

The State Of The Open Internet

A data-driven perspective on the forces that will shape
the ad-supported open internet in 2020



JOUNCE
— MEDIA —

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About this research



Jounce Media is a digital marketing consultancy that partners with buyers and sellers to develop data-driven paid media strategies.

Through the course of our work, we have the opportunity to build a deep understanding of the ways in which buyers and sellers transact digital advertising, both through reserved campaigns and through programmatic auctions. We maintain a database of gross ad spend metrics based on SEC filings from publicly-traded advertising platforms as well as public financial disclosures by privately-held advertising platforms. We additionally maintain a daily-updating catalog of all authorized programmatic selling relationships based on industry-standard ads.txt, app-ads.txt, and sellers.json files. The combination of these data sets provides a rich, time-trended view into the total addressable market for each sub-sector of digital advertising, shifting marketer spend patterns, and buy-side and sell-side platform consolidation.

This report provides a data-driven perspective on how marketers will deploy paid media investments in 2020 as well as the commercial and technical drivers of paid media share shift.

Summary Findings

2020 digital advertising outlook

The open internet is under pressure. While digital advertising has grown to represent more than half of all global advertising, the great majority of growth has accrued to a short list of companies who operate closed advertising systems – primarily Google, Facebook, and Amazon. We expect that in 2020 these three companies will control 79% of non-search digital advertising. In addition to operating scaled owned-and-operated media properties, Google, Facebook, and Amazon have also all launched off-site advertising business that now power 59% of advertising on the open internet. In total, we expect that Google, Amazon, and Facebook will collectively capture \$24.1B of net new ad spend in 2020 in a market that will only expand by \$19.4B.

On the open internet, we are observing a rapid consolidation of buy-side bidding systems. Five buy-side platforms, including two operated by Google, will control 72% of open internet programmatic spend in 2020, up from 45% in 2017. But the sell side of the market remains highly fragmented. 86% of top-1,000 publishers partner with multiple sell-side platforms.

The open internet is also experiencing a unique period of uncertainty. Both government regulation and platform privacy policies threaten to severely restrict interest-based advertising on the open internet, breaking the economic model of ad-supported digital media. Concurrently, both ad buyers and ad sellers are scrutinizing sources of inefficiency in the programmatic supply chain and re-tooling trading processes through a practice called supply path optimization. Against this backdrop, connected TV, retail media, and other scaled media properties are positioning themselves to separate from the open internet and establish new walled gardens.

We view 2020 as a transformative year for digital advertising that will test the viability of the open internet relative to the consolidating power of scaled walled gardens.

The Shape Of The Internet

Key take-aways:

- Digital advertising represents more than 50% of all global ad spend. Within the digital category, display advertising is now larger than search advertising and is growing faster than search advertising.
- Google, Facebook, and Amazon control 79% of non-search advertising. In addition to operating scaled walled gardens, these companies also collectively power more than 50% of open internet advertising.
- Facebook, Google, and Amazon will capture more than 100% of display advertising growth in 2020.

Global Ad Spend

Tracked ad spend and advertising investment dark pools

We track five categories of paid media:



Digital

All internet-delivered advertising across mobile devices, computers, and connected televisions



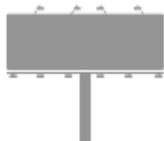
TV

Broadcast television advertising, including both national and local spots



Print

Newspaper and magazine placements



Out Of Home

Outdoor signage, inclusive of both static posters and digital billboards



Radio

Terrestrial and satellite radio

This list notably excludes trade spend, influencer marketing, and experiential marketing. We have anecdotal information that suggests these are large pools of investment, and we additionally believe that these budgets are both contributing to and pulling from the marketing categories that we do track.

As one example, we believe that a significant driver of Amazon's advertising growth is re-allocation of trade spend from in-store promotions (e.g., retailer aisle endcaps) to digital promotions (e.g., Amazon app sponsored listings).

Global Ad Spend

Categorizing digital ad spend

Within digital advertising, there are four sub-sectors:



→ Search	Paid placement in search engine results pages
→ Walled Gardens	Auction-based ad environments that require marketers to use bidding systems operated by the media company
→ Open Programmatic	Auction-based ad environments that allow marketers to use third party bidding systems (DSPs and ad networks)
→ Reservations	Pre-sold campaigns that carry volume commitments and negotiated (i.e., non-auction) pricing

What is display advertising?

We call all non-search digital advertising (walled gardens + open programmatic + reservations) “display” advertising. Display is broader than banner ads. It includes banner, video, and native formats delivered on mobile devices, computers, and connected TVs.

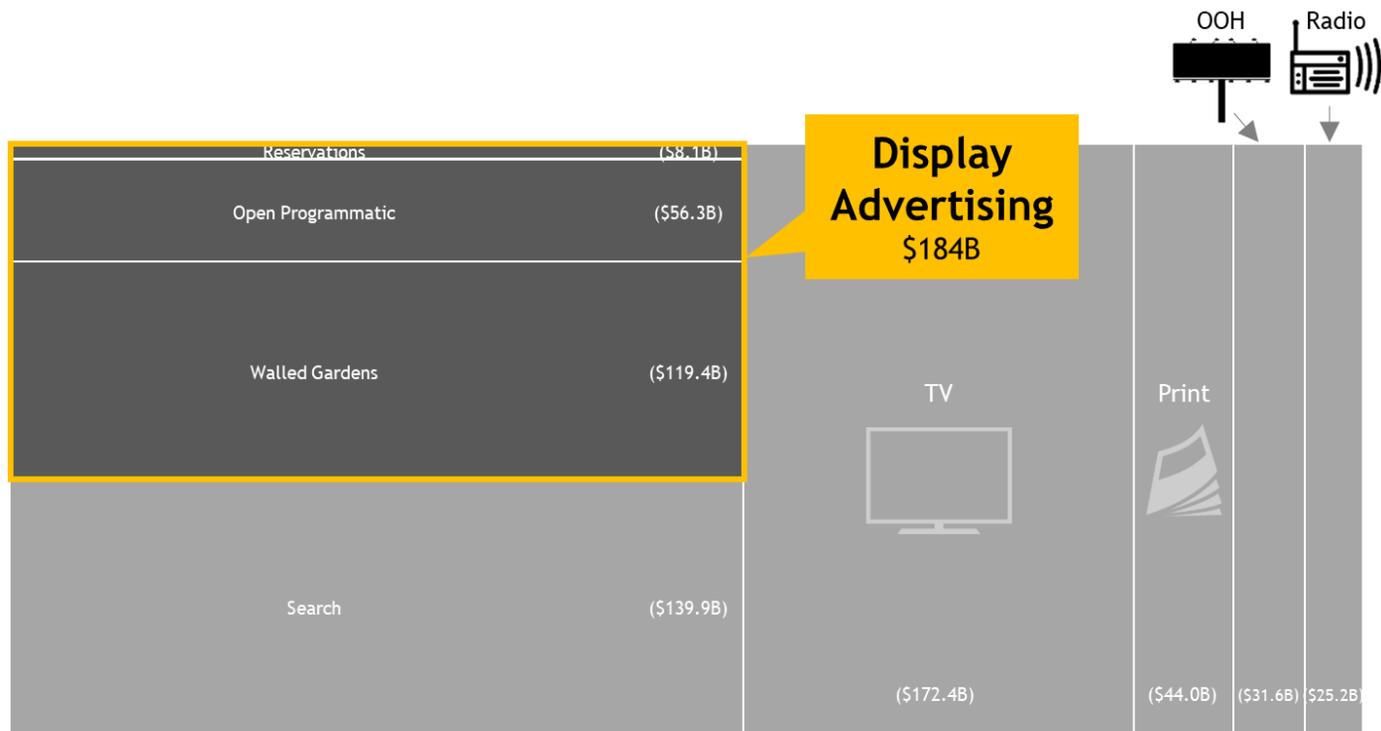
What is the open internet?

The combination of open programmatic + reservations is what we call the “open internet.” This represents the total marketing investment that is allocated to many thousands of digital media properties who do not operate walled gardens.

Global Ad Spend

2020 projections

We project that total 2020 global ad spend across the five categories we track will be \$598B, up 4.2% from 2019. Digital advertising will capture 54% of total ad spend and more than 100% of the growth. All other paid media categories are either flat or declining over the trailing 4 years, though we believe that one contributor to that apparent decline is our generous definition of digital advertising. Connected TV, as the most notable example, is a multi-billion dollar global category (we estimate \$15B in 2020) that is often bundled with up-front broadcast TV buys. We attempt to unbundle these costs, classifying the broadcast investment in our TV category and the connected TV investment in our digital category.



As of 2017, display advertising is a larger category than search advertising. Additionally, the display category is growing faster than search advertising (10% CAGR vs. 8% CAGR).

Display Advertising

Walled gardens

A walled garden is a closed display advertising environment that supports little or no interoperability with third party technology systems. There are 6 walled gardens that will power at least \$1B of ad spend in 2020:

Buying Platform	Exclusive Inventory	Forecasted 2020 Ad Spend
 Ads	Facebook, Instagram, and other Facebook owned-and-operated properties	\$81.6B
 Google Ads	YouTube, Google Maps, Gmail, and other Google owned-and-operated properties (excluding Google Search)	\$22.5B
 advertising	Amazon website, app, and select Amazon Fire TV inventory	\$8.2B
 Ads	Twitter website and app	\$3.5B
 Business	Snapchat app	\$2.3B
	Pinterest website and app	\$1.4B

These six walled gardens will collectively capture \$119.4B of global ad spend in 2020, 65% of the total display market. The next 100,000+ websites and apps collectively compete for 35% of ad spend. And unlike the walled gardens, these open internet media properties support a high degree of interoperability with third party marketing systems – both third party bidding systems (DSPs and ad networks) and third party measurement systems.

