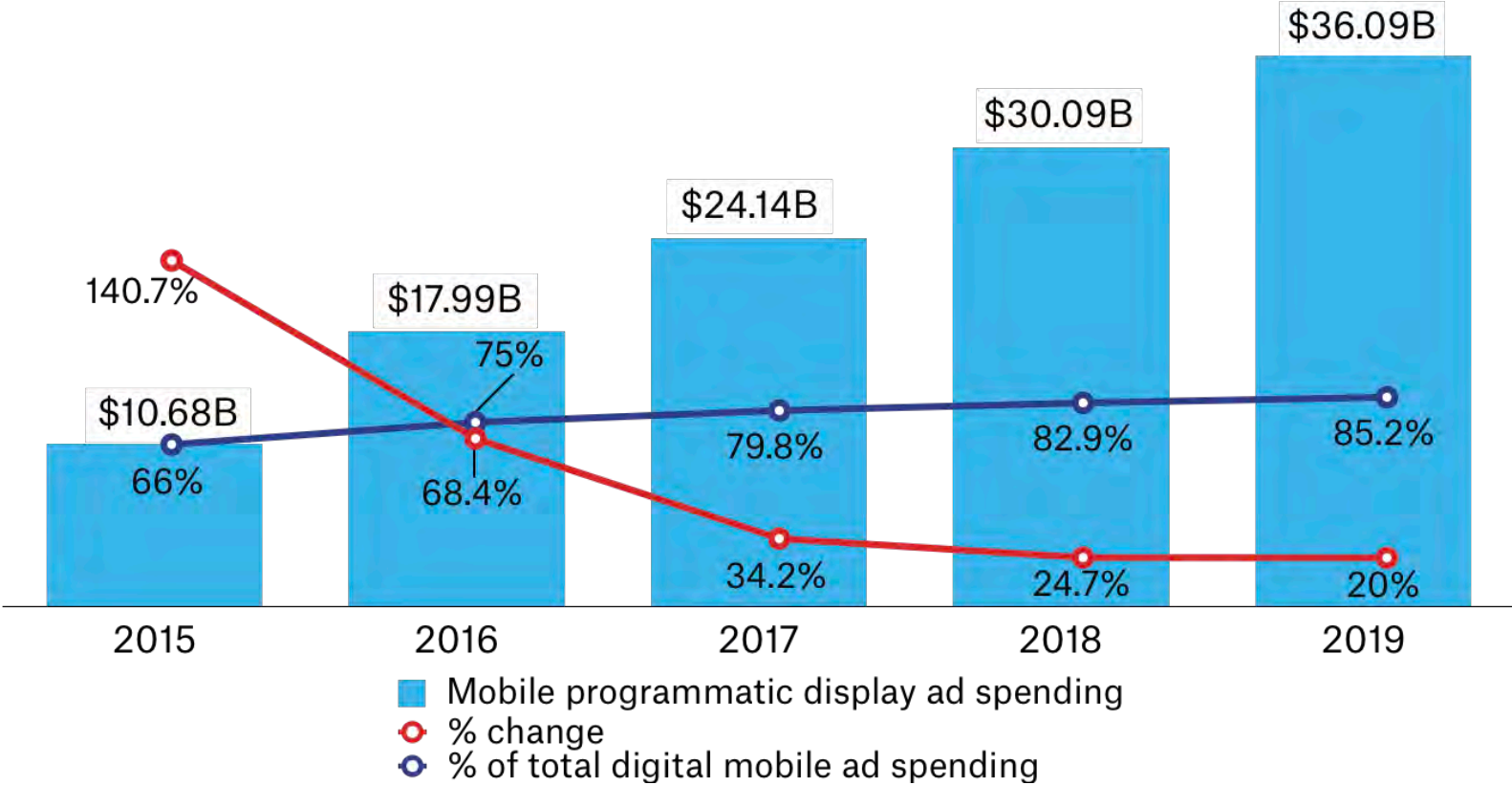The growth of programmatic is also set to spill into other areas, such as mobile, video and television.

US Mobile Programmatic Display Ad Spending 2015-2019

Legend:
- ■ Mobile programmatic display ad spending
- ○ % change
- ○ % of total digital mobile ad spending

Data points:
- 2015: $10.68B, 140.7% change, 66% of total
- 2016: $17.99B, 75% change, 68.4% of total
- 2017: $24.14B, 34.2% change, 79.8% of total
- 2018: $30.09B, 24.7% change, 82.9% of total
- 2019: $36.09B, 20% change, 85.2% of total

Source: More Than Two-Thirds of US Digital Display Ad Spending Is Programmatic, April 2017, eMarketer.com

US Programmatic Digital Video Ad Spending 2014-2018

Legend:
- ■ Programmatic digital video ad spending
- ○ % change
- ○ % of total digital video ad spending

Data points:
- 2014: $0.6B, 238% change, 12% of total
- 2015: $3.0B, 376.3% change, 39% of total
- 2016: $6.2B, 106.3% change, 60% of total
- 2017: $8.7B, 40.1% change, 69% of total
- 2018: $10.7B, 23% change, 74% of total
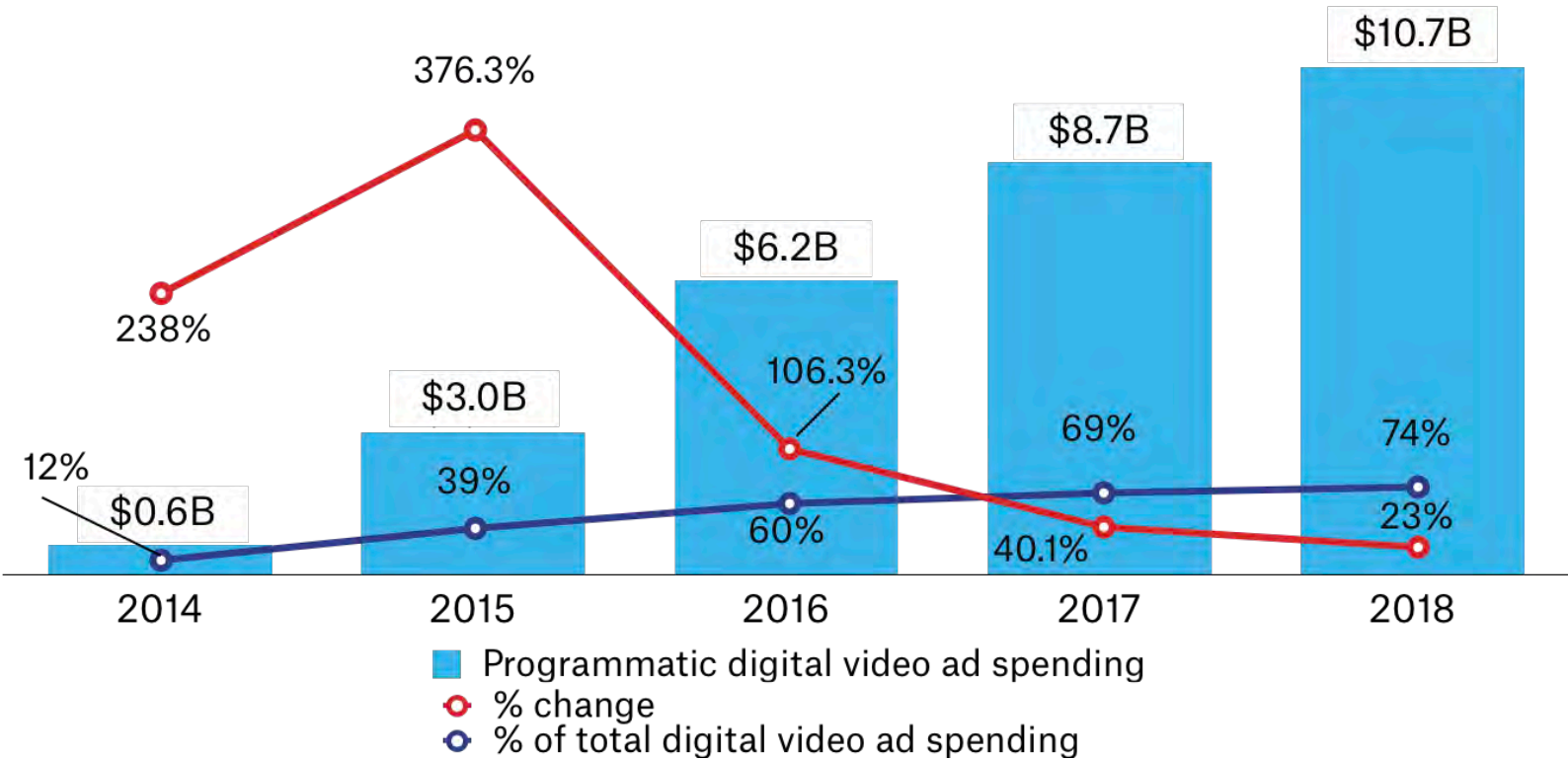
Source: US Programmatic Digital Ad Spending, September 2016, eMarketer.com

US Programmatic TV Ad Spending 2015-2018
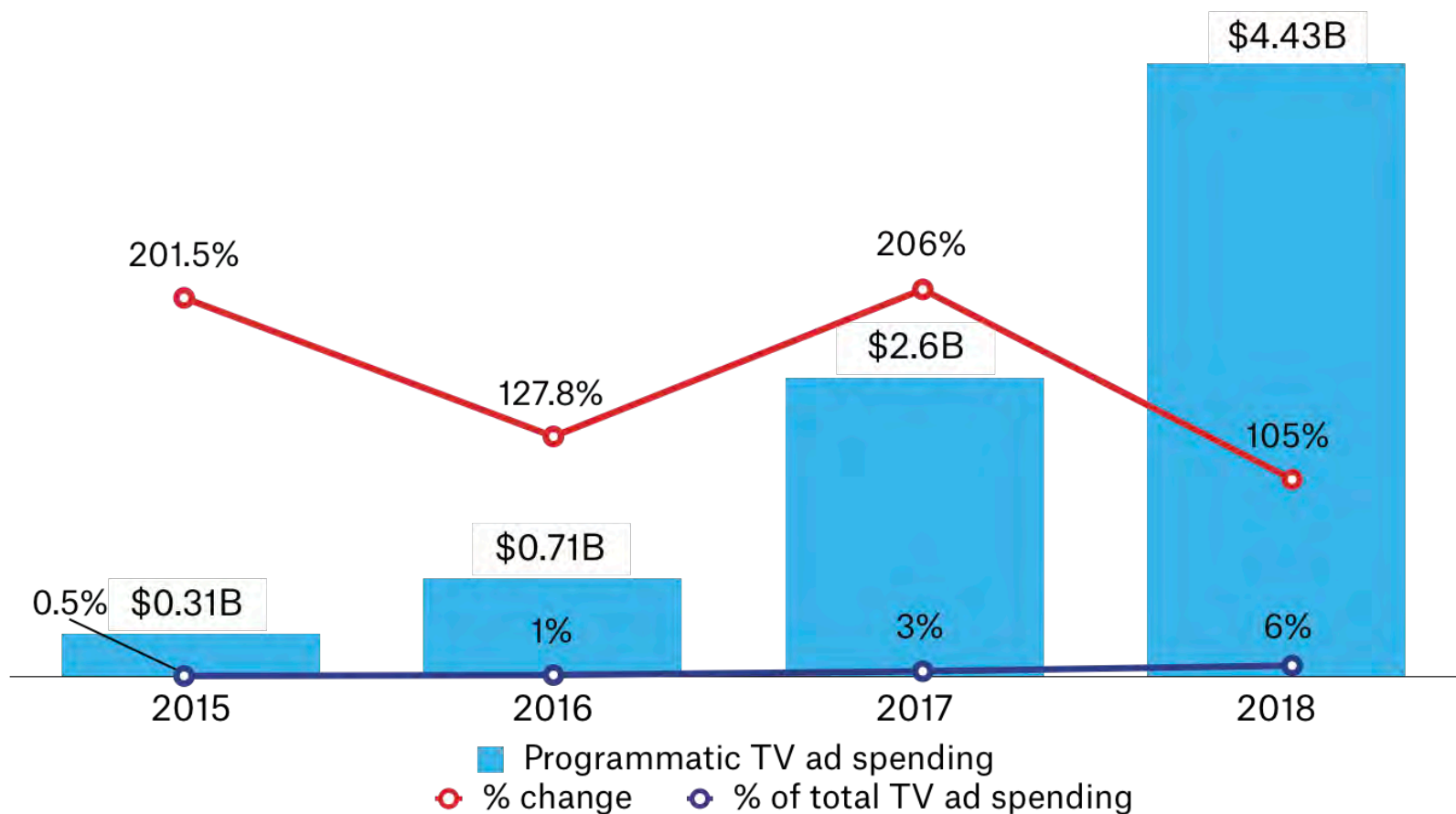
201.5% $0.31B   0.5%

127.8% $0.71B   1%

206% $2.6B   3%

$4.43B   105%   6%

2015   2016   2017   2018

- Programmatic TV ad spending
- % change
- % of total TV ad spending

What is the Difference Between Programmatic and Real-Time Bidding (RTB)?

There is a lot of confusion within the advertising industry about terms such as **programmatic** and **real-time bidding (RTB)**. The fact that they are often mentioned in the same sentence leads to a false belief that they are somewhat interchangeable. However, there is a difference between the two.

Programmatic

Programmatic is an umbrella term which refers to the use of technology, algorithms, and data to buy and sell online media. Programmatic is a concept opposite of traditional manual-insertion orders, whereby advertisers would contact publishers directly to purchase ad space, online or otherwise. This is also known as manual media buying.

Real-time bidding (RTB)

Real-time bidding is a component of programmatic in which advertisers compete against each other for available impressions (i.e. ad space on websites) via real-time auctions that takes place between DSPs and ad exchange or SSP.
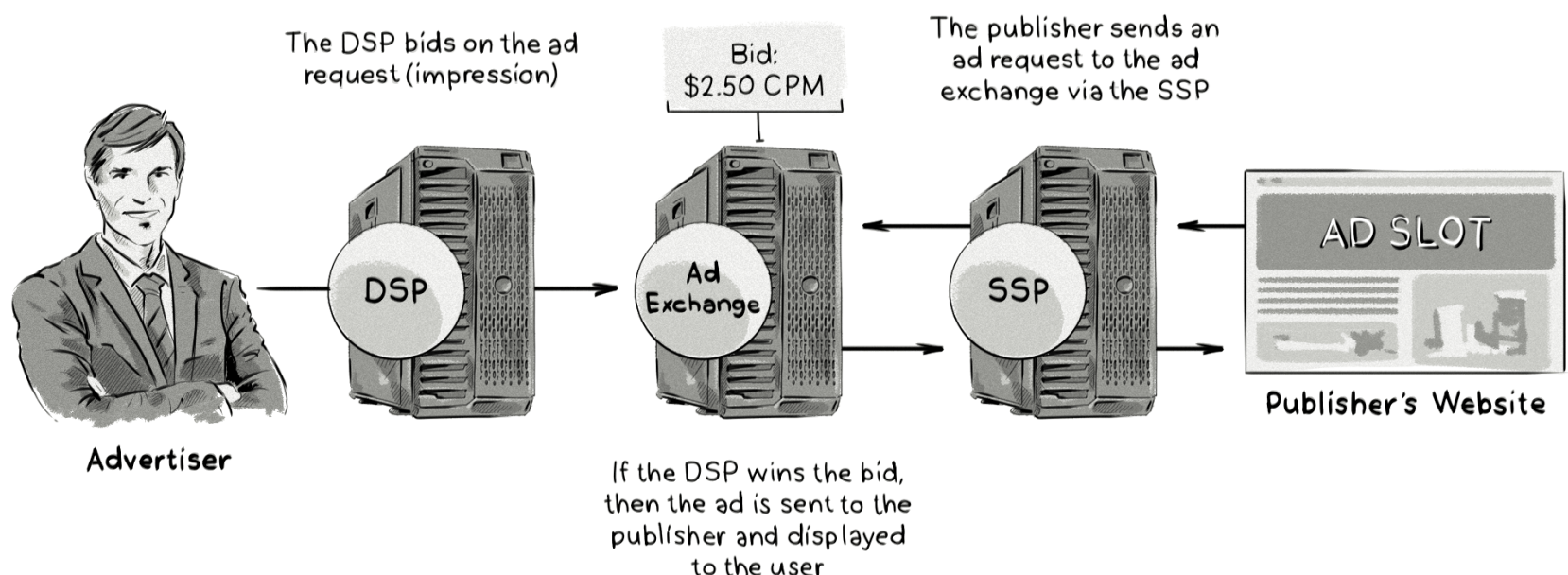
RTB offers a lot of targeting capabilities, uses vast amounts of data, allows advertisers to purchase different types of inventory, and is universally considered the most flexible model on the market.

Billions of ads are served to Internet users on a daily basis via RTB, making it the most popular way to buy and sell online ads programmatically.

A new report from Business Insider[2] found that RTB ad spend is growing fast and is estimated to account for over $18.2 billion of U.S. digital ad sales in 2018. This is an increase from just $3.1 billion in 2013, which translates into an annual growth rate of 42%.

How Does Real-Time Bidding Work?

Even though the auction is essentially between an advertiser and a publisher, there are a number of different platforms involved in the real-time bidding process.

The DSP bids on the ad request (impression)

Bid: $2.50 CPM

The publisher sends an ad request to the ad exchange via the SSP

DSP — Ad Exchange — SSP — AD SLOT

Advertiser

Publisher's Website

If the DSP wins the bid, then the ad is sent to the publisher and displayed to the user

The image above illustrates how real-time bidding auctions are carried out. In reality, there would be many more AdTech platforms (DSPs, ad exchanges, and SSPs) involved in the auction.

2 http://www.businessinsider.com/the-programmatic-and-rtb-ad-report-2014-8

The whole RTB process begins when an Internet user accesses a website. Right from the get-go, the publisher's site sends a bid request to the **supply-side platform** saying there is an impression available.

The supply-side platform analyzes information about the user (location, web history, and, if available, age, gender, and any other user information), then sends this information to the **ad exchange**.

Once the ad exchange receives this information, it connects to **demand-side platforms** and relays information about the user. The **ad exchange** starts an auction, and the **DSPs** then bid on the impression based on what that particular impression is worth to them, determined by predefined parameters set by advertisers.

The advertiser that bids the highest amount wins. The advertiser's ad is then displayed to the user.

This whole process is repeated for every available impression on a web page every time a user accesses a website, a new page, or refreshes the page.

From Selling to Sold in Under 100 Milliseconds

One of the most remarkable facts about RTB is the speed of the auctions; each transaction takes about 100 milliseconds (one-tenth of a second). To put that into perspective, it takes about 300 milliseconds to blink.

Benefits of Real-Time Bidding

RTB has completely changed the online display advertising industry for all parties involved. Apart from the obvious benefits (improved targeting and retargeting, higher revenues on impressions, reduced inventory waste, greater control, etc.), RTB also provides many advantages through the use of real-time analytics:

For Advertisers

Increased Ad Effectiveness: An integral part of any campaign run via RTB is campaign-performance analysis. Analyzing the performance of each campaign through real-time analytics enables advertisers to quickly move their focus from one group of ads to another based on their performance. With RTB, this can be done programmatically, meaning that changes are done automatically by an algorithm without the involvement of humans.

Recognizing Fraudulent Inventory: Ad fraud is a massive concern in the display advertising industry, reportedly taking $6 billion from advertisers each year.[3] Real-time analytics combined with fraud-fighting technologies can assist advertisers in identifying potentially fraudulent inventory – extremely high click-through rates (CTRs) are often a sign of bots at work – and thus reducing the amount of lost revenue to ad fraud.

Campaign Optimization: Another key benefit offered by real-time analytics is the possibility to apply advertising strategies and tactics to campaigns to increase their overall effectiveness. Identifying the performance of a campaign, or several campaigns running simultaneously, in real time enables advertisers to increase the response rates of specific ads by applying certain tactics. By recognizing in real time which audiences and ads are producing the best click-through rates, reach, and engagement, advertisers can take action and change the direction of certain campaigns on the fly.

For Publishers

Increased Revenues: As a publisher's inventory is now available to a large number of advertisers, the number of potential buyers is considerably higher. This results in more inventory being sold and at a higher price.

Optimized Price Floors: Through the use of real-time analytics, publishers can adjust the CPM price floor of their inventory to maximize revenue by analyzing the real prices advertisers are paying for certain audiences. For example, take a travel site that sets a CPM price floor of $1.50. By analyzing the going rate for this audience, the publisher may find that many advertisers are paying a CPM price floor of $1.40. The publisher can then make changes accordingly and start earning revenue that otherwise would have been lost.

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[3]White Ops, The Bot Baseline - Fraud in Digital Advertising

What About Programmatic Direct, Header Bidding, and Private Marketplace (PMP)?

Since the introduction of programmatic media buying and real-time bidding, various other sub-methods of online media buying have emerged, including:

Programmatic direct

Programmatic direct is a one-to-one media-buying process much akin to the traditional method whereby salespeople met with advertisers in person to strike a deal.

It is a very similar model to the private marketplace, with the exception that advertisers and publishers agree on specific inventory based on a fixed CPM. The ad placement process is then handled programmatically.

Advertiser · CPM · INVENTORY · AD SLOT · Publisher

In programmatic direct, the media-buying process looks like this:

- An advertiser browses through a shop-like catalogue of websites.

- They choose placements, and configure flight dates and volume of impressions.

- They configure creatives and additional tracking pixels.

- They place an order on the platform.

- The publisher audits and verifies the campaign.

- The order is executed without additional involvement from the Ad Ops team, except for an audit which they carry out.

Heading bidding

Header bidding is a process in which a publisher makes their inventory available to numerous advertisers, typically via RTB auctions that include supply-side platforms (SSPs) and ad networks connected to demand-side platforms (DSPs), before the ad request is sent to their ad server.
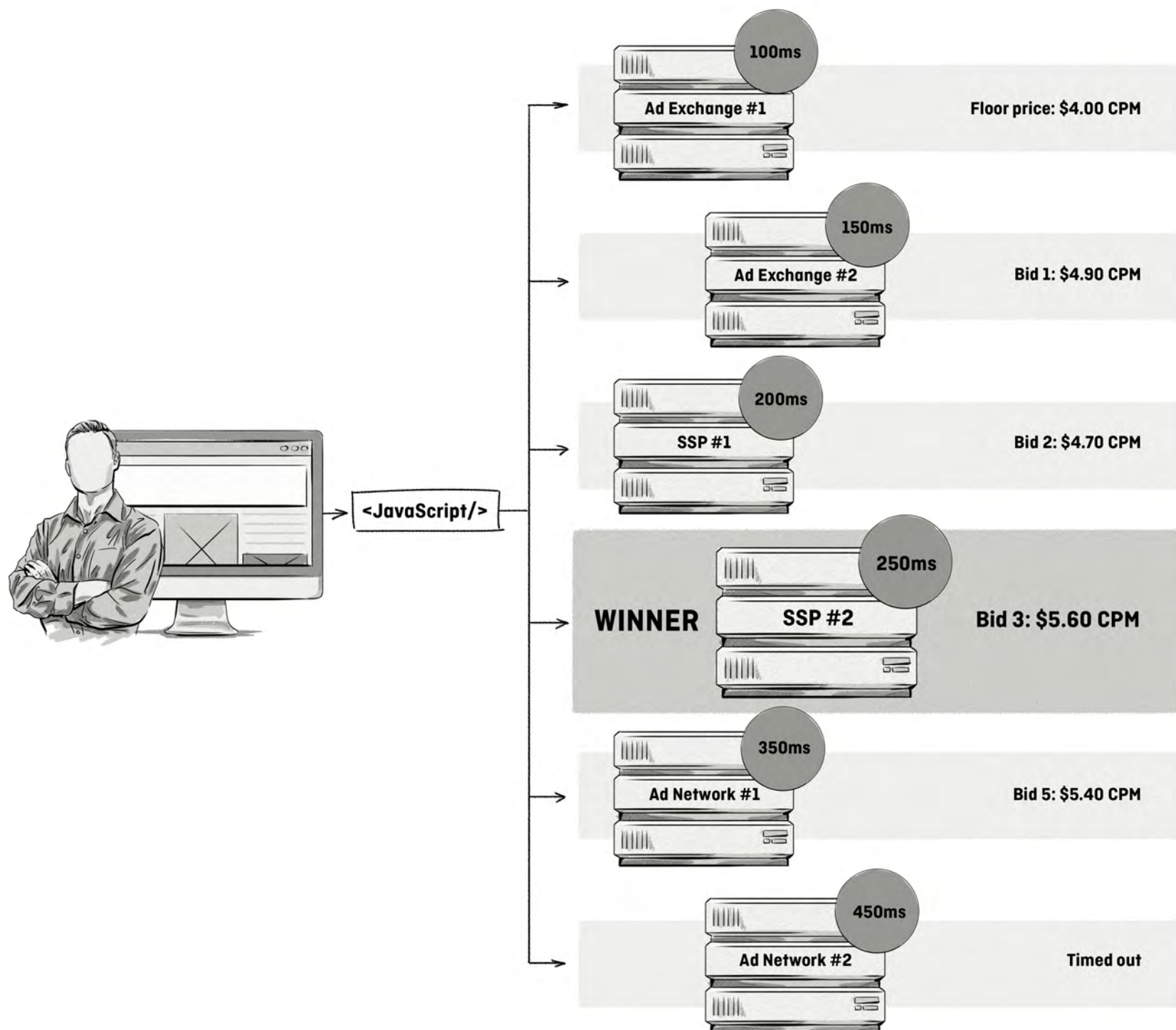
Header bidding is a process

Here's what is happening in the image above:

- A user opens their web browser and types in the publisher's URL (e.g. publisher-abc.com).

- The browser starts loading the page.

- The header-bidding JavaScript code located in the <head> element of the page executes and sends a request to various AdTech platforms.

- Bids from various sources start coming in.

- The highest bidder wins and the ad is served (i.e. displayed on the page).

The process described in the image above is an example of client-side header bidding, but there is also a server-side implementation, which conducts the header bidding-process on a server rather than in the browser.

Private marketplace (PMP)

Private marketplace or PMP for short, is an invite-only variation of the RTB model. It is an auction process in which just a handful of advertisers bid against one another to buy a publisher's inventory. This method is typically offered by publishers with more premium (i.e. coveted and expensive) inventory – think major media sites like Forbes, Wall Street Journal or The New York Times.

Advertisers interested in such inventory can reserve, or guarantee, their ads before the publisher offers them in the open, public RTB marketplace.

Media Channels

Display

Display advertising refers to ads displayed on desktop computers and laptops.

Traditionally, display ads were static (pixel ads) and didn't contain any interactive or dynamic elements. Nowadays, display ads come in a range of formats:

- Static image or animation

- Video

- Rich media ads (containing interactive elements, including animation, sound, and video)

- Overlays, expandables, and other custom ad units (ads that expand when a user hovers their mouse over the ad, or pushes the page content to the side)

The size, shape, and placement of display ads has changed over time. The Internet Advertising Bureau (IAB) regulates the size, weight (file size), frames per second, animation length, and sound settings of videos and animated ads.

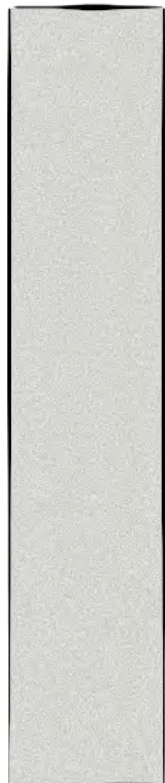For many years before 2017, display ads followed the IAB's main size guidelines:
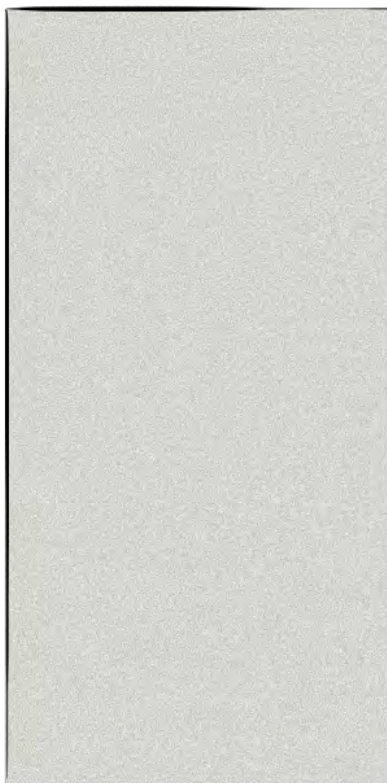
banner
(728 x 90 px)

small banner
(728 x 90 px)

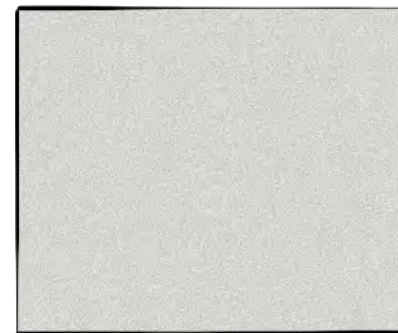**small skyscaper**
(728 x 90 px)

skyscaper
(728 x 90 px)

half page
(728 x 90 px)

mpu
(728 x 90 px)

The IAB has recently published an updated version of the Ad Unit Portfolio which supersedes all the above guidelines. The refreshed portfolio has been enriched with ad units allowing for each creative to adjust to a variety of screen sizes and resolutions.