Display Advertising

The open internet

Open internet ad spend has been in slow decline since 2017. We expect to see a 3.4% year-over-year decline in marketer open internet spend in 2020. Perhaps more significant than this overall decline is a significant mix shift in the deployment of ad investments on the open internet.

Open internet media properties monetize in two ways: reservations and programmatic auctions. Reservations represent up-front commitments in which the publisher makes placement and volume guarantees, and the marketer agrees to a pre-negotiated fixed price. Reservations have been in decline since at least 2017, and we expect declines to continue (though at a decelerating rate) in 2020. With the exception of high value, supply-constrained inventory (e.g., connected TV), marketers are redeploying reservation budgets to auction-based channels.

Programmatic (auction-based) demand will represent 87% of open internet demand in 2020, up from 73% in 2017. Critically, however, programmatic demand represents a much smaller share of publisher revenue due to a “technology tax” that can range from 30% (private marketplaces) to 80% (arbitrage ad networks).



Display Advertising

Walled garden off-platform advertising

As notable as the explosive growth of walled gardens, is the success of these buying platforms in monetizing inventory on the open internet. The bidding systems that Google, Facebook, and Amazon developed to monetize their owned and operated inventory also bid into auctions operated by open internet media companies.

Buying Platform	Open Internet Inventory	Forecasted 2020 Ad Spend
 facebook Ads	~50,000 websites and apps that integrate with Facebook Audience Network	\$3.4B
 Google Ads  Display & Video 360	~150,000 websites and apps that integrate with Google AdSense and AdMob (sometimes called Google Display Network) + any publisher who transacts via any RTB exchange	\$26.8B
 amazon Demand Side Platform	~50,000 websites and apps that integrate with Amazon Publisher Services + any publisher who transacts via any RTB exchange	\$3.5B

We expect marketers will deploy \$56.3B on open internet programmatic investments in 2020. Google, Facebook, and Amazon will power 59% of this total spend.

Display Advertising

The four internets

Our fully integrated view of display advertising is comprised of four major regions of demand (drawn to scale below):

The Google Internet

The demand powered by Google's two bidding systems (Google Ads + DV360), inclusive of Google's exclusive inventory and Google's participation in open programmatic auctions

The Facebook Internet

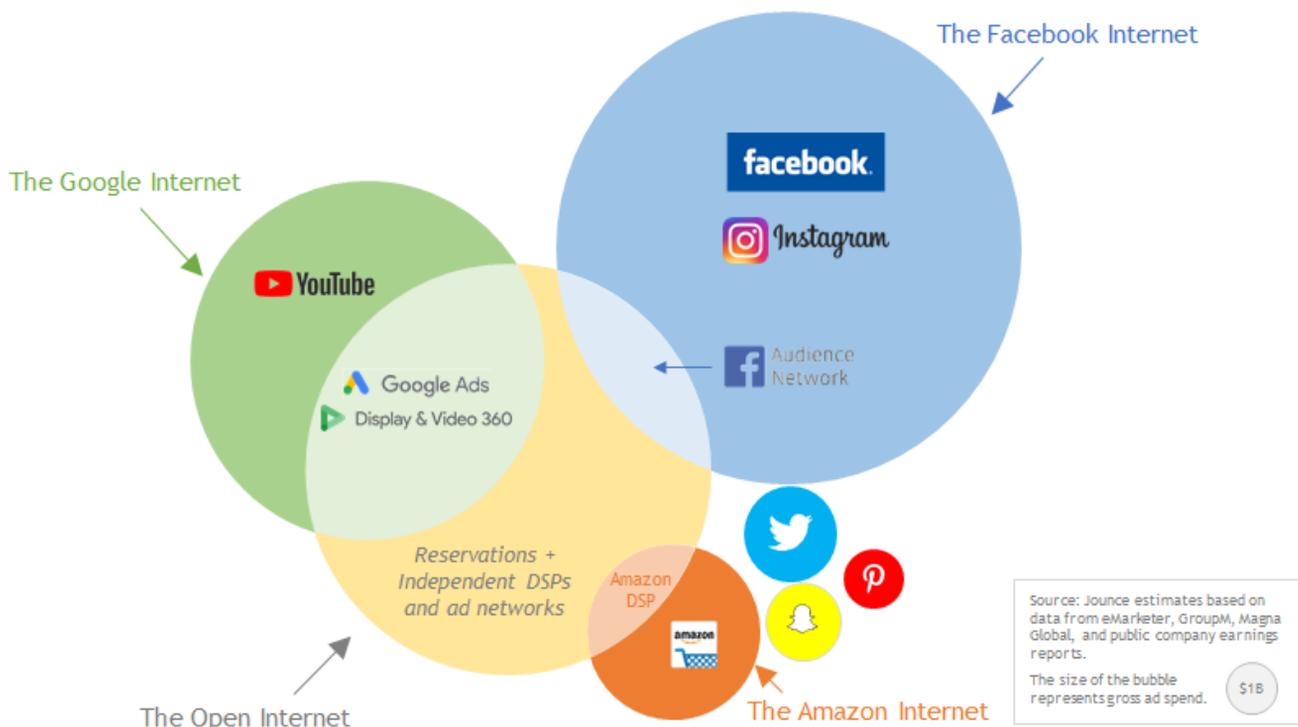
The demand powered by Facebook Ads, inclusive of Facebook's exclusive inventory and Facebook's participation in open programmatic auctions

The Amazon Internet

The demand powered by Amazon Advertising, inclusive of Amazon's exclusive inventory and Amazon's participation in open programmatic auctions

The Open Internet

The demand that monetizes all non-walled garden inventory, inclusive of all open programmatic bidding systems and all publisher reservations



Display Growth Drivers

Five key forces

There are five factors that we think are shaping display growth and share shift of display advertising investments:

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- 1 Fraudulent Inventory**

Because most digital advertising is transacted via auctions on a per-impression or per-click basis, there are financial incentives for media sellers to manufacture fraudulent inventory. Fraudulent inventory exists across all regions of the internet, but the decentralized nature of the open internet exposes marketers to the greatest scale and diversity of fraud.
 - 2 Performance Marketing**

Marketers with quantifiable direct response success metrics often prefer to pay for outcomes rather than for media. Performance pricing (e.g., pay per click, pay per app install) is widely adopted among walled gardens and performance ad networks, but is largely unavailable via the scaled demand-side platforms.
 - 3 Small & Medium Businesses**

There are over 7 million advertisers actively transacting on Facebook Ads. We estimate the largest DSPs have between 10,000 and 100,000 active advertisers. The combined spending power of long tail advertisers is massive, and this demand has been largely neglected by independent buy-side programmatic platforms.
 - 4 Regulation**

The General Data Protection Regulation (GDPR) and forthcoming California Consumer Privacy Act (CCPA) require all entities in the advertising supply chain to solicit and respect consumer consent for interest-based advertising. This operational burden is considerably lower for companies who operate end-to-end advertising systems than for companies who interoperate with a diverse set of supply chain intermediaries.
 - 5 Browser Cookie Policies**

Safari, Firefox, and Chrome are all moving to restrict the ways in which marketers collect and activate audience data. These audience targeting headwinds do not currently exist for app-based advertising.
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Display Growth Drivers

Five key forces

Google, Facebook, and Amazon are better positioned for all five of these factors than independent programmatic platforms and publisher reservations.