The new recommended ad units now include ad sizes based on aspect ratio rather than on specific sizes in pixels, and incorporate the LEAN Principles: lightweight, encrypted, AdChoices supported, and non-invasive ads across mobile, display, and native ad formats.
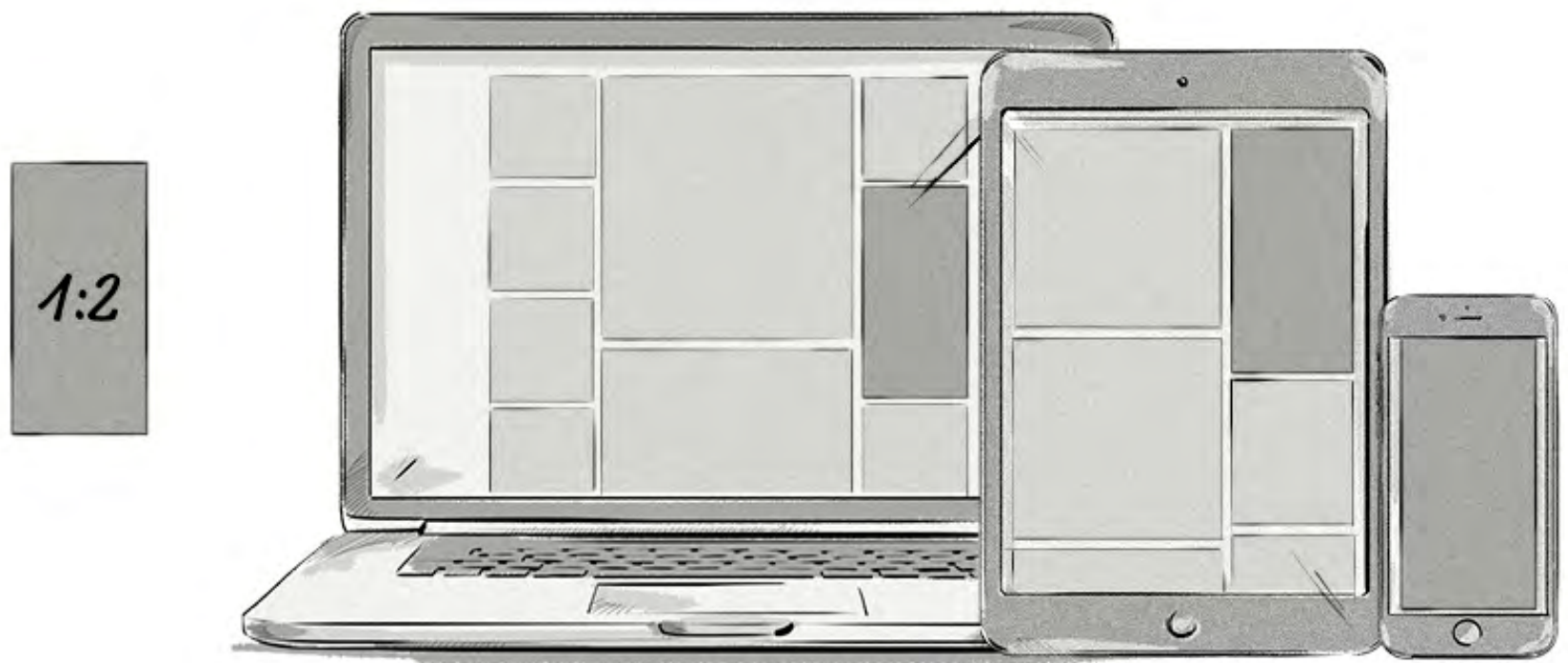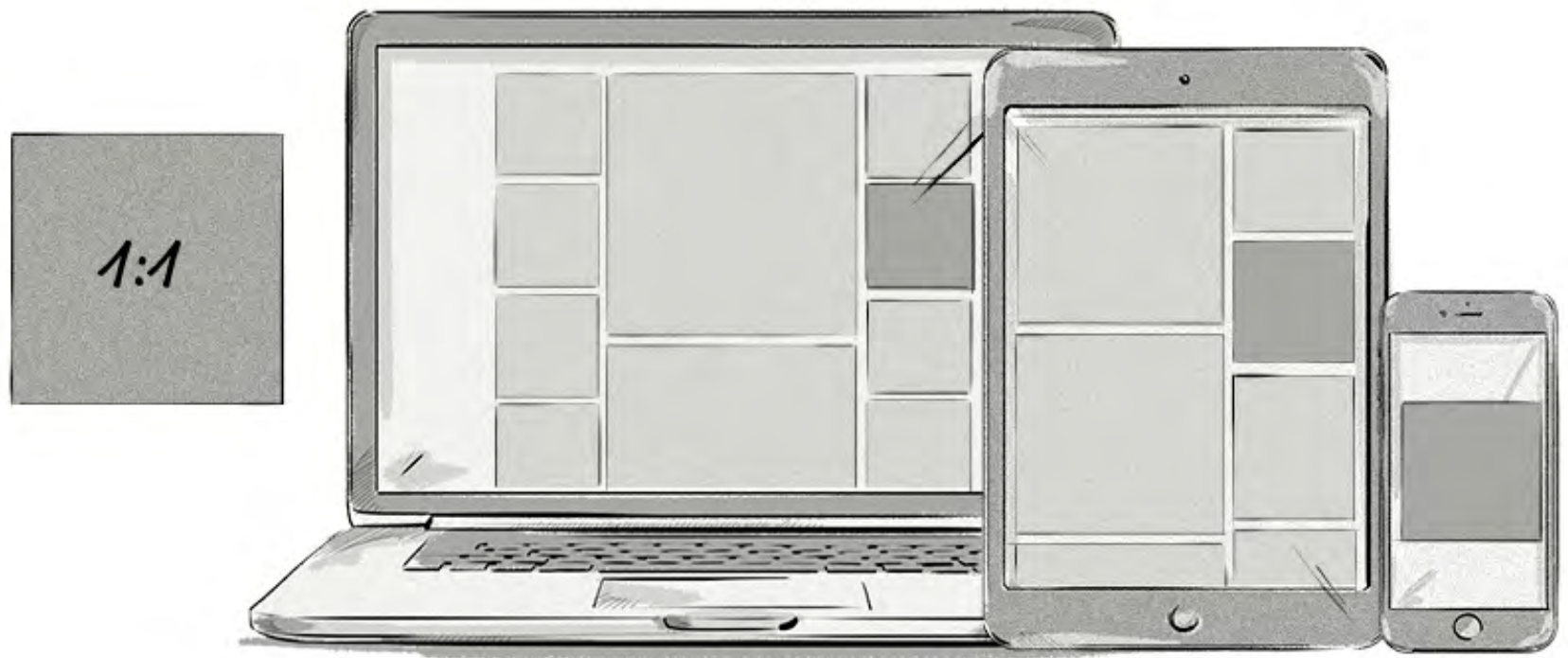
The above images illustrate the difference between ads that have an aspect ratio of 1:1 and 1:2. The current IAB ad formats consist of nine aspect ratios.

Mobile

For many years, display advertising has held the number-one position in online ad spend, but other areas of online advertising are quickly catching up. By 2019, mobile ad spending will rise to $65.87 billion, or 72.2% of total digital ad spend.
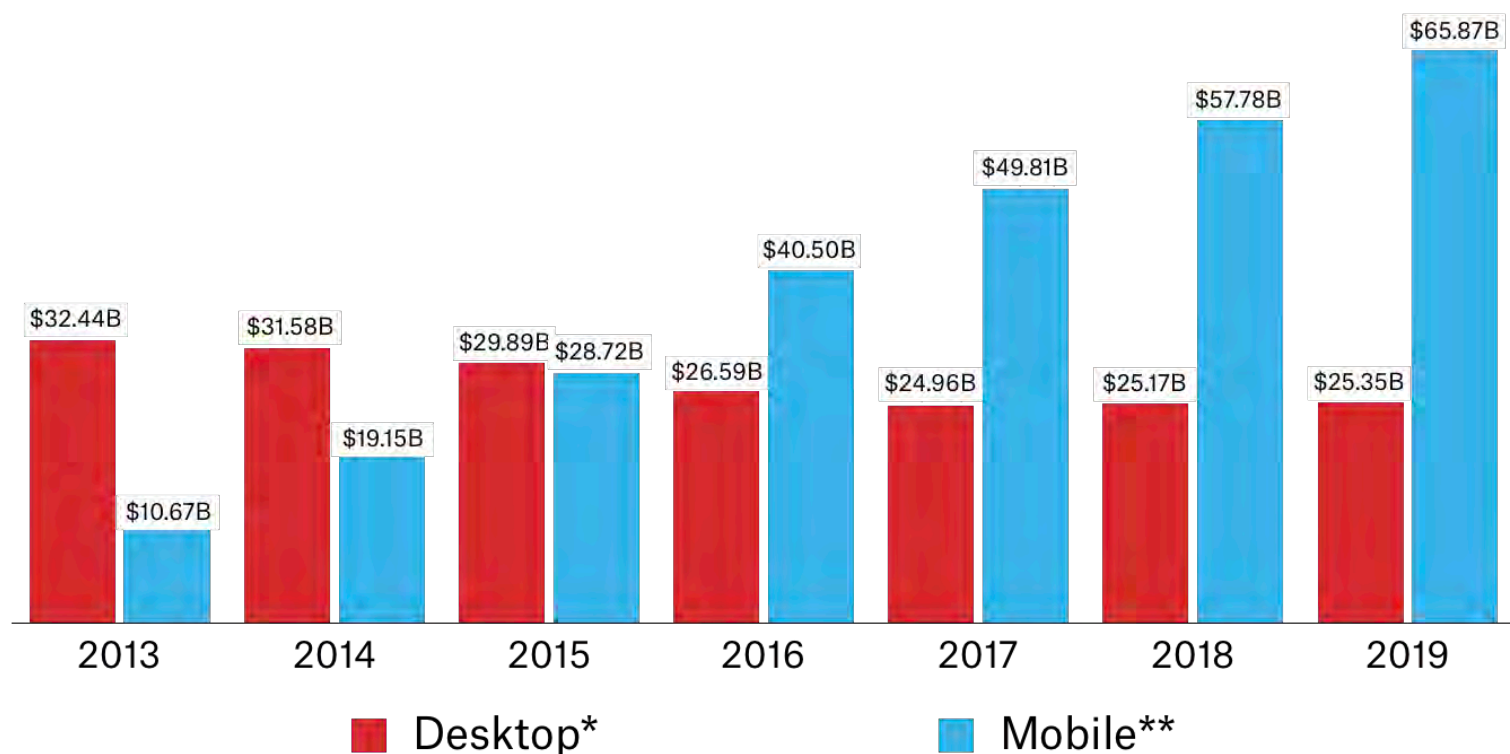
US Digital Ad Spending, by Device, 2013-2019

Source: Mobile Will Account for 72% of US Digital Ad Spend by 2019, eMarketer.com, 2015, www.emarketer.com

Ads on mobile devices are similar to those displayed on desktop devices, but have a slightly different format.

Native

Native advertising is one of the newest forms of online advertising and was created as a way to increase campaign ROI and engage with target audiences in a new way. Ads are made to match the look and feel of the rest of the content on a website. It is designed to blend in to follow the natural form of the user experience.

Ads should match both the **form** (visual design of the site) and **function** of the website, meaning it behaves the same way as natural content. In short, a native ad is not supposed to look like an ad.

Native ads are generally found on content-rich sites, such as news sites, blogs, and social media networks.

Here are some of the most common forms of native advertising:

Recommended content (aka recommendation widgets): You may have glanced over this type before and presumed that it is actually content from the website you're reading. However, the telltale sign is the message above the ads, usually written as, "From the Web" or "Recommended for You."
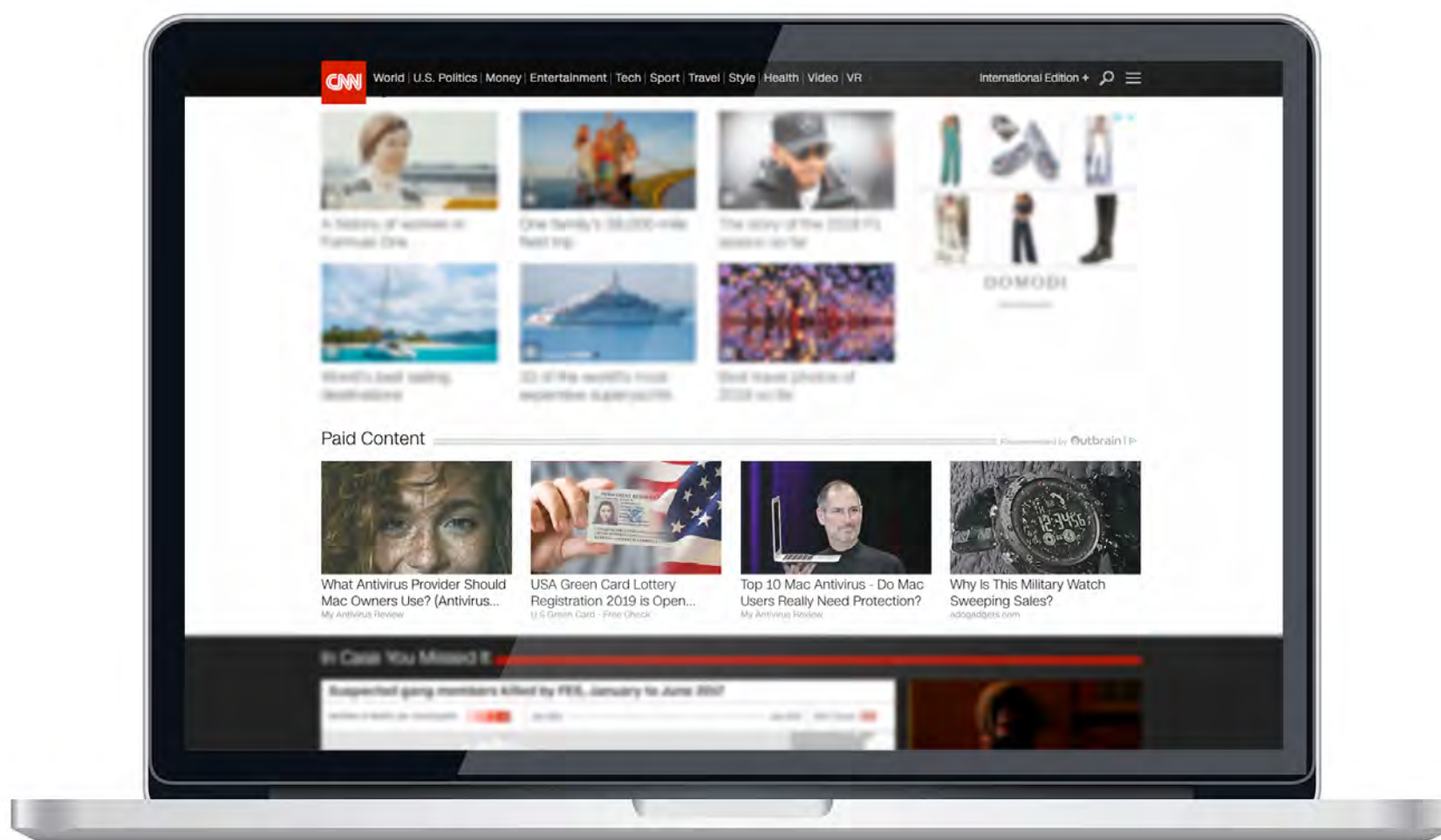
The articles under the Paid Content section are examples of native advertising. They are delivered by Outbrain.

Because this type of ad appears on content-rich sites, the chances of a user clicking through is considerably higher.

Another form of recommended content is paid inclusion (sponsored content/ advertorials) which involves businesses paying to show their content on a news site or blog, and is displayed just like other forms of content on the site.

Image source: The New York Times

The article at the bottom is an example of sponsored content. When the visitor clicks on the article, they are usually presented with the content and displayed an ad asking them to take some sort of action, such as visit the advertiser's site or even purchase a product.
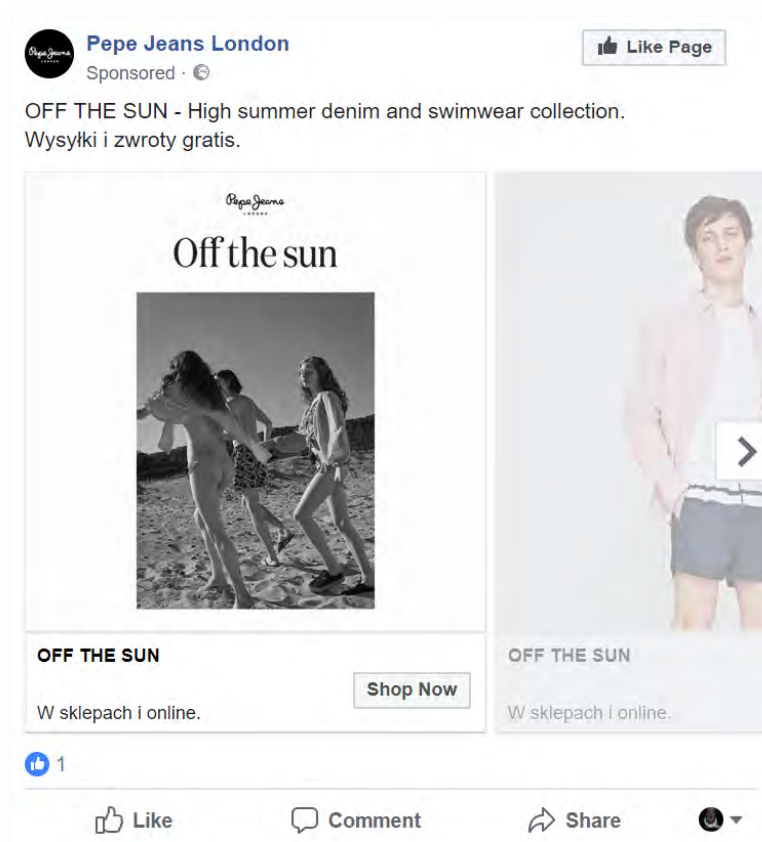
In-feed/Social: These native ads appear on social media sites. Facebook, Twitter, LinkedIn, and more recently Pinterest, are all displaying native ads to their users.
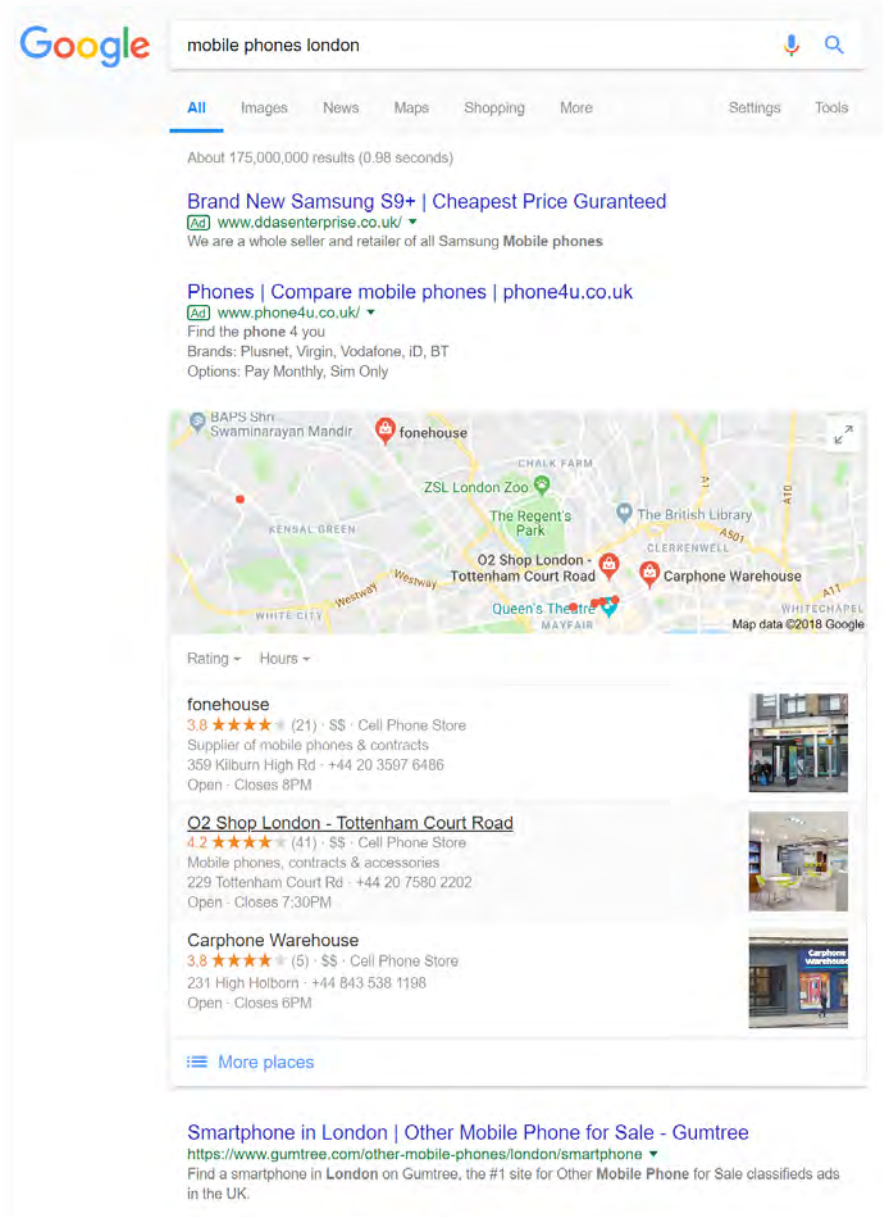
Paid search: The paid ads at the top of search results look and feel like part of the search query.

Native advertising part of OpenRTB

OpenRTB is a project that comprises of companies representing both the buy and sell side of the real-time bidding process. It provides industry standards and API specification for businesses interested in buying and selling online media through ad exchanges.

In January 2015, OpenRTB added native advertising as part of its new release (2.3). This marked a significant turning point for native advertising, as it is now possible to target, optimize, and purchase native ads programmatically, which benefits both the advertiser and publisher.

The Effectiveness of Native Advertising

Native advertising so far is providing advertisers with better campaign ROIs and is more effective at engaging with users.

Here are some statistics regarding their performance:

- A survey by HubShout showed that 85 percent of internet users don't think native ads hinder their browsing experience in any way.[4]

- Up to 49 percent of consumers say they have never even heard of native ads according to a survey by Copyblogger.[5]

- GE got 416,000 click-throughs as a result of a native advertising campaign.[6] This is a whopping 8 percent CTR. Traditional display ads yield an average CTR of 0.19 percent.[7]

- In 2014, BuzzFeed's native advertising campaign conducted for Intel produced over 12,400 shares on social media.[8]

- Native ads have been shown to increase brand lift by 82 percent.[9]

- Native ads which use rich media can increase conversion rates up to 60 percent.

- Of the publishers that included native ads in their content, 71 percent received no major complaints, while the remaining 29 percent received a minor backlash, at most.

Even though native advertising is currently limited to display advertising, there is a lot of potential for other areas, such as in-game and virtual-reality advertising.

Video

Video advertising is another advancement showing great promise. According to the statistics portal Statista,[10] in 2018 programmatic digital video advertising spending in the United States is estimated to reach 10.65 billion USD.

Also, 52% of marketers say video offers the best ROI compared to other types of ads.[11]

[4] http://hubshout.com/?Native-Advertising-Statistics-You-Should-Know&AID=1206

[5] http://www.copyblogger.com/native-advertising-2014/

[6] Beeby Clark+Meyler, Native Advertising Case Study

[7] Smart Insights, Average display advertising clickthrough rates

[8] Beeby Clark+Meyler, Native Advertising Case Study

[8] Beeby Clark+Meyler, Native Advertising Case Study

[9] Forbes, 6 Types Of Native Advertising And How Each Can Benefit Your Business

[10] Statista, Programmatic digital video advertising spending in the United States from 2013 to 2020

[11] Hubspot, Video Marketing: The Complete Guide to Creating a Video Marketing Strategy

Different Forms of Video Advertising

Video advertising covers a wide range of formats. Some of the most common are:

In-stream video ads
These ads come in two forms: **linear** and **non-linear**.

1. **Linear video ads** run in-line with the content and can either appear before the video plays (pre-roll), during the video (mid-roll), or after the video has finished (post-roll). They can also appear as an interactive video, whereby an ad takes over the whole screen and encourages the user to interact with it (e.g. click on a button, sign up for a newsletter, etc.).
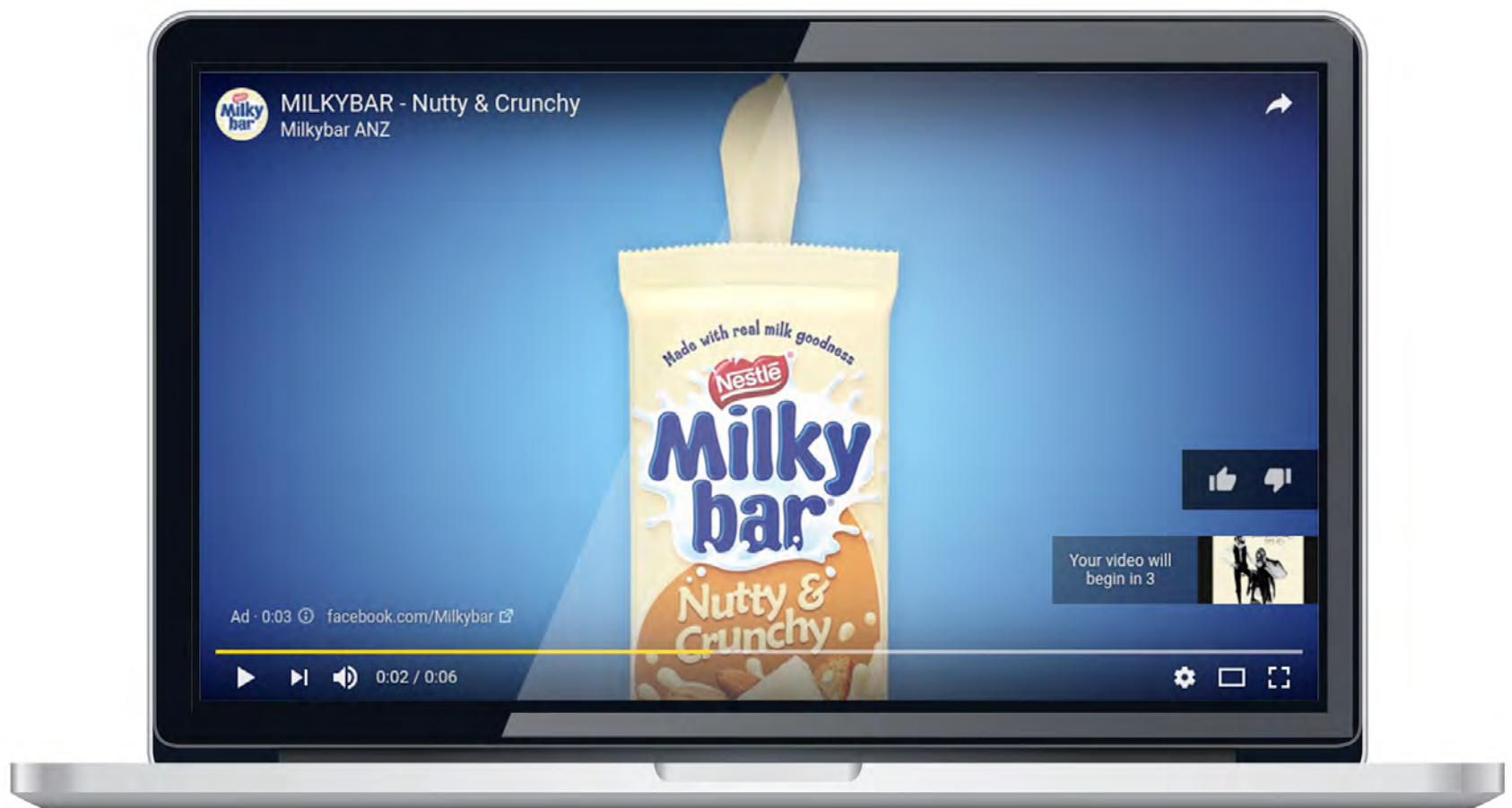
An example of a pre-roll linear video ad.