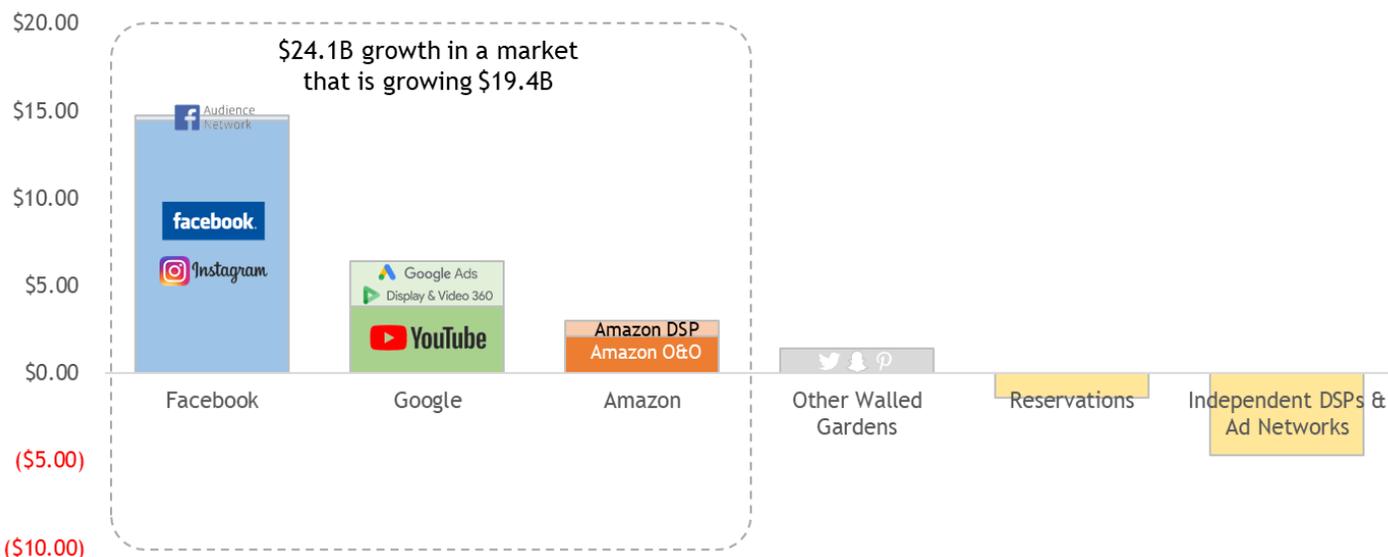
						
1 Fraudulent Inventory	Low	Low	Low	Low	Contained by added-fee verification services	Contained by added-fee verification services
2 Performance Marketing	Supported	Supported	Supported	Supported	Rare	Does Not Exist
3 Small & Medium Businesses	5M+ advertisers	5M+ advertisers	1M+ advertisers	100K+ advertisers	<100K advertisers	<<100K advertisers
4 Regulation	Low barrier	Low barrier	Low barrier	Low barrier	High barrier	NA; limited interest-based audience targeting
5 Browser Cookie Policies	Not applicable	Not applicable	Not applicable	Not applicable	High barrier for web-based advertising	NA; limited interest-based audience targeting

Display Growth Drivers

Five key forces

There will continue to be growth stories outside of Google, Amazon, and Facebook, but these 2020 growth stories will be the result of share shift in a declining market. We expect that Google, Amazon, and Facebook will collectively capture \$24.1B of net new ad spend in a market that will only expand by \$19.4B.

2020 vs. 2019 Change In Gross Ad Spend



These growth trends assume no step changes in the competitive dynamics and external forces shaping the display advertising market, though we recognize both of these factors have and may continue to shift quickly.

In the next section of this report, we provide a detailed view into competitive dynamics among independent companies who operate on the open internet, and we identify the likely drivers of growth and share shift among this category.

In the final section of this report, we outline three external factors that could meaningfully change the trajectory of display ad spend – new restrictions on the collection and activation of audience data, an emerging programmatic advertising discipline called supply path optimization, and the potential emergence of new walled gardens.

The Open Internet

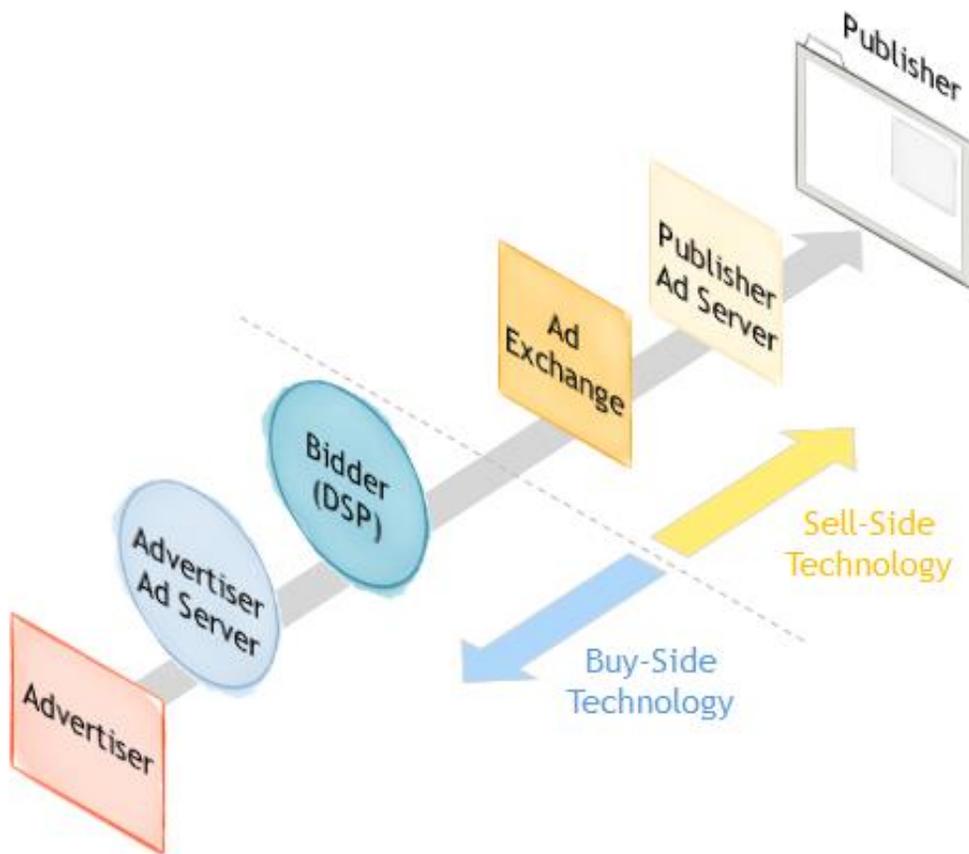
Key take-aways:

- The buy side of the market is rapidly consolidating. Five buy-side platforms, including two operated by Google, will control 72% of open internet programmatic spend in 2020, up from 45% in 2017.
- The sell side of the market remains highly fragmented. 86% of the 1,000 largest global publishers partner with multiple sell-side platforms.

The Open Internet

Programmatic supply chain

Programmatic advertising on the open internet is executed through a four-step supply chain.



Publisher Ad Server: The final decisioning point that determines which demand source (either a reserved campaign or a programmatic bid) is awarded each impression

Ad Exchange: The system that solicits bids from buy-side systems and conducts a programmatic auction. Ad exchanges are often called SSPs or supply-side platforms.

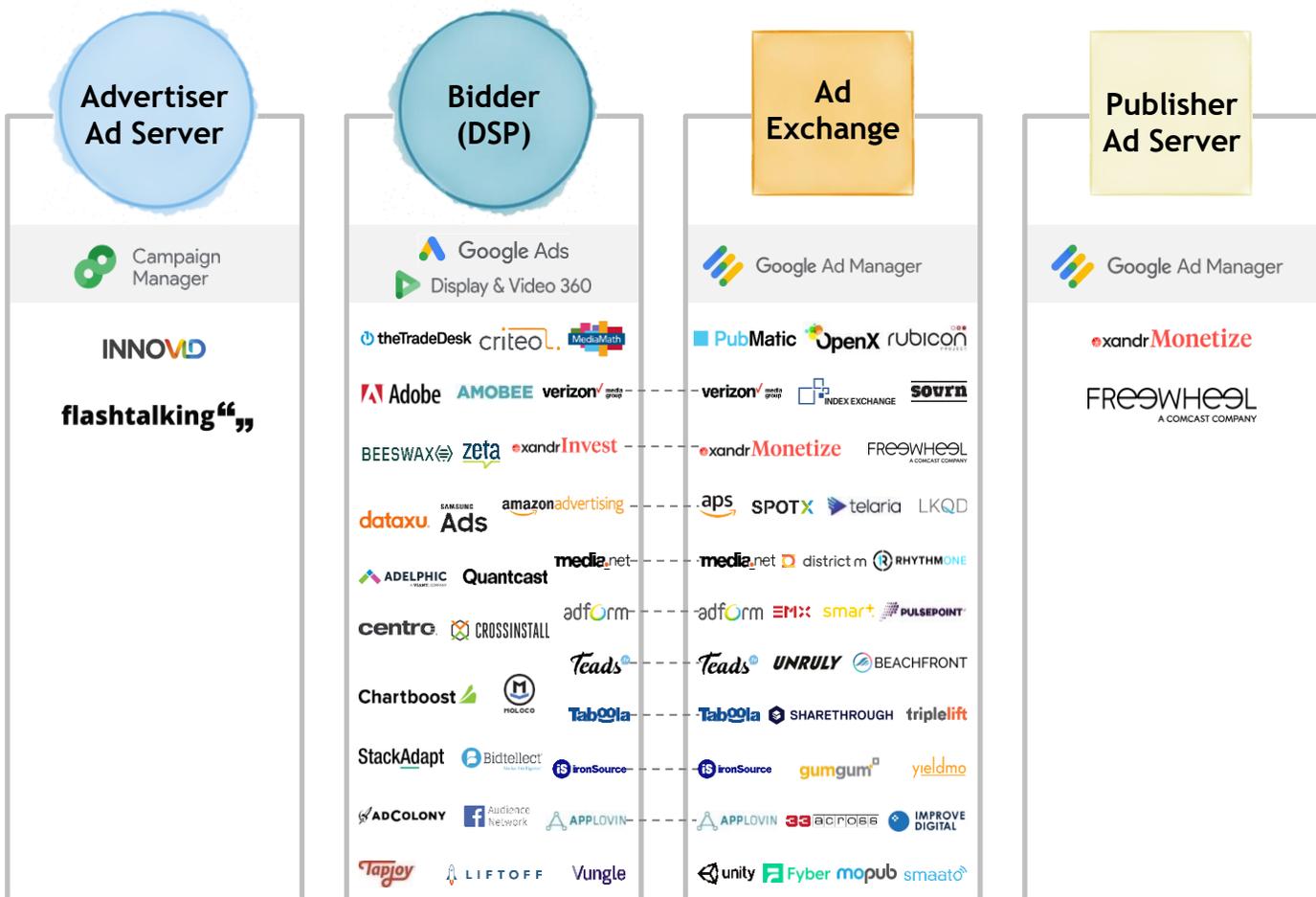
Bidder: The system that submits bids on behalf of a marketer into programmatic auctions. Bidders are often called DSPs or demand-side platforms.