Non-linear ads include overlay ads and non-overlay ads. Overlay ads run simultaneously with the video content and are usually located at the bottom of the screen. Non-overlay video ads are very similar, except they are located outside of the actual video content, therefore not overlaying the video. The main advantage of non-overlay is that it doesn't cover important information like subtitles, whereas overlay ads do.
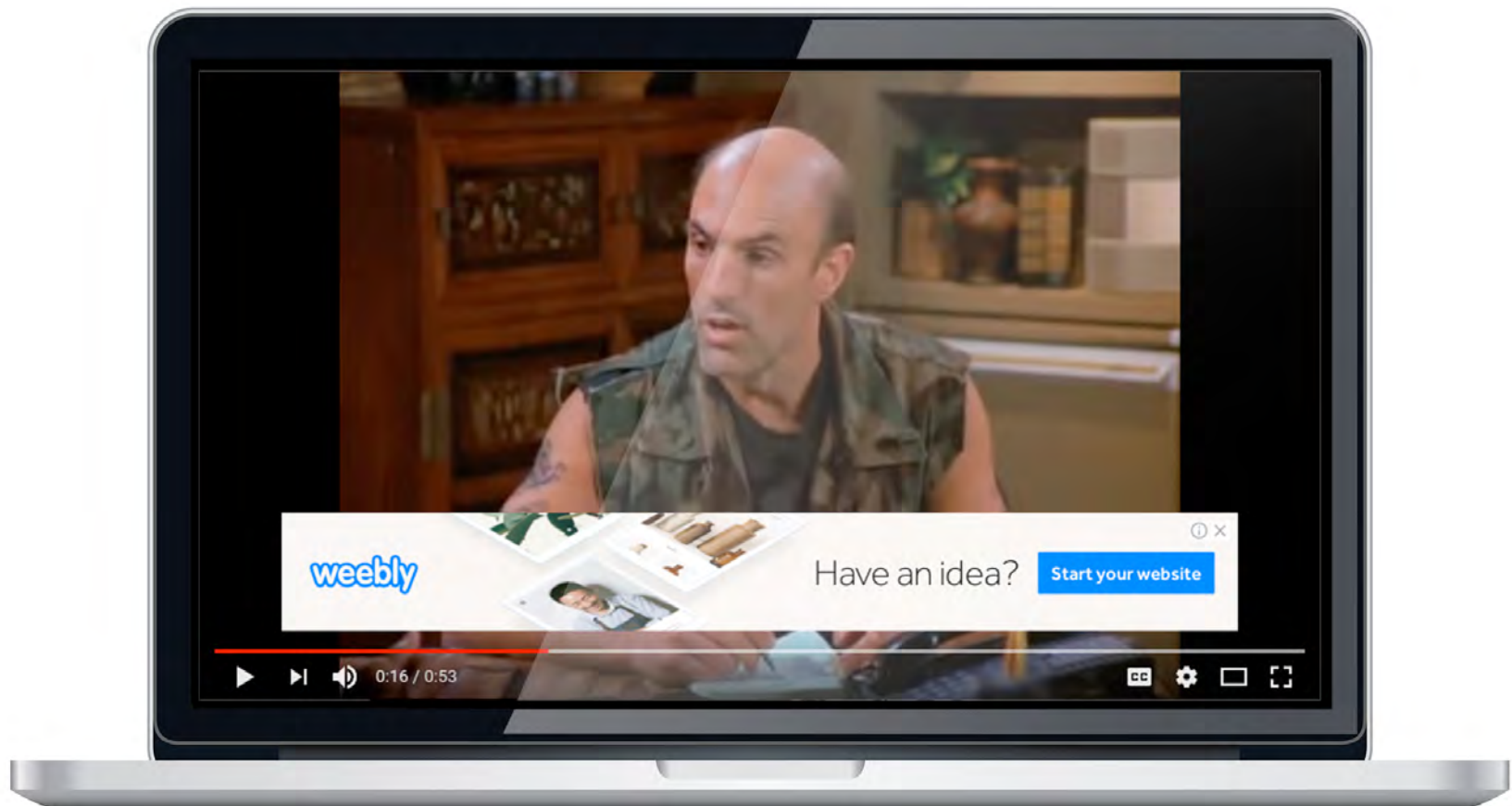
An example of a non-linear overlay ad.

In-banner ads

These types of video ads either start off as expanded video ads that overlay the website's content, or expand and overlay the content when a user hovers their mouse over the ad.

In-text video ads

These ads appear when a user hovers their mouse over a group of highlighted words (like in a paragraph of text). In order for the video ad to begin, the user needs to hover over the highlighted text.

In-game video ads

Often used as a way to monetize online games, these video ads appear while a game is loading or in between levels. With in-game ads, the video player overlays the game.

The Future of Programmatic: TV, Games, and the Internet of Things (IoT)

Programmatic TV

Programmatic TV is one of the newest areas of the programmatic industry and is still very much in its infancy. Similarly to online display advertising, programmatic TV uses technology to make the media-buying process much easier and more effective. Programmatic TV is an umbrella term for for the use of data and automation of TV advertising through a software platform.

It can achieve this by focusing on two main areas: **data** and **automation**.

Data: The collection and analysis of audience data helps advertisers show their ads to the right users. In traditional TV advertising, audience data is collected by TV networks, but in programmatic TV, it is collected from set-top boxes and media-monitoring and research companies.

Automation: Programmatic TV involves buying advertising space in an automated fashion based on analyzed data. This not only helps advertisers target audiences better, but also makes the media-buying process more efficient.

TV viewers today spend increasing amounts of time watching content provided by video streaming services – using smart, Internet-enabled TVs and OTT (over-the-top) accessories like streaming sticks, game consoles or similar devices. Programmatic TV and OTT ads are becoming a very attractive territory – they may soon be the only viable alternative to traditional TV ads.

However, one of the biggest challenges advertisers and agencies face with programmatic TV is showing the right ad to the right person. Even with analyzed data, it is extremely difficult to know who the end user is going to be as most households typically have one or more TVs that are watched by any member of the household.

Gaming

Gaming is another area of advertising and programmatic that is still quite immature but destined for great things.

The popularity of online gaming, and the fact that it covers a range of platforms (consoles, PC, and mobile devices), means that advertising opportunities are huge.

The most popular advertising formats found in games include:

- *Around Game Environment Ads:* Very similar to traditional banner ads found on desktop and mobile.

- *In-Game Ads:* A subtle advertising method that appears within the game itself and doesn't include any interactive elements (clickable buttons, etc.) — similar to product placement in films.

The IoT

The Internet of Things (IoT) relates a network of physical objects containing software, sensors, and a connection to the Internet and other devices.

The potential of this industry as a whole is huge, with experts suggesting that by 2020, there will be 50 billion objects associated with the IoT. From an advertiser's standpoint, this is a completely untapped area for reaching a target audience on a whole new level.

The main challenge that exists is how to collect, analyze, use, and optimize the mountains of data set to flow through the IoT in the very near future.

Challenges and Opportunities

Although programmatic is on the incline and flowing into other areas of digital advertising, there are still a number of challenges that plague its present landscape and threaten its future. Where there are challenges, however, there are opportunities.

Below are 11 issues currently affecting the programmatic industry, as well as the opportunities within them.

Challenge #1: Data-Driven Media Buying
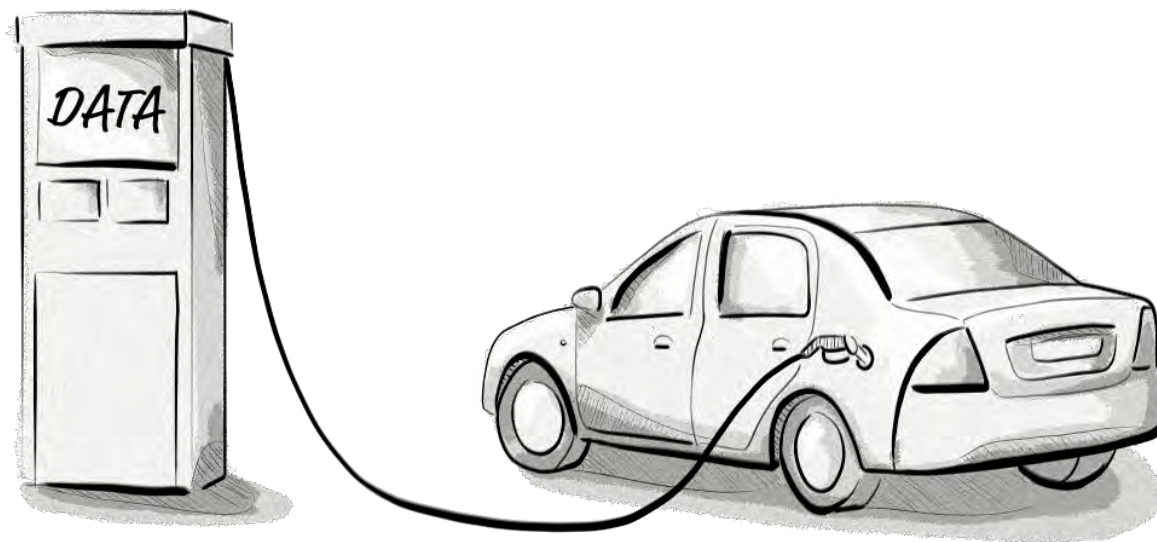
If technology platforms are the engines of the online advertising ecosystem, then data is the fuel that powers them.

The Internet has created an abundance of user data extremely beneficial for advertisers, divided into three forms — first-, second-, and third-party.

First-Party Data

First-party data is information gathered straight from the user or customer and is considered to be the most valuable form of data, as the advertiser, brand, or publisher has a direct relationship with the user (e.g. the user has already engaged and interacted with them).

First-party data includes:

- Data from web- and mobile-analytics tools

- Customer relationship management (CRM) systems

- Transactional systems

- Data collected from subscriptions and newsletter signups

Second-Party Data

Second-party data is much less common than first- or even third-party sources and is essentially first-party data from a different advertiser. The information is initially collected in the form of first-party data, then passed on to another advertiser through a partnership agreement, commonly known as **data co-ops**.

For example, a website selling sports equipment (let's call it All Sports) may partner with a website promoting sporting events (we'll call them Half-Time). When a user visits All Sports, a cookie is created, then given to Half-Time to target ads to the user. Now when that user visits a completely different site, they will be served an ad from Half-Time.

Third-Party Data

Over the years, third-party data has received a pretty bad rap, mainly due to privacy concerns. However, this type of data is still regularly used by marketers to help reach and target a desired audience, even though it isn't considered as valuable as first- or second-party data.

Third-party data is collected from a range of sources and sold to advertisers for audience targeting. More and more advertisers and agencies are now moving away from third-party data, as it is often outdated, incomplete, or irrelevant.

Challenges

Even though data is making advertising success (e.g. hitting ROI and KPI targets) more attainable for advertisers and marketers, it still faces several challenges:

- **Non-Dynamic Pricing:** Media is still priced the same way it was in the early days (on a CPM basis) and is therefore based on the value of demand for the data.

- **Transparency:** There is a lack of transparency on reporting and billing of usage for both buyers and sellers.

- **The GDPR and ePrivacy regulation:** Companies that wish to collect, store, and use data from EU/EEA citizens and residents must adhere to the European Union's General Data Protection Regulation (GDPR) and the ePrivacy regulation, as well as deal with new user privacy features that are continually being introduced (e.g. Apple's recent Intelligent Tracking Prevention feature).

See the section 'Challenge #9: Privacy and Data Ownership Issues' for more information about the GDPR and Intelligent Tracking Prevention.

Opportunities

Despite the ongoing challenges of non-dynamic pricing and transparency, the main challenge facing advertisers and marketers is the GDPR.

After years of almost uninhibited cookie placement and tracking, Internet users became more wary of the scope and scale of data collection and tracking activities. Browser plugins like Ghostery and ad-blocking software started gaining popularity, allowing users to push back, blocking advertising and third-party trackers. Legislative institutions in the European Union soon followed suit and the General Data Protection Regulation (GDPR) was formulated to impose some restrictions of how companies collect, store, and use personal data.

While becoming GDPR-compliant is challenging and involves making fundamental changes to how companies conduct business, it also presents some opportunities, which vendors can turn into advantages, such as:

More Respect for Users' Privacy

The GDPR will help restore trust between online consumers and advertising companies as it gives online users more control over privacy settings.

For years, companies have been convinced that users really want a better ad experience (e.g. customization, etc.), when in fact all they really want is more control over their privacy settings.

By showing they are GDPR-complaint and respectful of user privacy, AdTech and MarTech vendors can position themselves as a trustworthy company.

Innovation in the AdTech Industry

The GDPR gives users the right to change their consent decisions and erase data that's been collected about them. Respecting these rights requires certain mechanisms to be in place to erase the data from the vendor' platform, but also from all the other platforms with whom they've shared the data.

This means advertising companies will need to ensure their platforms are able to collect, store, and manage thousands, even millions, of user consent requests. The companies which are able to make the required technological changes and comply with the GDPR are also those which are the most innovative and agile in creating future-proof businesses.

Growth in other areas of online advertising

While the GDPR will make online behavioral advertising (OBA) less effective and fruitful than it has been in the past, other online advertising methods could increase in popularity.

One such example is contextual advertising.

Contextual targeting allows advertisers to display relevant ads based on the website's content rather than using the data about the visitor. The idea is not completely new; before the advent of the Internet, contextual ad targeting was widely used in magazines and newspapers.

With less and less personal data available due to the GDPR, there are numerous opportunities for AdTech and MarTech vendors to explore the revival of contextual advertising.

Challenge #2: Increasing Fragmentation and Complexity of the Ad Ecosystem

The complexity of the online advertising ecosystem increases with every new technology platform. Advertisers and agencies have struggled to keep up with the times, and the confusion around ad technology is producing a few negative side effects.

Challenges

The ecosystem's intricacies are highlighted by chiefmartec.com's image of the current AdTech and MarTech landscape:
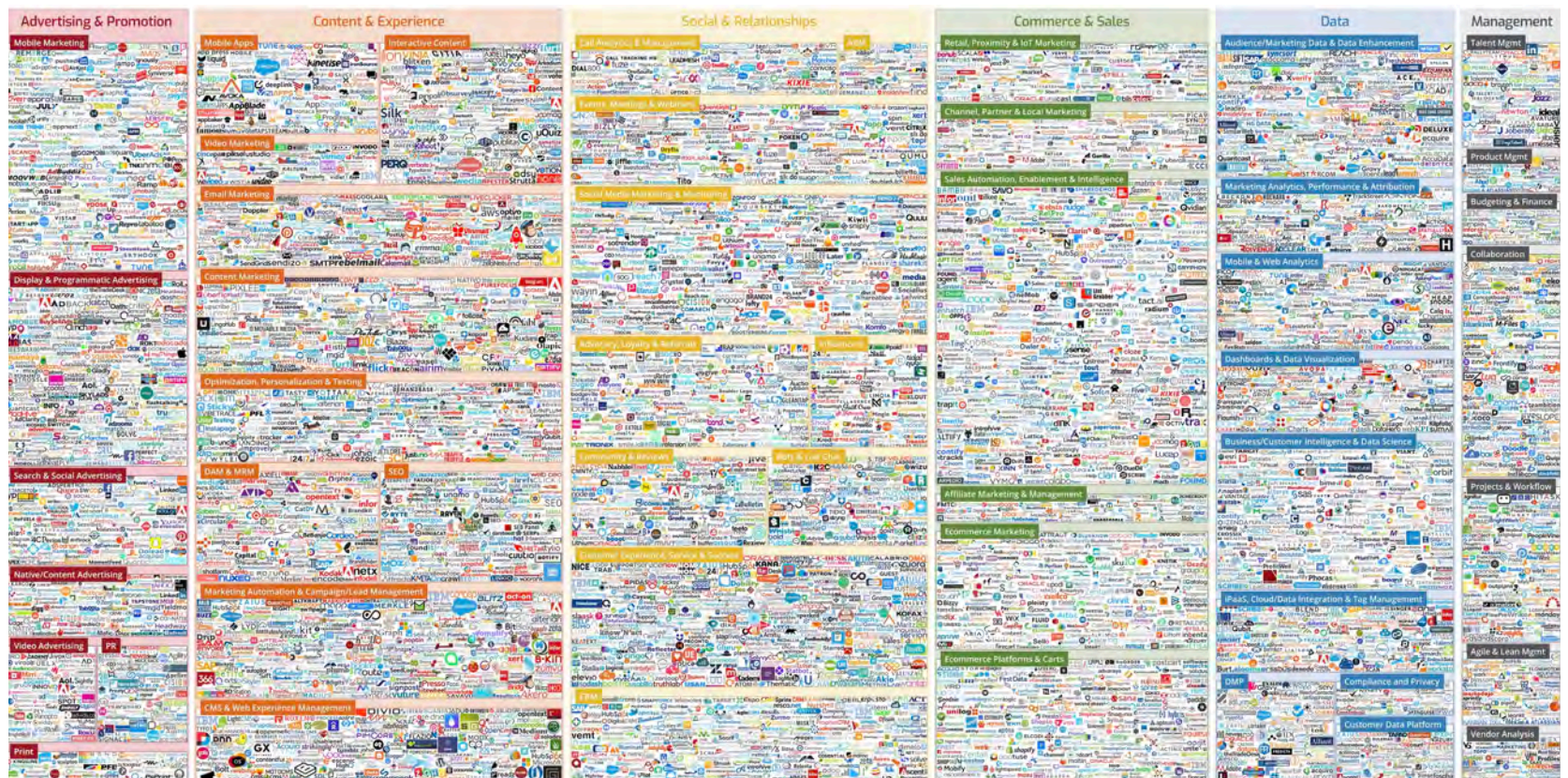
The sheer number of technology platforms and constant fragmentation of the industry is causing many advertisers to distrust the whole system. They are used to working directly with humans, and the complexity of advertising technology currently found in the industry is pushing them further and further away, despite these platforms being created to make it easier to buy media online.

Couple this issue with a growing lack of transparency and you've got a situation where the future of programmatic is being threatened by its own shortcomings.

Opportunities

As the programmatic industry is in dire need for simplicity, there are multiple opportunities to help make the ecosystem more advertiser- and agency-friendly, including:

- Developing user-friendly platforms that make it easier to buy media programmatically.

- Educating and training advertisers and agencies on the programmatic landscape and helping them to better combine their skills and experience with technology platforms.

- Making the market more transparent to advertisers.

Challenge #3: Measurement Discrepancies Across Platforms
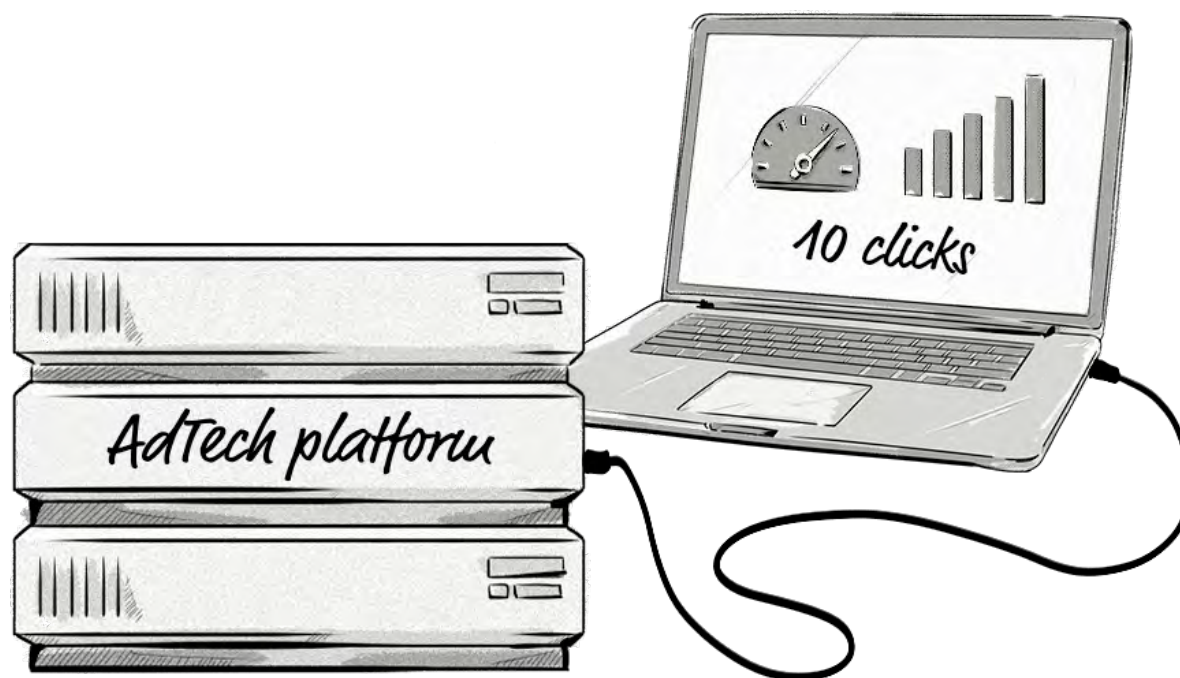
During an online advertising campaign, buyers view reports from publishers' and their own ad servers. These reports list the number of impressions, the CTR, and other metrics relating to the ad. Sadly, it's not uncommon for all ad servers to return different statistics.

Discrepancies have been a problem in the industry ever since the first ad servers were introduced, and it has flowed into other areas as well, such as mobile advertising.

Challenges

Unfortunately, there are a handful of reasons why separate ad servers return different statistics and some are much harder to solve than others. The main issues are:

Relying on user-side data tracking: Information about the ad impression is sent by the browser/app on the user-side asynchronously, usually to more than one tracking service. The information may not be delivered due to several reasons:

- Loss of Internet connection.

- Navigation to another site by the user, canceling the connection by the browser automatically.

- Antivirus and/or ad-blocking software barring the tracking request.

Time differences: If ad servers are generating reports in different time zones, this could cause the numbers to be off. To fix this issue, compare reports from all ad servers using the same time zone.

Cachebuster: Many modern browsers cache (store) a website's content and images locally on a user's computer when the user visits a website for the first time. Then, when the user visits the website again, all content and images are loaded from the user's computer, rather than from the original server. This allows browsers to improve performance and speed when loading web pages.

Unfortunately, if an ad appeared when the user first visited the site, it will be saved and displayed from the cache upon their second visit and will not be tracked.

To solve this problem, the advertiser's tracking team needs to add a cachebuster (a unique piece of code, usually a number) to ensure that a new ad impression is called every time a new page loads.

It's important to note that there will always be discrepancies between ad servers, but the difference should fall within 10%, according to IAB Terms and Conditions. As long as discrepancies are within this range, we can all agree to honor (and more specifically, bill for) one of the party's numbers.

Opportunities

Despite the challenges currently at play, there are ways to remedy a majority of the discrepancy issues, including:

- Adherence to industry standards set by the IAB.

- Usage of industry-accredited ad servers.

- Better education for all parties involved on the challenges, and comprehensive documentation on how to solve them.

One positive step towards fixing discrepancy issues has been the introduction of measurement guidelines from the IAB, which help define metrics used in reporting, state when they should be counted, and explain how they should be implemented by ad servers, DSPs and other ad technology platforms.

Challenge #4: Viewability

Ad viewability is one of the biggest issues in today's online display advertising world.

Determining the viewability of an ad — whether that ad was seen by the website user — is becoming more troublesome to measure.

The current industry standard for viewable impressions, as provided by The Media Rating Council, states that for an ad to be registered as **viewed**, it needs to have met these two criteria:

50%

of a display ad's pixels are in view on the screen.

1 sec

The display ad is viewed for a minimum of one second.

50%

of the video area is visible.

2 sec

The video ad is viewed for a minimum of two seconds.

Challenges

Since the early years of online display advertising, the most popular pricing model for selling online ads has been CPM.

The problem with this model is that many ads are not seen by the user at all because they are displayed below the fold (the part of the website that is not seen without scrolling).

There is also a consistent problem of fraudulent sites and bots using a variety of tricks and bad practices to register ad views, even though they were never displayed on the website.

In addition, advertisers also have to worry about **banner blindness** – a phenomenon in which website visitors consciously or subconsciously ignore banner-like information – but this is much harder to overcome and requires the help of optimized data to target the right audience as well as more attractive creatives to grab attention.

Opportunities

Banner-blindness is an ever-evolving issue, and a number of solutions have emerged to tackle it, including industry-wide viewability standards as a prerequisite. The goal is to allow advertisers and agencies to pay only for the impressions that were properly displayed within the frame of view and actually seen by the user.

For decades, 'served impressions' have been used as a measure of viewability and a pricing model for display ads. However, CPMs for many standard digital formats have seriously declined. This has created some pressure for publishers to achieve greater scale to deliver the required impressions to sustain revenue growth.

Partnerships with advertising business organizations

Because independent measurement is needed to measure ad viewability, vendors are encouraged to partner with renowned trade associations like the IAB and develop an industry standard for ad viewability. The standard can provide inventory validation, and increase digital ad effectiveness, helping to restore confidence in ad spend, and possibly increase ad vendors' revenue.

Creating an industry standard

The most important goal today is to adopt measures like cost per thousand viable (CPMV) and make viewable impressions a standard model in RTB. As a step towards the adoption of an industry-wide standard, IAB has published its Viewability Whitepaper for public comment, presenting the guidelines and methodologies to measure viewability.

Apart from offering a standard, IAB encourages the industry to think beyond viewability, and recognises the importance of other variables that drive business returns.

Challenge #5: Advertising Fraud and Bot Traffic

The rapid growth of programmatic has not only attracted advertisers and publishers, but also criminals and hackers. The billions of dollars that flow through the programmatic landscape each year has enticed criminals to create technologies and techniques to steal money from unsuspecting advertisers.

Fraud existed from the beginning of online advertising, but it has been gaining traction as the RTB (real-time bidding) model is now being widely adopted — the distributing nature of the RTB ad exchange makes it easier to commit and conceal fraud.

It is estimated that $6 billion is stolen from advertisers every year due to this act, but because it can be very hard to detect, and the technology to protect advertisers is immature, the actual figure may be much higher.[12]

In short, ad fraudsters follow the money.

[12]White Ops, The Bot Baseline - Fraud in Digital Advertising

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Challenges

What makes online ad fraud so challenging is that there are so many possible ways to steal money from advertisers. The most common include:

Invisible and Hidden Ads

This type of attack makes the ad invisible on the website, even though the impression will be reported. There are several techniques used in this type of attack:

- Display an ad in a 1×1 pixel iframe.

- Display ads outside of the viewport area.

- Display (multiple) re-sized ads.

- Display several ads in an iframe loaded to a single ad slot (essentially, out of all the ads loaded, only one will actually be visible to the user).

This type of fraud should not be mistaken with non-viewable impressions, because banners that properly display on the page but are not seen by the user (i.e. at the bottom of the page) are valid, accountable impressions.

Impression Laundering

Impression laundering conceals the real website where the ad is displayed.

Here's how the process looks:

- The advertiser buys ads from a carefully selected publisher (one with a relevant audience and content that coincides with the advertiser's brand), usually paying high cost per mille (CPM) rates.

- Part of the ad impressions bought by the advertiser are served on fraudulent websites where neither the audience nor the content is relevant to the advertiser's brand (i.e. high traffic sites with illegal content which are traditionally hard to monetise).

- Through a number of complex redirects and nested ad calls through iframes, the ad calls are 'laundered' so that the advertiser sees legitimate sites instead of the actual, fraudulent sites where the ads are displayed.

Hijacking Ads

Also known as ad-replacement attacks, this type of fraud involves malware hijacking an ad slot on a website and displaying an ad, which generates revenue for the attacker rather than the publisher (the owner of the website).

This could be done in a few ways:

- Compromising the user's computer to change the DNS resolver (e.g. resolving the ad.doubleclick.com domain to the IP of the server controlled by the attacker, and therefore serving different ads).

- Compromising the publisher's website or the user's computer to change the HTML content on the fly (changing ad tags placed by the publisher to tags controlled by the attacker).

- Compromising the user's proxy server or router (or the ISP's router) to spoof the DNS server or change the HTML content of the site on the fly.

Hijacking Clicks

Similar to hijacking ad placements, an attacker can hijack clicks. When the user clicks on an ad, the attacker redirects the user to another site, essentially stealing a prospective client from the advertiser.

There are a few ways in which the attackers can achieve this, by:

- Compromising the user's computer to change the DNS resolver.

- Compromising the publisher's website and hijacking the click (i.e. by inserting an onClick event on the iframe with the ad).

- Compromising the user's proxy server or router to spoof the DNS or change the HTTP request on the fly.

Pop-unders

Pop-unders are similar to pop-up windows with ads, with the exception that the ad window will appear behind the main web browser window, rather than in front. It can be combined with the impression-laundering technique to generate additional revenue.

In some domains, this is considered a completely legal advertising method, but most of the ad networks forbid it.

Bot Traffic

Publishers can use botnet traffic, which either consists of compromised users' computers or a set of on-demand cloud servers and proxies in order to:

- Achieve higher revenue targets

- Ensure eCPM growth

- Maintain comScore audience growth

But there have been a number of large-scale botnet operations whose purpose was solely to generate revenue, with few actual business goals behind them. Methbot is the most profitable and most disruptive fraud operation discovered to date.

| Bot Operation	Type	Focus	Estimated losses per day
Methbot	bot farm	Programmatic video advertising	$3,000,000
ZeroAccess	malware	Ad fraud and bitcoin mining	$900,000
Chameleon	malware	Ad fraud	$200,000
Avalanche	malware	Identity theft, access control	$39,139
Ponmocup	malware	Theft	$27,778
Metuji and Mariposa	malware	Identity theft, access control	unknown

Adapted from the Methbot whitepaper assembled by White Ops

Advertisers spending money on programmatic ad buying are losing more and more due to online advertising fraud.

Methbot was an elaborate fraud scheme detected in 2016, is considered one of the biggest and most profitable digital ad fraud operations to date. Discovered by White Ops, a US-based security firm, Methbot was found to be controlled by a Russian criminal group operating under the name Ad Fraud Komanda or AFK13. The fraud was estimated to pull in $3m to $5m from advertising every day, making the programmatic industry bleed cash.