Advertiser Ad Server: The system that delivers an advertiser's creative messages to the consumer.

The Open Internet

Supply chain fragmentation

We have now seen the consolidation of both buy-side and sell-side ad serving, but we continue to observe a highly fragmented middle – dozens of companies who operate technology that manage publisher auctions (ad exchanges), manage marketer bidding (bidders), or both.



In total, we track 58 companies who participate in programmatic auctions. 22 of these companies operate only buy-side bidding systems, 26 operate only sell-side auction systems, and 10 operate two-sided marketplaces.

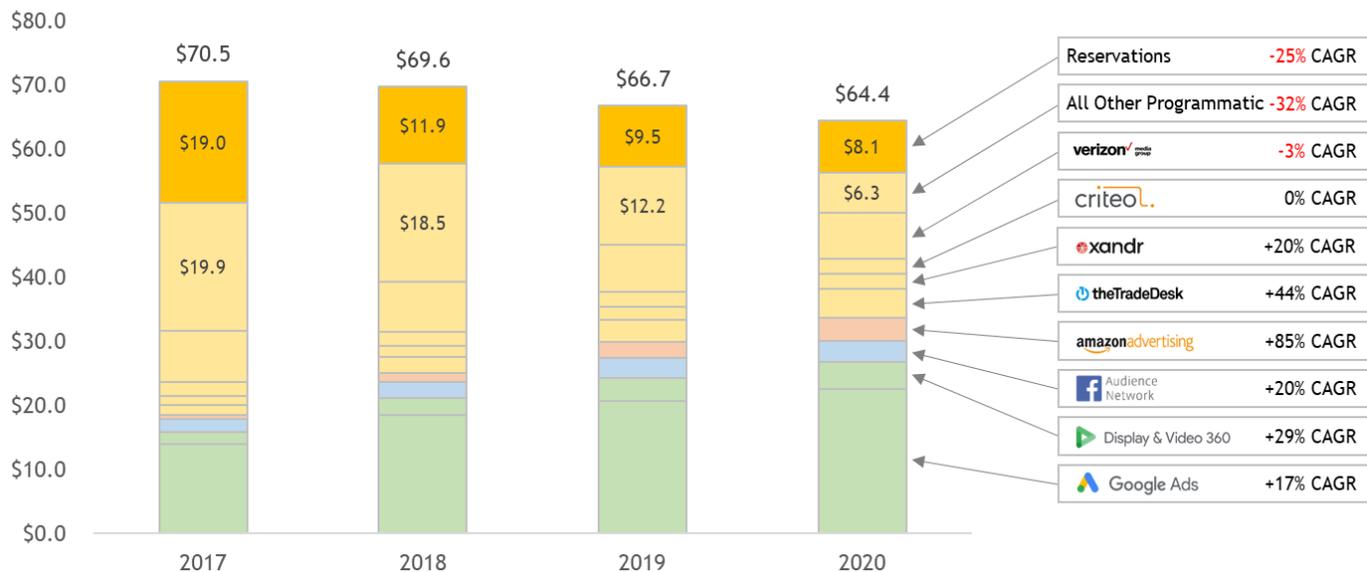
Buy-Side Consolidation

Scaled bidding systems

Within the context of a declining market, we have seen dramatic share shift among buy-side platforms over the past 3 years, and we expect this to continue in 2020. The rapid decline of reservations in 2018 and the associated redeployment of those funds to auction-based buying was sufficient to fuel year-over-year growth of open internet programmatic ad spend. But in 2019 and again in 2020, the more modest decline of reservations does not leave sufficient space for continued growth in the open programmatic category. We expect total open internet programmatic advertising will decline from \$57.2B in 2019 to \$56.3B in 2020.

We also expect, however, that the leading buy-side programmatic platforms will continue to grow at double-digit rates in 2020. The implication is that sub-scale DSPs and ad networks will experience severe declines in 2020.

Gross Ad Spend By Buying Platform (\$B)



Buy-Side Consolidation

DSP flywheel effect

Within the “all other” category in the chart above, we identify at least 25 different buy-side platforms. These businesses collectively powered \$12.2B of ad spend in 2019, and we expect that number to fall to \$6.3B in 2020. While it is possible that some of these companies can successfully operate viable sub-\$500M businesses, we think the long term strategy for these business must either be consolidation with larger buy-side platforms or a pivot to new business models.

Operating a buy-side business has massive scale benefits that create a flywheel effect. Buy-side programmatic platforms are largely fixed cost businesses, and the primary cost driver is the infrastructure burden of processing the “bid stream” – auction opportunities for which the buy-side platform can submit bids. Scaled buy-side platforms like The Trade Desk that manage multiple billions of dollars of ad spend can overcome this bid stream cost, but sub-scale platforms cannot profitably process all available auction opportunities. These platforms must apply filtering logic that reduces the overhead bid stream cost. Even with intelligent bid stream filtering, sub-scale bidding platforms limit the marketer’s ability to purchase some high value impressions. The result is that marketers migrate to scaled platforms, putting added pressure on the economics of sub-scale platforms and accelerating industry consolidation. We have already seen buy-side consolidation, and we expect this to continue in 2020.

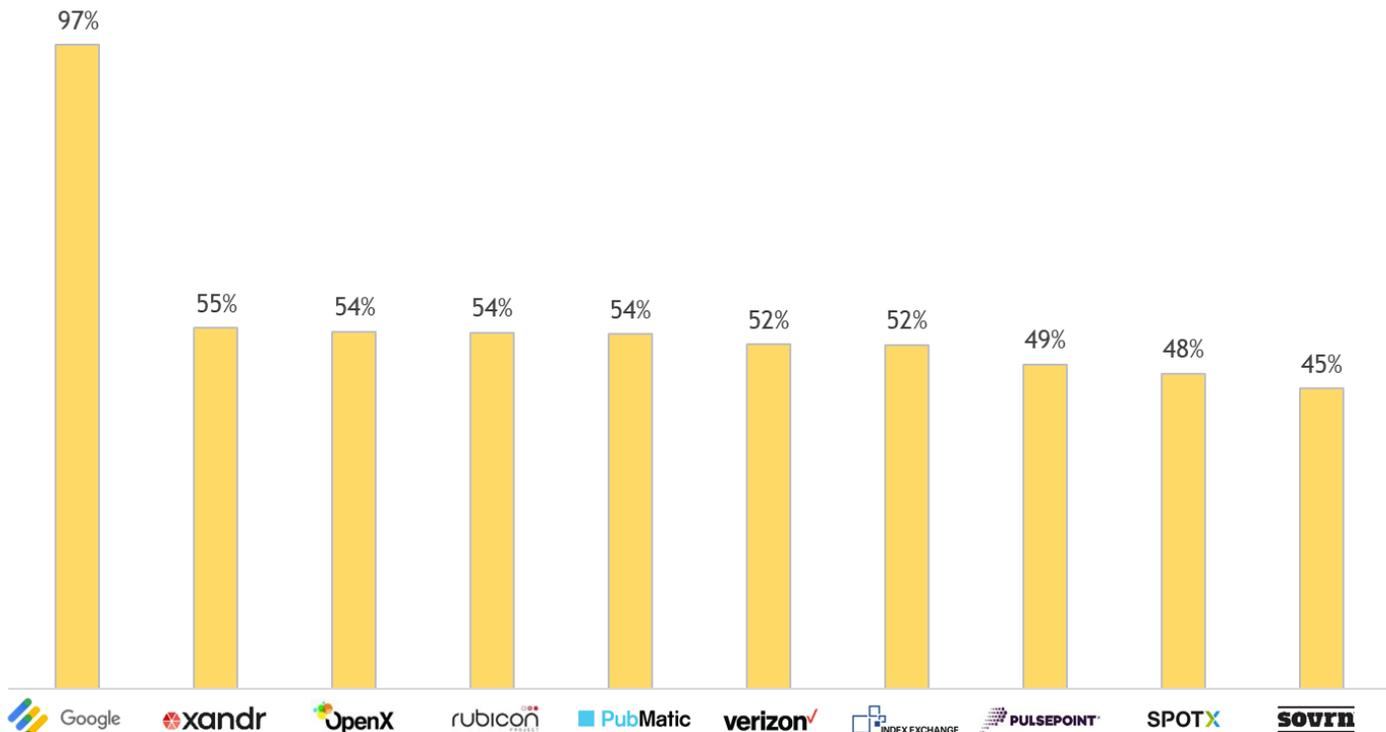
Sell-Side Fragmentation

Scaled auction systems

The buy-side flywheel effect does not appear to exist, at least not yet, on the sell side of the market. To manage a type of fraudulent inventory called “spoofing,” most global publishers now publicly disclose their programmatic selling relationships through ads.txt and app-ads.txt files. Our analysis of over 100,000 website and app disclosures shows no sign of sell-side platform consolidation.

There are 53 sell-side technology companies who partner with at least 10% of global publishers. The 10 most widely-deployed programmatic exchanges power auctions for at least 45% of global publishers.

Percent Of Global Publishers Who Partner With Each Exchange

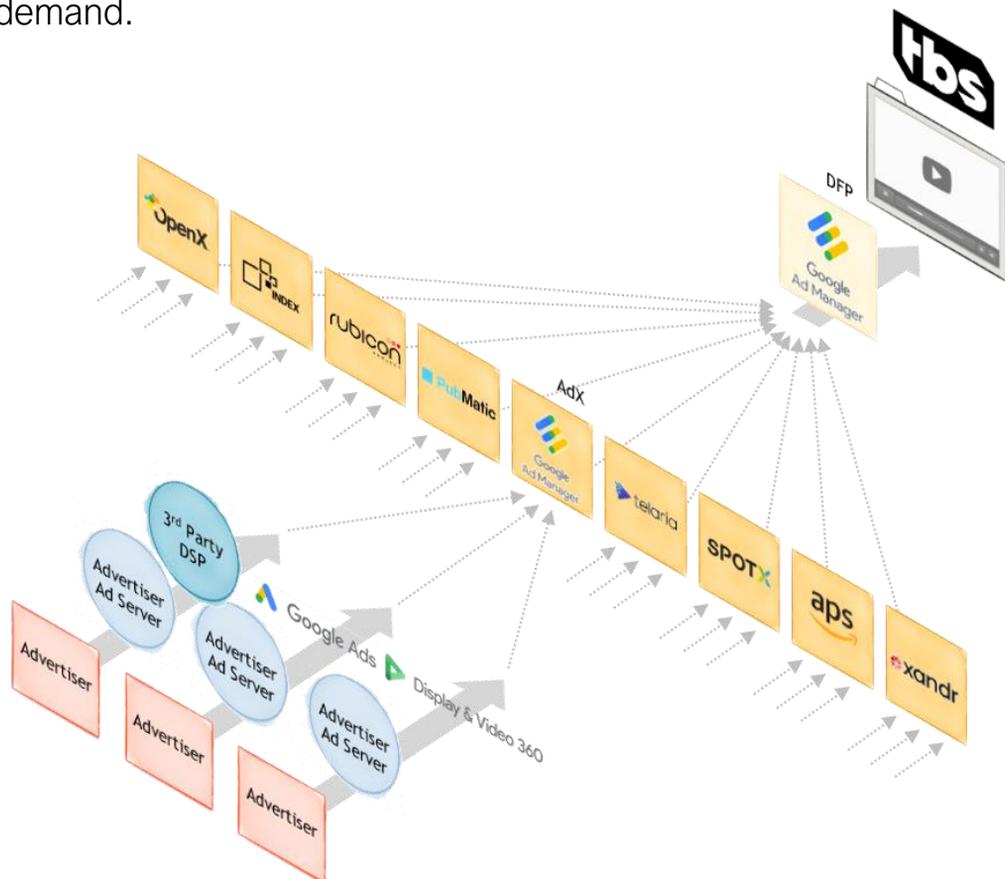


Sell-Side Fragmentation

Auction duplication

On the buy side of the market, advertisers rationally centralize their bidding through a single platform to control impression frequency, avoid self-competition, and unify budget management. But on the sell side of the market, publishers rationally diversify their auctions through many platforms to create price competition among exchanges, ensure connectivity to every bidding platform, and maximize demand density.

As a representative example, TBS, a subsidiary of Warner Media, has 9 authorized programmatic selling platforms. For any available impression, TBS may initiate auctions in one or more of these exchanges. Each of those auctions triggers the solicitation of bids from dozens of buy-side platforms, and TBS evaluates the clearing price of each auction against any reserved campaigns to select the yield-optimizing source of demand.

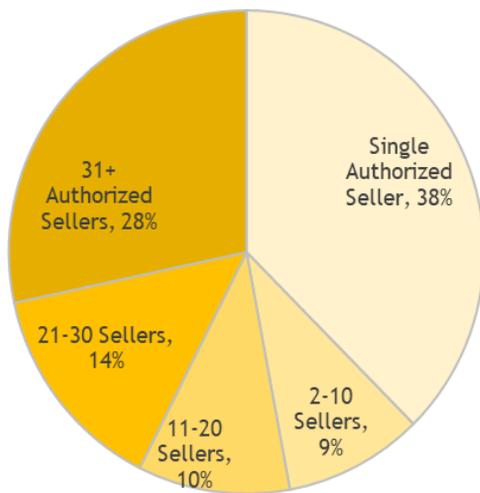


Sell-Side Fragmentation

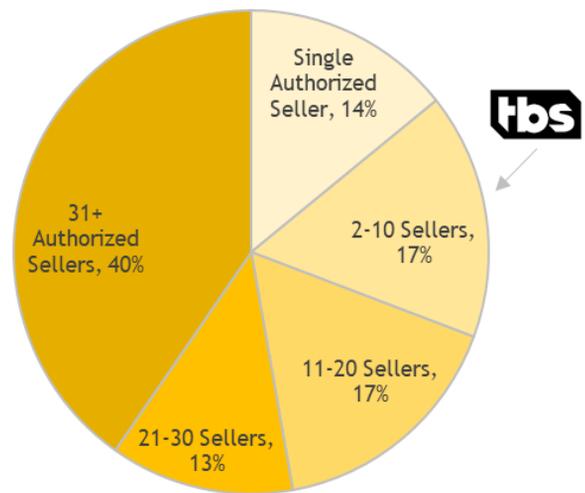
Auction duplication

This yield strategy incentivizes publishers to work with many exchanges and forego exclusivity. Under-resourced long tail publishers commonly monetize through a single programmatic partner (typically Google), but only 14% of top-1,000 global publishers have an exclusive programmatic sales partner. At nine programmatic partners, TBS represents a relatively simple publisher compared to peers who have 20 or more programmatic sales partners.

Number of Exchange Partnerships
(All Global Publishers)



Number of Exchange Partnerships
(Top 1,000 Global Publishers)



We do expect that sub-scale exchanges will experience similar profitability pressure to sub-scale DSPs in 2020, and over the long run, we expect that the industry will see consolidation of sell-side platforms. But where marketer actions will accelerate buy-side consolidation, we expect that publisher actions will delay sell-side consolidation.

The Big Unknowns

Key take-aways:

- Both government regulation and platform privacy policies threaten to severely restrict interest-based advertising on the open internet.
- The total addressable market for sell-side platforms is highly dependent on quickly-evolving supply strategies of scaled DSPs and ad networks.
- Connected TV, retail media, and other scaled supply sources are positioning themselves to establish new walled gardens.

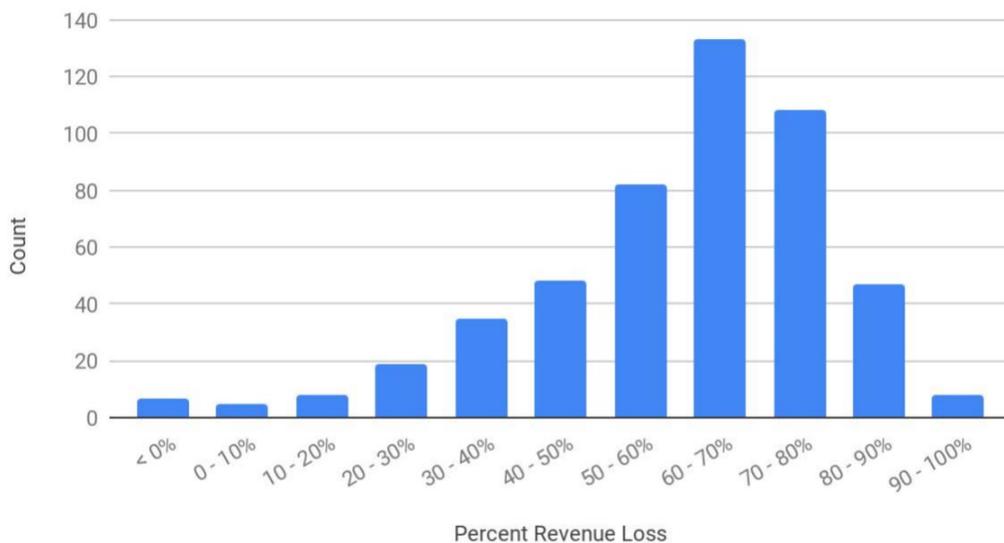
Identity Resolution

Audience targeting headwinds

Unknown #1: Identity Resolution

Despite some reports to the contrary, we see clear evidence that cookie-based ad targeting is critical for maintaining the current revenue model of the open internet. The most data-driven analysis of the economic impact of cookie redaction comes from Google, who conducted a randomized A/B experiment in August 2019 across 500 global ad-supported websites. For a randomly-selected cohort of website visitors, Google prevented buy-side and sell-side advertising systems from accessing cookie-based data. Google then measured the difference in publisher revenue for the control group vs. the treatment group. The chart below shows the distribution of revenue change on a per-publisher basis:

Revenue Loss Distribution (Top 500 publishers)



Source: https://services.google.com/fh/files/misc/disabling_third-party_cookies_publisher_revenue.pdf

Google's main finding is that "the majority of publishers have losses of 50% or more, with some losing over 75% of their revenue." The question is not whether cookie stability matters – it does – but rather how severely cookie stability will erode in 2020.