Methbot was incredibly difficult to detect as the group used a number of efforts to disguise it as real human traffic. These methods included:

- Fake clicks and mouse movements

- Fake social network login information

- Fake geolocation associated with the IP addresses controlled by the group

- Countermeasures against code from over a dozen different AdTech companies

- A custom HTTP library and browser engine with Flash support, all running under Node.js (a regular Internet browser can't run hundreds of ads simultaneously)

- Dedicated proxy servers making it impossible to track the traffic to a specific source

The Methbot operation was very carefully planned and compromised several elements of the ad delivery chain. It not only impersonated premium sites and fabricated their inventory, but also disguised itself as Internet service providers and generated fake, human-like traffic which opened the ads on these sites. At the same time, with fake domain registrations, Methbot gamed the system by deciding where the most profitable ads should go, ensuring their fraudulent web space was purchased at maximum profit.
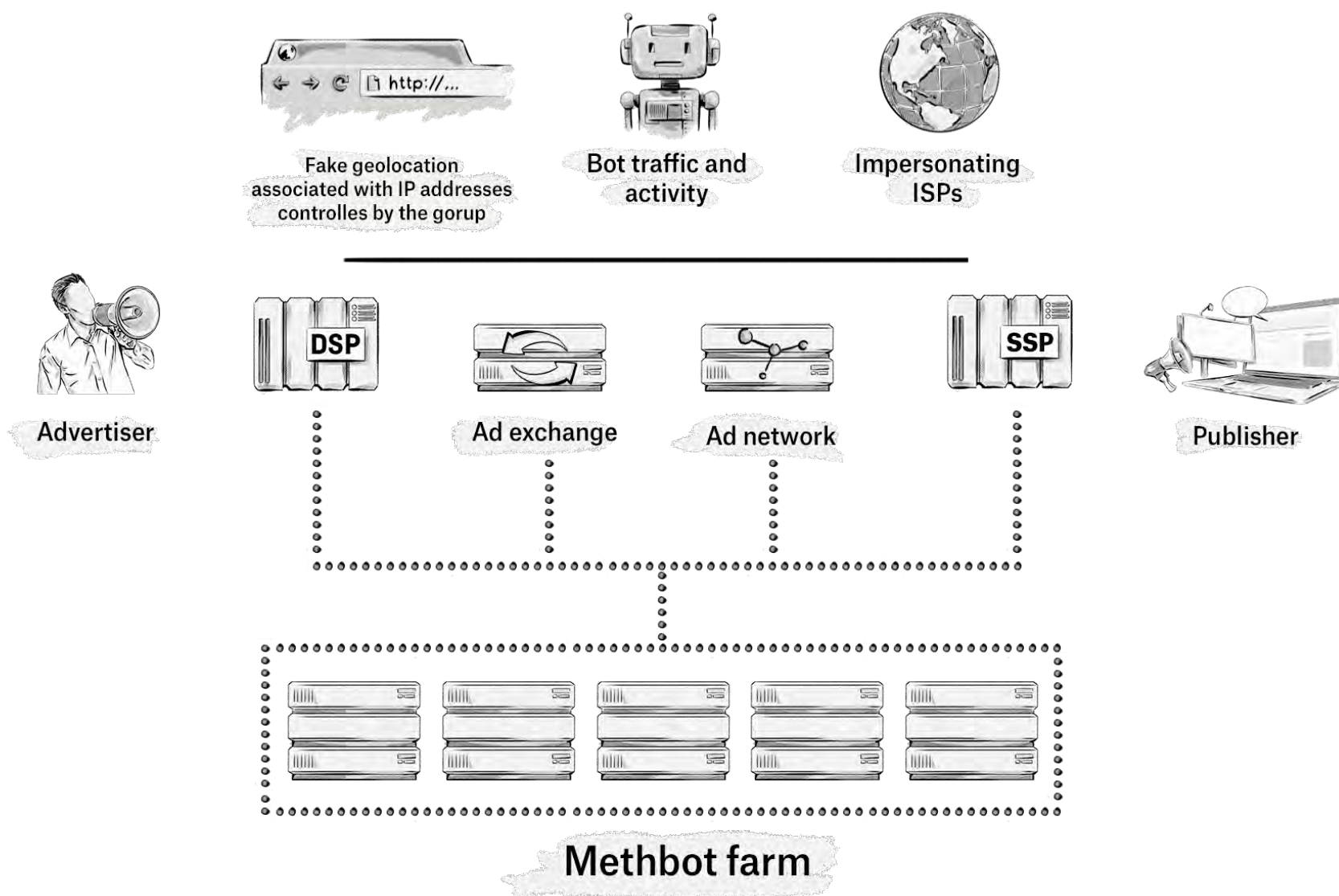
The Methbot operation compromised several elements of the ad delivery chain.

Mobile Apps and Ad Fraud

Mobile apps are becoming another increasingly lucrative target for fraudsters. This is mainly because ads in mobile apps are rarely blocked by ad-blocking software. Also, Android is generally considered more vulnerable to attacks due to its open-ended architecture which, coupled with the reach and size of the ecosystem, makes a very attractive and easy target for the fraudsters.

Mobile app stores can resort to a number of methods to curtail mobile app fraud. Experts recommend developers regularly update SDKs, monitor their data for anomalies and perform regular fraud assessments. Certain outliers indicate a possibility of fraud (consider the chart below).

Methods Used to Prevent Mobile Ad Fraud Among Mobile Apps Worldwide, Sep 14-Oct, 2017

Method	Percentage
Time-to-install anomalies (TTI)	36.1%
Geographic outliners	20.9%
IP blacklisting	18.6%
Hyperengagment*	11.2%
Device blacklisting	7.2%
Publisher blacklisting	3.5%
Install validation	2.5%
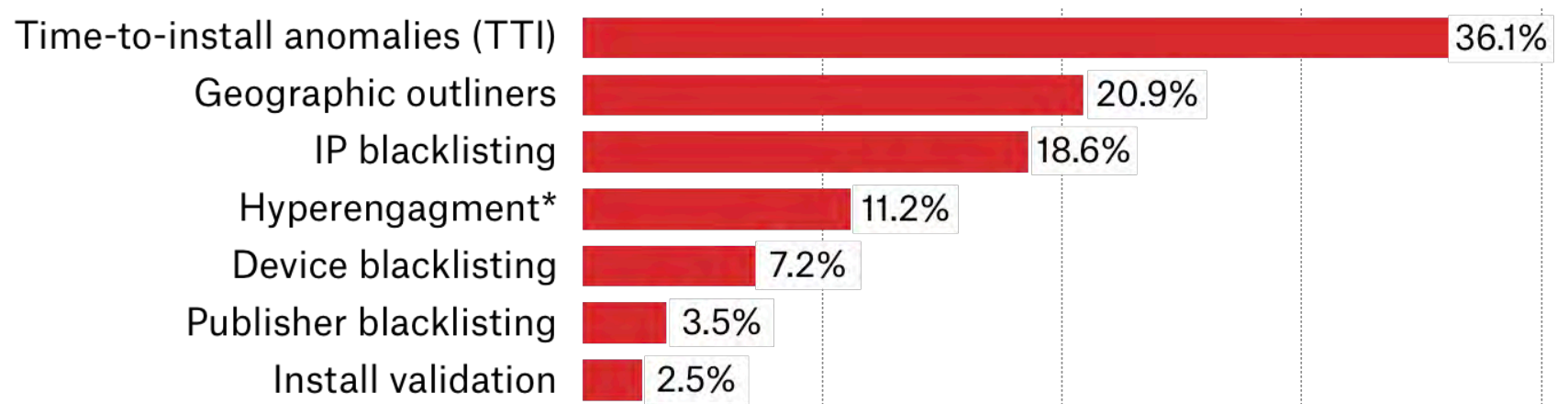
The study by eMarketer.com shows that time-to-install (TTI) anomalies helped to detect 36.1% instances of mobile ad fraud, followed by geographic outliers with 20.9%. (Adapted from eMarketer.com, November 2017)

Fake users

Just like in the case of desktop and laptop fraud, fraudsters also use mobile apps to imitate human-like activity. It typically involves a combination of methods like bots, malware and click or app install farms, all with the goal to build large audiences of fake users, and consequently feed on the online advertising ecosystem.

Click bots are designed to perform fake in-app actions. In this way, the advertisers are tricked to believe that a large number of real users clicked their ads while the ads never reach organic audiences.

Click farms use low-paid workers who physically click through the ads, earning CTR money for the the fraudsters.

Fake installs

Install farms are another way to imitate human-like behavior — they install apps using real people as dedicated emulators. Like in the case of fraudulent ad clicks, fraudsters use teams of real people who install and interact with apps en masse.

Increasingly often, fraudsters also use emulators to mimic real mobile devices. To remain untraceable, device farms regularly reset their DeviceID and avoid detection by using newly created IP addresses.

Attribution manipulation

Bots are pieces of malicious code that run a program or perform an action. Bots aim to send clicks, installs and in-app events for installs that never actually happened. Fraudulent clicks, for example, are sent to an attribution system, gaming attribution models and falsely taking credit for user in-app engagement. While they can be based on real phones, most of them are server-based.

The objective of click fraud is to fabricate clicks on CPC-based adverts. There are two ways to do this:

Click injection – fraudulent apps downloaded by users generate fake clicks and take credit for the installation of other apps.

Click spamming (aka click flooding) – real, but hijacked (i.e. appropriated) IDs of mobile devices are used to send fake click reports. When a real user with that ID organically installs an app, the fake click will get the credit and make profit.

Opportunities

Ad fraud is a serious problem permeating the advertising industry, and the losses it causes are skyrocketing. At the same time the mechanisms to detect fraud are mostly ineffective. But it doesn't mean that advertisers should just throw in the towel. There are various technologies allowing advertisers to detect, prevent, and measure specific types of fraud:

- Ad delivery and visibility measurement

- Bluff ads (honey pots)

- Statistical models for detecting anomalies (see the chart above)

- Heuristic-based and machine-learning algorithms detecting fake traffic

- Website and botnet monitoring software

It's a constant arms race between online ad fraudsters and ad technology companies trying to prevent these types of fraud – similar to the war between hackers creating computer viruses and antivirus software companies.

Despite the proliferation of fraud detection methods, fraudsters continue to invent new ways to exploit the system. Bots are becoming more and more sophisticated, making detection increasingly difficult.

Challenge #6: Cross-Device Targeting

Nowadays, it is not uncommon for users to have more than one device, whether that be a laptop, smartphone, tablet, or game console.

Challenges

This multi-platform usage makes it tough for advertisers to make connections and identify the same user across multiple mobile devices. The challenge is to connect user data gathered across a range of devices linked to different networks and create a full view of the user's journey.

Another main challenge relates to cookies. For many years, cookies were the primary method for tracking Internet activity, especially on desktop, but as more and more users access the Internet across multiple devices, cookies are becoming increasingly less effective due to their inability to be transferred from one device to another.

Opportunities

The industry has already seen a number of new possible solutions to the cross-device tracking issue, but more still needs to be done.

Some of the possible ways to track users across multiple devices include:

Universal Login

Universal logins allow users to log in to many sites and apps with an existing set of credentials, instead of creating a new username and password for each particular site or app. Many of the larger tech companies already offer this option for users and you've probably already seen examples on the websites you enjoy:
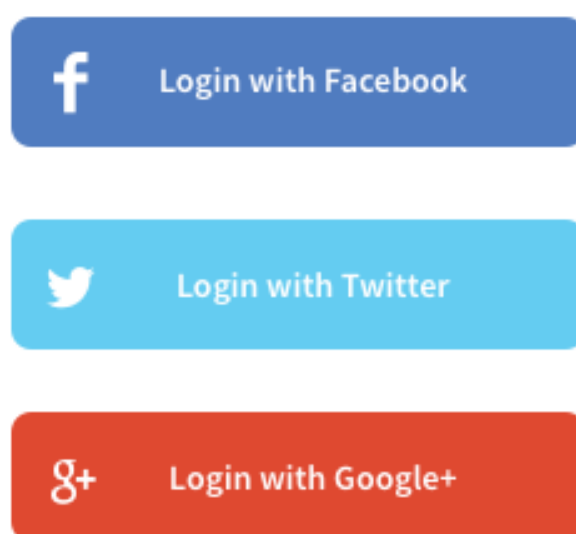
Companies that provide users with this kind of universal login are able to track them across many sites, apps, and devices; however, only a limited number currently offer this option to their users.

Device fingerprint

Device Fingerprint uses an algorithm to identify the user based on standard attributes passed on by their device, which may include device type, operating system, IP address, user-agent, and fonts. This method of tracking isn't as accurate as others, as the attributes collected may change over time due to device updates, and multiple devices could be linked to the same profile.

Statistical ID

This method of tracking uses algorithms that operate off a user's device, using information provided by the device and its gateway to access the Internet. The Statistical ID method is a probability-based solution, which makes accuracy and stability difficult to achieve.

Paywalls and subscriptions

By prompting a user to subscribe to a publisher's website (e.g. news site or ecommerce store), data can be collected and shared across multiple devices. However, the problem with paywalls (a system whereby a website limits the amount of articles users can access without a subscription) is that their success rates vary greatly, with some publishers reporting a 15-20% subscription rate[13], while others are facing a subscription rate of only 0.5%.[14]

Therefore, if publishers and ecommerce stores want users to log in every time they access the site on every device, there needs to be an incentive to do so.

Challenge #7: Native Advertising

Publishers are already seeing a real increase in revenue from this new form of advertising. However, there are few hurdles it must overcome before it achieves true success:

[13]The Guardian, Soft paywalls retain more users than hard paywalls - by a big margin
[14]Subscription Insider, Metered Paywalls Average Conversion Rates Less Than 0.5%

Challenges

Scaling custom content

Unlike banner ads, where advertisers can create a series of creatives and push them out to many different publishers, native advertising requires a lot of custom ad formats. Advertisers are not able to scale these campaigns in the same way they can with other types, and although the introduction of the OpenRTB 2.3 standard has helped ease this problem slightly, it is still a largely unsolved issue.

Finding the balance between editorial standards and advertising

Right from the beginning, native ads created a fair share of controversy.

Many feel that consumers are being tricked into thinking this type of content is part of the site's organic content. By disguising ads as regular posts, users often can't tell the difference between regular blogs, news stories, and native ads.

On a deeper level, native advertising is breaking the separation of church and state, which, in the media world, refers to the separation of editorial content and business operations (typically advertising), and means that a news company should provide independent reporting free of paid influence.

As advertisers move toward making custom native ads appear more like editorial content for increased effectiveness, user frustration grows, as for them, the difference between the two is becoming harder to identify.

Delivery and display challenges

Currently, it is difficult for advertisers to display native ad creatives across a wide range of publishers, as advertisers buy a single ad unit (i.e. image + header text + article preview text) to be displayed variously on different sites. The challenge here is to develop technology on both the supply side and the buy side to help automatically customize creatives depending on where they are displayed.