Identity Resolution

Audience targeting headwinds

There are two main factors that will put pressure on the marketer's ability to use cookie-based data for ad targeting in 2019: regulation and platform policies. The degree and pace of change for both of these factors are highly uncertain.



The General Data Protection Regulation (GDPR) has now been in effect for more than 18 months, and yet the degree of impact on interest-based advertising remains highly unclear. This lack of clarity is primarily due to the lack of case law that establishes clear precedents for the appropriate standards for gathering and respecting user consent. Some early implementations of GDPR consent claimed opt-in rates of 90%, but we believe the user experience “dark patterns” required for achieving these high consent rates will not pass regulatory scrutiny. We expect oversight bodies like ICO and CNIL will issue more clear GDPR implementation guidance during 2020, and we also expect continued litigation that will further clarify the appropriate standards for consent management.

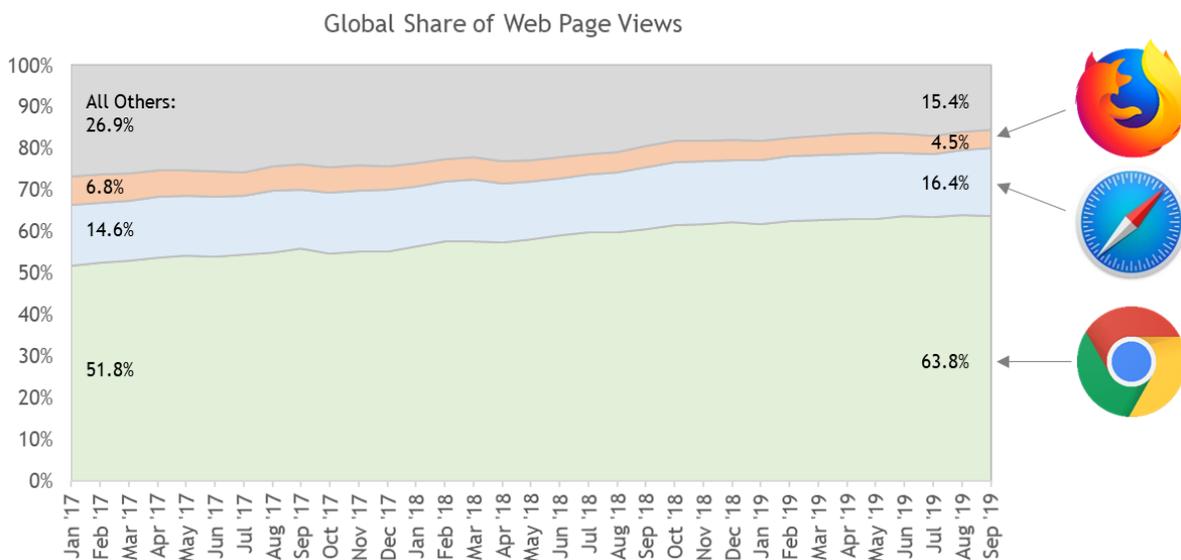


The California Consumer Privacy Act (CCPA) went into effect January 1, 2020, and we expect it will have a similarly long period of vague standards and inconsistent implementation rigor. Here again, we know that the direction of change is a declining pool of inventory that supports interest-based advertising, but we do not know the degree or pace of change.

Identity Resolution

Audience targeting headwinds

Beyond regulation, we see the three major browsers all moving in the direction of restricted cross-site tracking. Safari's Intelligent Tracking Prevention (ITP) is the most mature and has largely eliminated the ability for marketers to implement interest-based targeting and conduct post-exposure purchase analysis. Firefox's Enhanced Tracking Protection (ETP) is a fast follower to Safari's policies. The combined impact of ITP + ETP is 21% of global web page views according to Stat Counter.



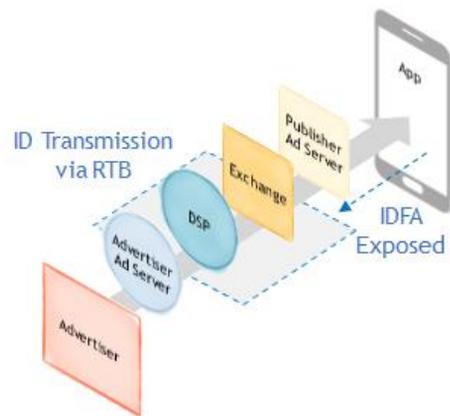
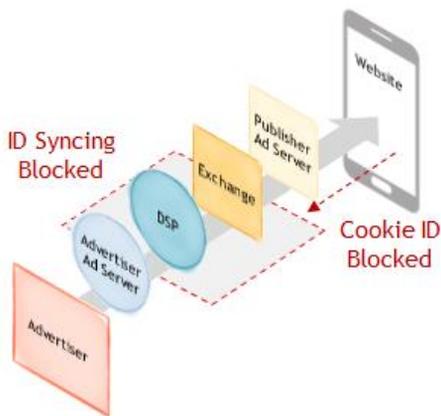
The major unknown is how fully and quickly Google's Chrome browser, which has approximately 64% market share, will implement cross-site tracking limitations. The most significant next step for Chrome is an enforcement of new cookie labeling standards that is currently slated for release in February 2020. This change will (a) prevent the setting and reading of cookies that do not explicitly label their cross-site tracking requirements and (b) enable Chrome to expose new user controls and new default settings for managing cross-site tracking

All browsers, but Chrome especially, have fast-moving cookie policies. The best resource we have found for monitoring these changing policies is [Cookie Status](#), which we recommend readers of this report use for ongoing cookie policy updates.

Identity Resolution

Audience targeting headwinds

One last major identity resolution unknown for 2020 is the durability of identity resolution in iOS apps. Apple has been clear and consistent in its desire to prevent cross-site tracking in the Safari browser, but it continues to support a sanctioned API in iOS that exposes an “identity for advertising” (IDFA) that enables cross-app tracking. Safari and iOS have incompatible privacy standards, and we expect Apple will feel mounting pressure from the advertising community, and perhaps from regulators, to either redact the iOS IDFA (more likely) or exposed a sanctioned equivalent of the IDFA in Safari (less likely).



The combined effect of regulatory enforcement, browser cookie policies, and Apple iOS identity will massively impact the degree to which audience targeting is supported on the open internet, and therefore the degree to which open internet media companies achieve viable economics.

Supply Partnerships

Rationalizing programmatic supply paths

Unknown #2: Supply Partnerships

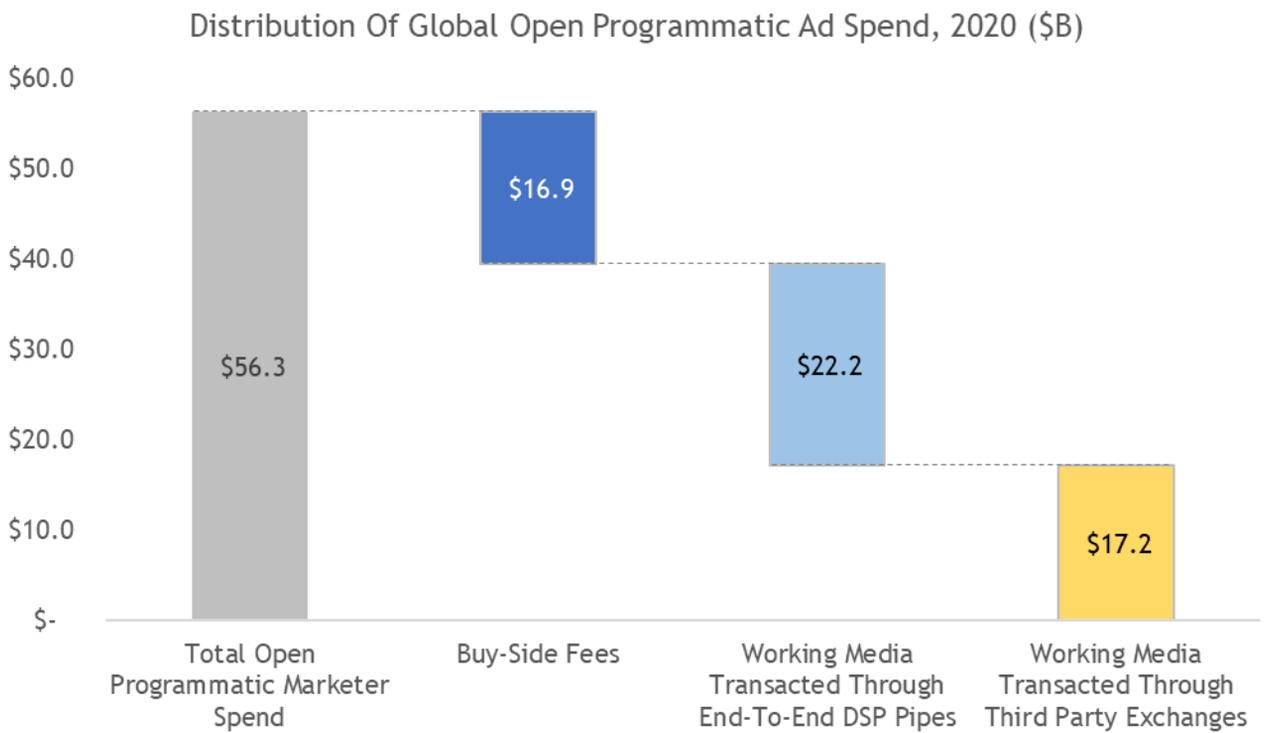
In spite of some marketer and publisher concerns about conflicts of interest, it is now common for advertising technology companies to operate two-sided marketplaces. 10 of the 32 buy-side platforms that we track also operate a sell-side auction system. A few representative examples:

Company	Buy-Side Bidding Platform	Sell-Side Auction Platform
	Google Ads + DV360	Google Ad Manager
	Verizon Media DSP	ONE by AOL + Brightroll Exchange
	Amazon DSP	Amazon Publisher Services
	Xandr Invest	Xandr Monetize
	Criteo DSP	Criteo Header Bidding Integrations
	AdForm DSP	AdForm SSP
	Media.net Max	Media.net Exchange
	Teads Ad Manager	Teads Exchange
	Zemanta	Taboola + Outbrain

Supply Partnerships

Rationalizing programmatic supply paths

The emergence of these two-sided marketplaces has significant implications for the total addressable market of independent sell-side platforms. We estimate that more than half of open programmatic spend currently flows through end-to-end DSP pipes, bypassing the exchange layer.

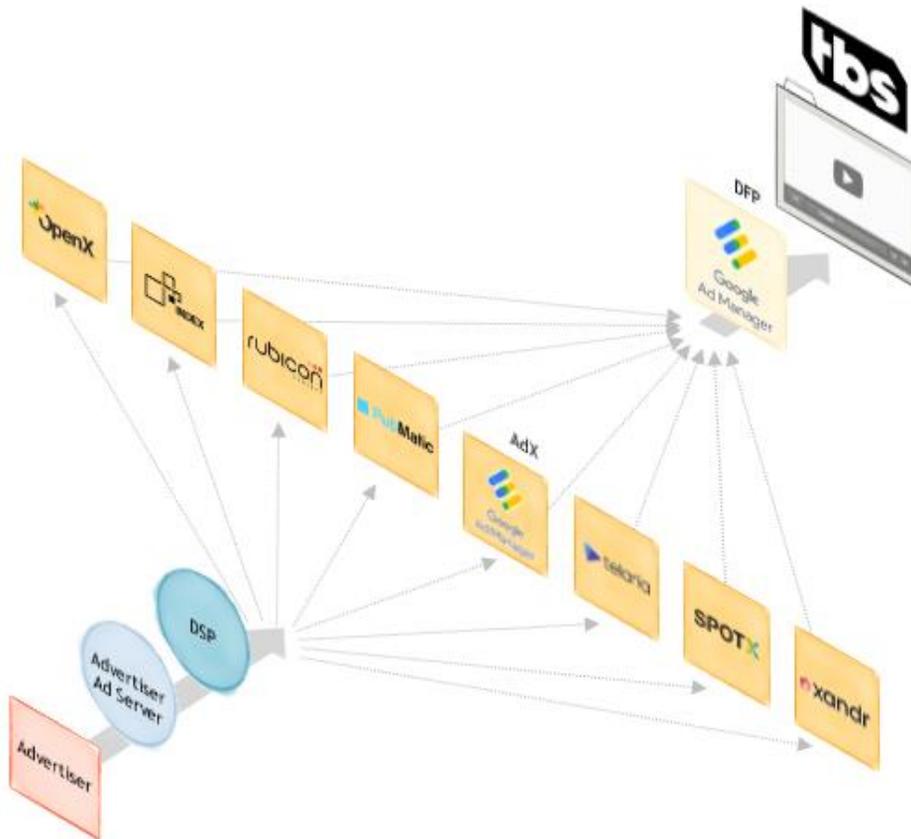


The total addressable market for third party exchanges (yellow bar in the chart above) is likely to change significantly during 2020 due to an emerging discipline called “supply path optimization,” in which marketers actively manage the pathways through which they submit bids for programmatic ad opportunities. The direction of change (expansion or contraction), however, remains highly uncertain due to two opposing buy-side supply strategies.

Supply Partnerships

Rationalizing programmatic supply paths

Recalling our earlier example of TBS, through most DSPs, marketers may submit bids through 8 different supply paths:



This duplication of supply paths is an economically rational strategy for publishers, but it creates non-obvious downstream effects for all supply chain constituents. Sell-side auction systems are incentivized to engage in aggressive auction tactics to produce the highest clearing price for the publisher. Buy-side bidding systems are burdened with unnecessary cost of processing duplicate bid requests for a single impression. And marketers are left guessing whether to participate in all auctions or pick a favorite supply path.

Supply Partnerships

Rationalizing programmatic supply paths

In response to these market forces, there are two opposing supply strategies that we expect will shape the market in 2020:

Unbundling Of End-To-End Systems

Full stack advertising systems like Google and Xandr may cave to marketer and publisher pressure to transact through preferred exchanges.

Many of the largest global advertisers and agencies are now establishing strategic alliances with preferred sell-side auction platforms. Through these alliances, marketers secure preferred treatment in RTB auctions, and exchanges secure semi-proprietary pools of demand. The challenge with these alliances, however, is that they often conflict with the business incentives of the DSP.

Google is the primary example of this conflict. Marketers who choose to use Google's DV360 bidding system benefit from free access to Google audience targeting data. But marketers who use this free targeting data are also required to transact through Google's exchange and cannot bid into auctions operated by third party exchanges. For marketers and agencies who have established preferred partnerships with non-Google exchanges, Google's policies create a significant opportunity cost in the form of foregone auction transparency and foregone rate reductions. We think it is plausible that Google and other two-side marketplaces will cave to marketer pressure to support more flexible bidding logic that prioritizes campaign delivery toward exchanges that are preferred by the marketer instead of exchanges that are preferred by the DSP.

Supply Partnerships

Rationalizing programmatic supply paths

Establishment Of New Direct-To-Publisher Integrations

Open systems like The Trade Desk and MediaMath may establish end-to-end integrations with scaled publishers.

The countervailing force is the likely emergence of direct-to-publisher integrations for independent DSPs. The cost and complexity of managing duplicate bid requests for a single impression and the precedent for buy-side platforms to operate two-sided marketplaces will likely lead independent DSPs to explore circumventing the exchange layer and establishing direct integrations with the largest global publishers. Publishers also benefit from these arrangements, as the total cost of the supply chain compresses, resulting in a higher percentage of working media being paid to the publisher.

MediaMath's SOURCE initiative is one highly publicized example of this direct-to-publisher supply chain strategy. SOURCE also highlights the nuts-and-bolts complexity of forming direct publisher relationships. MediaMath's initial messaging for SOURCE indicates a continued dependence on third party exchanges to manage technical integrations and to act as payment clearinghouses. But the number of exchanges and the fees extracted by those exchanges appear to be declining. We expect this hybrid model of establishing preferred pathways, without entirely eliminating exchange dependence, is the likely course of most independent DSP supply chain strategies in 2020.

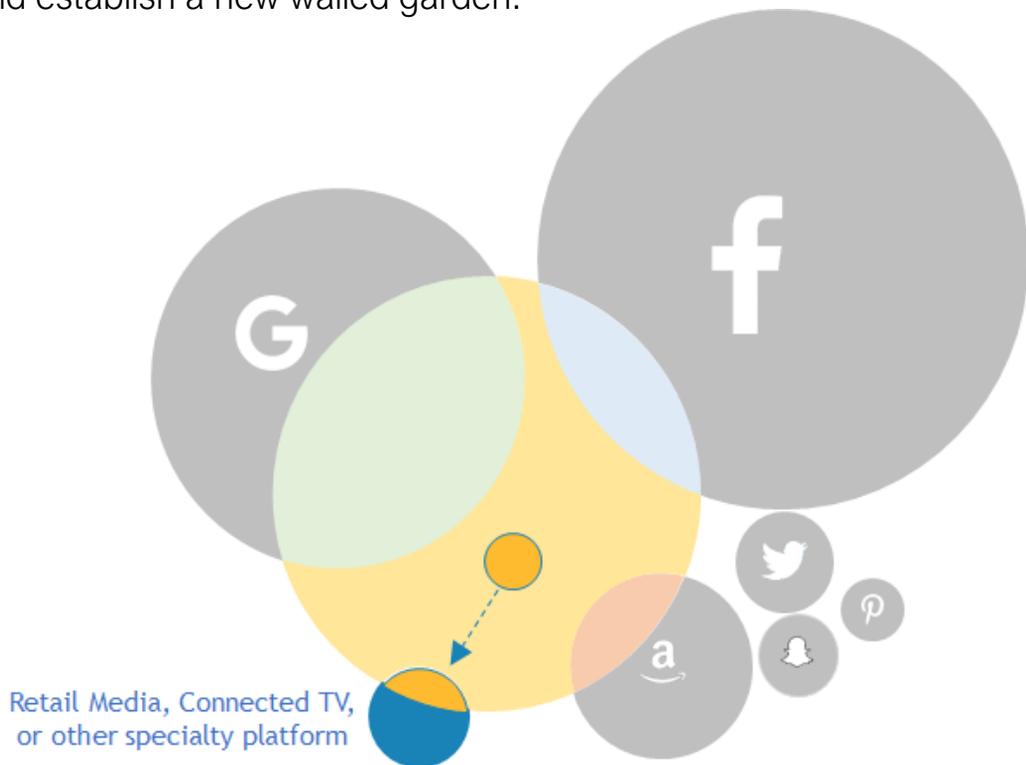
Scenario #1 ("Unbundling Of End-To-End Systems") greatly expands the total addressable market for ad exchanges. Scenario #2 ("Establishment Of New Direct-To-Publisher Integrations") greatly contracts the addressable market. We expect both will happen in 2020, and we are unsure of the net impact.