Opportunities

From a technical standpoint, there are a host of opportunities to develop technologies for both advertisers to deliver native ads and publishers to display them. For example, developing technology to help scale campaigns across multiple publishers.

Challenge #8: Integrating Offline and Online Data

Over the past few years, marketers have become fond of multi cross-channel attribution models. These models make it easier to understand the impact each digital marketing channel (social, display, paid search traffic etc.) has on their online sales, how effective the campaigns are, and how the channels interact with each other. They also help marketers attribute the revenue to each channel and calculate ROI, which is an essential metric when justifying and (re)allocating future media budgets.

There is, however, one main problem: **cross-channel attribution does not take into account both offline sales and marketing.**

So in other words, it will work perfectly in the case of an online-only business using online-only marketing channels. In reality, such businesses are in the minority. As an example, let's look at retail:

We are seeing a steady growth in the share of e-commerce in global retail. Statista estimates an increase from 10.1% in 2017, to 11.6% in 2018.[15]

What's more, online presence drives more revenue offline than online – there is a huge opportunity for underserved marketers who can use the data to improve their ROI on marketing budgets.

It is predicted that by 2021, 40% of all in-store sales will be influenced by the Internet during the customer's purchase journey. Until 2021, web-influenced sales will grow by 4.6% annually.[16]

Challenges

One of the main reasons it is so challenging to attribute offline data with online data is that there are so many factors to consider when determining how consumers make purchasing decisions, and even with some of the most effective methods, there is still plenty that cannot be accounted for.

Another main challenge relates to collecting offline data. Even though technologies are emerging to help solve these issues, such as beacons, it is still a difficult area.

Opportunities

A number of methods are available for attributing online and offline data, and while they help bridge the gap, they are very simple techniques (e.g. point-of-sale and online surveys, postal code collection at point-of-sale, coupons, etc.) The real opportunities lie within technology.

Below are a few tech-based methods with the potential to offer better online-offline attribution.

Vanity URLs and phone numbers

Vanity URLs are unique addresses, such as myproduct.com or mybrand.com/product. The idea is that brands can come up with a unique domain name (or URL) and show it in their commercials. The unique URL will redirect the user to the proper destination page and add parameters (UTM tags) for the traffic attribution. The same principle works with phone numbers — a company can set

[15]Statista, E-commerce share of total global retail sales from 2015 to 2021
[16]Forrester, Web-Influenced Retail Sales Forecast, 2016 To 2021 (US)

up a phone number, attach it to its ads, and then attribute calls to the ad when customers use that phone number.

Although attributing vanity URLs was a popular and effective option (especially compared to basic methods like direct-traffic attribution), it has lost its accuracy because many users will now just type the brand name in a search engine to find the website. Most modern browsers are integrated with search engines encouraging users to do just that instead of typing the full URL.

Time-limited attribution windows

When a marketing campaign has a specific airing time (i.e. TV, radio campaigns), we can attribute the difference in traffic/conversions compared to a similar period in time before (our baseline).

There are a few questions that arise immediately:

- How many minutes/hours after the airing time shall we still attribute the difference?

- What are the best techniques we can use to weed out visitors who were not exposed to the campaign?

- When do we need to worry about the impact of other campaigns?

This can become a complex process and it's beyond the capabilities of standard web-analytics packages.

Beacons

Beacons are low-energy Bluetooth devices a customer may interact with when using an app on a smartphone. It's a very hot, widely discussed technology that emerged in 2013.

In a nutshell, brands engage customers by interacting with smartphones at the POS with beacons located throughout the store. The point is to deliver a better customer experience, but also to track customers.

If a customer has an app that supports beacons, it can send data about their visit to a POS or physical location. The important thing is that the apps may not necessarily be related with the brand; they would just collect the data from beacons and share it with advertiser.

The app may also pass the iOS IDFA (identifier for advertisers) or Android device ID, which will help to connect the user's offline behavior with their online activity (app usage, website visits, and purchases).

Challenge #9: Transparency Issues

Back when the movement of media between the advertiser and publisher was a purely direct process, both parties knew how much the media was being sold and purchased for.

While this direct process is still occurring today, benefits offered by technology platforms (DSPs, SSPs, DMPs, etc.) are leading to an increase in programmatic media buying for both remnant and premium inventory.

However, even though these platforms are providing advertisers and publishers with an easier and more optimized way of buying and selling media, they have essentially become the middlemen and are making the true cost of media harder to identify.

When an advertiser makes a media purchase with their agency, they are often unaware of just how many hands their budget passes through, and how many commissions are paid to intermediaries and technology platforms before it finally reaches the user — it is not uncommon for an ad to pass through five different parties en route to its destination. That's up to five middlemen all taking commissions and charging their own fees.
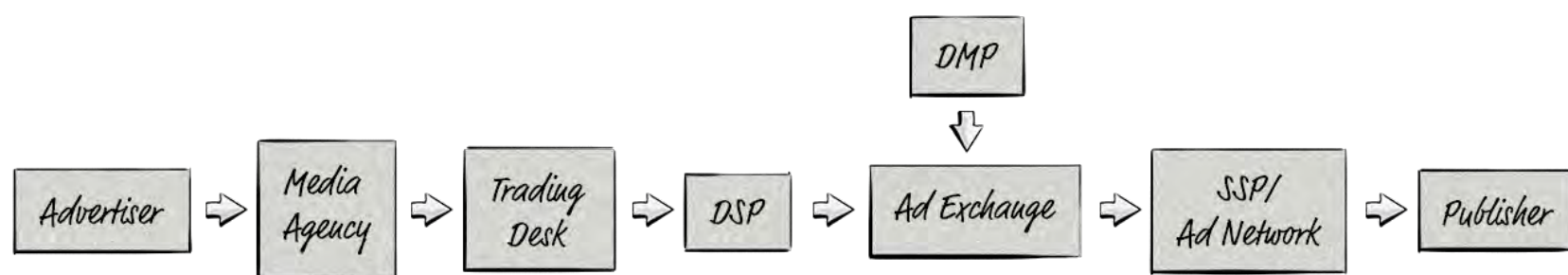
Knowing exactly how much commission each technology platform takes (DSP, Ad Exchange, SSP) is extremely hard to calculate, and even if this information is passed on to the advertiser, it can be more difficult to validate and confirm.

This lack of transparency has damaging effects on the reputation of programmatic buying and causes those involved in the process to distrust other parties in the ecosystem.

One opportunity that exists in the transparency challenge is for AdTech vendors to inform their clients (advertisers and publishers) about their take rates — i.e. their commission. While companies such as AppNexus, MoPub, and OpenX have started to become more transparent with their fees and commissions, this needs to be an industry-wide initiative.

By making the market more transparent, advertisers will be able to take control of their media campaigns, calculate their true ROI, and start to invest more in the industry through increased levels of trust.

Challenge #10: Privacy and Data Ownership Issues

Over the years, the issue of user privacy and how their data is controlled and regulated has come under a lot of scrutiny.

In industries like online advertising that collect massive amounts of first-, second-, and third-party data across multiple devices and channels, user-data protection and privacy are big issues that need close attention.

Challenges

At present, there are a number of challenges that face user data and privacy and the problem is growing by the day.

Data ownership: How to protect advertisers' and publishers' data

Advertisers, publishers, and all other online companies that handle data have a certain responsibility to ensure that the user information they collect, store, and utilize is kept safe. This is often a challenge, as controlling data isn't always an option, but there are a few ways advertisers can protect their data:

- Host AdTech platforms and user data on their own infrastructure.

- Choose technology vendors that adhere to user data and privacy best practices and regulations.

- Become a member of privacy and data-protection regulators, such as the Network Advertising Initiative (NAI).

The GDPR and Intelligent Tracking Prevention

Advertisers today are facing a barrage of new privacy and data protection laws and features, with the two main ones being the GDPR and Apple's Intelligent Tracking Prevention.

The GDPR

The General Data Protection Regulation (GDPR), or Regulation (EU) 2016/679 as it's known in official contexts, is a regulation spearheaded by the three legislative European Union institutions: the European Parliament, European Commission, and Council of the European Union.

It replaced Data Protection Directive (Directive 95/46/EC) when it came into force on May 25, 2018.

The goal of the GDPR is to return control to data subjects in the union over their data and make the regulatory environment simpler for international business.

Although the GDPR emcompasses a number of rules that AdTech vendors will need to adhere to, most will need to pay special attention to the following areas:

1. Personal Data

- Any piece of information or data that can be used to identify a data subject is classed as personal data.

- The GDPR now considers identifiers such as cookies, cookie IDs, location data, and device IDs as personal data.

- AdTech & MarTech vendors will need to implement measures to ensure the data is protected at all times, for example, via encryption and pseudonymization.

2. User consent

- AdTech & MarTech companies need to obtain clear, unambiguous, and explicit consent from data subjects if they want to collect and use their data.

- Publishers can't deny or restrict access to their website or content if data subjects don't provide consent.

- Companies will need to obtain consent for each data-processing activity, explain what their data will be used for, whom it will be shared with, and how long it will be kept.

3. Data breaches

- AdTech & MarTech vendors need to inform a supervisory authority and their clients about a data breach within 72 hours.

- They also need to inform data subjects without undue delay after having become aware of a data breach.

- Companies aren't required to inform data subjects about a breach if the appropriate technical and organizational protection measures, such as encryption, have been put in place and applied to the data.

4. Data Protection by Design and by Default

- Companies should put data protection and user privacy at the forefront of all their activities.

- Where possible, data should be pseudonymized, anonymized, and encrypted to provide added levels of protection.

- A process known as data minimization, which involves only processing the amount of data absolutely needed to complete the given activity, should be carried out by companies that collect user data.

The Cost of Not Complying With the GDPR

The GDPR has two tiers of fines depending on the severity of the infringements:

Tier 1

€10 million or up to 2% of the total worldwide annual turnover of the preceding financial year, whichever is higher.

Applicable to violations and infringements relating to:

- Obtaining consent from a child to use their data (Article 8)

- Processing which does not require identification (Article 11)

- Designating a data-protection officer (DPO) and their tasks (Article 39)

- Obligations of certification bodies and obligations of monitoring bodies (Article 41, 42, and 43)

- Data protection by design and by default (Article 25)

Tier 2

€20 million or up to 4% of the total worldwide annual turnover of the preceding financial year, whichever is higher.

Applicable to violations and infringements relating to:

- Processing personal data and the lawfulness of that processing (Articles 5 and 6)

- Conditions for consent (Article 7)

- Processing of special categories of personal data (Article 9)

- User rights (Articles 12–22)

- Transferring user data to recipients in a third country (Articles 44–49)

If AdTech companies have any chance of thriving in a post-GDPR world, both their business policies and technology will need to become GDPR compliant.

Intelligent Tracking Prevention

Intelligent Tracking Prevention is a new feature of Webkit, an open-source web-browser engine that powers Apple's Safari web browser, among others, shipped out in the new release of Safari 11 and iOS 11.

The feature aims to further protect users' online privacy by changing the way Safari handles first-party cookies.

Before the notion of Intelligent Tracking Prevention, Safari desktop and mobile browsers blocked third-party cookies by default and allowed iOS users to block ads by installing Safari extensions, aka content blockers (available from iOS 9 onwards).

First-party cookies have traditionally been safe from any sort of automatic blocking or removal, as they are responsible for providing a seamless user experience.

However, some first-party cookies can be used to track users in the same way as third-party cookies, and Intelligent Tracking Prevention takes aim at this very activity.

Here's a brief breakdown of how Intelligent Tracking Prevention works:

1. Intelligent Tracking Prevention incorporates a machine-learning model (known as the Machine Learning Classifier) to assess which privately controlled domains have the ability to track users across different websites. This model is based on statistics collected by the browser.

2. If the Machine Learning Classifier identifies that a particular first-party cookie (e.g. ad.ads-r-us.com) can be used for tracking, then the user will have to interact with the site at the main-domain level (i.e. access the website directly) within a certain time frame, otherwise the cookies will lose their third-party capabilities and be purged (tech talk for deleted).

The Intelligent Tracking Prevention feature is just another example of a privacy update that threatens the very thing upon which online advertising depends — cookies.

However, there are some companies that may not be affected too much by Intelligent Tracking Prevention, including web analytics and other marketing software relying on first-party cookies, as well as self-hosted and white-labeled software.

Opportunities

Despite the growing challenges, there are a couple of opportunities.

Technology

For every new piece of technology that collects, stores, and analyzes user data, there is an opportunity to develop technology that complies with privacy laws, such as the GDPR, and protects this information by allowing users to control their data, opt in and out of certain activities, and delete data collected by other parties.

Privacy as a business model

Just as privacy invasion (e.g. data brokering) has emerged as a business model, privacy itself can become a business model as well. Not only will this help solve many privacy challenges, but it will also highlight the number of questionable practices used by large corporations.

Challenge #11: In-House Programmatic Technology and Custom Programmatic Platforms

In the early days of programmatic, many advertisers rented technology platforms, such as a DSP, to conduct their online advertising campaigns.

Although the decision to rent a DSP still, in many cases, is the more popular option, an increasing number of advertisers and ad agencies are considering building their own DSP, thus taking the programmatic buying process in-house.

There are a few advantages and disadvantages for renting and building a DSP.

Advantages of Renting a DSP

- Instant access to valuable DSP features and a vast source of inventory.

- Access to industry experts and technical support.

- No ongoing maintenance costs.

Disadvantages of Renting a DSP

- High markup costs (on purchased inventory) and fees.

- Lack of transparency.

- Lack of or limited customization possibilities.

- No ownership of data.

Advantages of Building a DSP

- No markup on media spend.

- Control and ownership of data.

- Control over DSP features and roadmap.

- Increased company value.

- Integration with other technology systems.

Disadvantages of Building a DSP

- Relatively high up-front costs to build or acquire the technology.

- Steep learning curves.

- Maintenance costs.

- Additional risks due to inexperienced staff.

Apart from building a DSP from scratch, many advertisers and brands nowadays have the option of building on top of existing platforms.

Companies that offer these kinds of possibilities include Beeswax, AppNexus, and BidSwitch.

Building on top of an existing solution not only allows advertisers and brands to have more control over their media buying processes and data, but also enables them to release their solution much quicker and at a much cheaper cost than if they were to build it from scratch.

CLEARCODE

About Clearcode

Trusted AdTech and MarTech Development Partner

Clearcode is a full-service software-development house that specializes in custom AdTech, MarTech, and analytics-platform development.

With offices in the US and Europe, our 100+ employees have partnered with startups and publicly traded companies to design, build, and maintain quality advertising and marketing technology.

To find out how our experience, skills, and knowledge can benefit your company,

Contact us

EMAIL

sales@clearcode.cc

PHONE

US: (800) 615-0584
Europe: +48 71 881 766

WEB

clearcode.cc