Open Internet Exits

The emergence of new walled gardens

Unknown #3: Open Internet Exits

The open internet has been a challenging environment for media companies and is likely to see mounting headwinds in 2020. Scaled media companies are of course aware of the success of Facebook, Google, Amazon, and other walled gardens, and we expect that many companies are actively exploring opportunities to exit the open internet and establish a new walled garden.



We already see multiple companies operating hybrid programmatic strategies in which some inventory is available through open programmatic bidding systems and other inventory is available exclusively through a closed bidding system. Marketers can access LinkedIn's standard banner inventory via an external DSP but must use LinkedIn's proprietary bidding system to access LinkedIn's in-feed placements. Pandora and Spotify have similar two-tier access levels for external demand and directly-managed demand.

Open Internet Exits

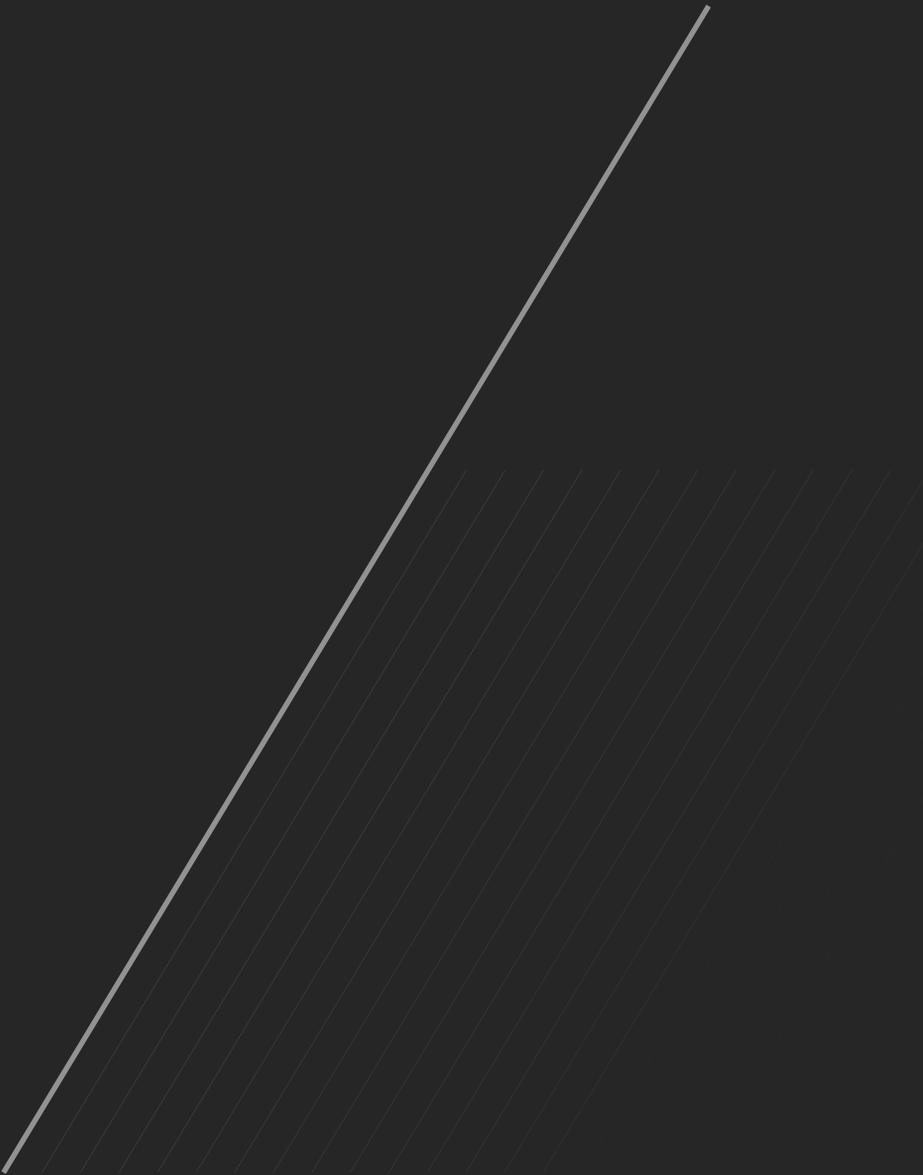
The emergence of new walled gardens

We see two categories that are best positioned to establish new walled gardens in 2020:

- **Retail Media:** Triggered by Amazon's success in creating a new, high margin revenue stream, scaled retailers are actively testing rival advertising businesses. Walmart, Target, and CVS have already launched multiple variations of hybrid open + closed advertising businesses. We expect that these three companies and many other retailers will test multiple ad monetization concepts in 2020 and will prioritize solutions that reduce dependence on third party demand.
- **Connected TV:** The largest suppliers of connected TV inventory are currently highly dependent on third party demand, and these companies appear to be positioning themselves to establish proprietary bidding systems. AT&T now owns scaled TV assets (DirecTV and Warner Media) and scaled advertising technology assets (Xandr, formerly AppNexus). Comcast similarly owns scaled TV assets (Comcast and NBC Universal) and scaled advertising technology assets (FreeWheel). Amazon and Roku are also well positioned to establish new walled gardens.

We think it is unlikely that any of these companies can entirely unhook from the open internet because of the requirement to build massively scaled demand. In The Trade Desk's Q3 2019 earnings call, CEO Jeff Green guided investors that "no one will have a monopoly in television the way that there are in social or search" and implied that TV media owners would rationally monetize through third party bidding systems. We think this logic is sound and applies more broadly to all new walled garden candidates. The most likely outcome in our view is the emergence of more hybrid advertising environments that blend proprietary bidding systems with third party demand, and it remains unclear how aggressively media companies will prioritize managed demand over external DSP demand.

Appendix: Market Sizing Data



Market Sizing Data

Total Global Paid Media

	Gross Ad Spend (\$B)				
	2017	2018	2019	2020	CAGR
Digital	\$228.0	\$261.0	\$292.3	\$323.7	12.4%
TV	\$182.0	\$176.1	\$174.3	\$172.4	-1.8%
Print	\$62.6	\$54.7	\$49.4	\$44.0	-11.1%
OOH	\$31.9	\$31.5	\$31.2	\$31.6	-0.4%
Radio	\$28.6	\$27.0	\$26.1	\$25.2	-4.1%
Total	\$533.1	\$550.2	\$573.4	\$596.9	3.8%

	Share Of Total			
	2017	2018	2019	2020
Digital	42.8%	47.4%	51.0%	54.2%
TV	34.1%	32.0%	30.4%	28.9%
Print	11.7%	9.9%	8.6%	7.4%
OOH	6.0%	5.7%	5.4%	5.3%
Radio	5.4%	4.9%	4.6%	4.2%
Total	100.0%	100.0%	100.0%	100.0%

Digital Marketing Categories

	Gross Ad Spend (\$B)				
	2017	2018	2019	2020	CAGR
Search	\$101.9	\$114.8	\$127.9	\$139.9	11.1%
Walled Gardens	\$55.6	\$76.5	\$97.7	\$119.4	29.0%
Open Programmatic	\$51.5	\$57.8	\$57.2	\$56.3	3.0%
Reservations	\$19.0	\$11.9	\$9.5	\$8.1	-24.8%
Total	\$228.0	\$261.0	\$292.3	\$323.7	12.4%

	Share Of Total			
	2017	2018	2019	2020
Search	44.7%	44.0%	43.7%	43.2%
Walled Gardens	24.4%	29.3%	33.4%	36.9%
Open Programmatic	22.6%	22.1%	19.6%	17.4%
Reservations	8.3%	4.6%	3.3%	2.5%
Total	100.0%	100.0%	100.0%	100.0%

Market Sizing Data

Walled Garden Spending

Gross Ad Spend (\$B)

	2017	2018	2019	2020	CAGR
Facebook	\$37.9	\$52.5	\$67.1	\$81.6	29.1%
Google	\$12.0	\$15.0	\$18.8	\$22.5	23.3%
Amazon	\$2.2	\$4.5	\$6.1	\$8.2	54.3%
Twitter	\$2.1	\$2.6	\$3.0	\$3.5	17.8%
Snap	\$0.8	\$1.2	\$1.7	\$2.3	40.9%
Pinterest	\$0.5	\$0.7	\$1.0	\$1.4	43.9%
Total	\$55.6	\$76.5	\$97.7	\$119.4	29.0%

Share Of Total

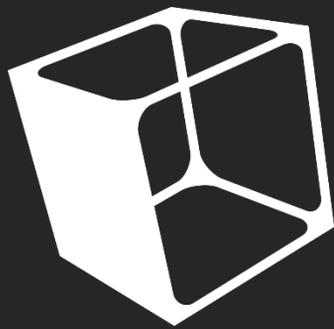
	2017	2018	2019	2020
Facebook	68.3%	68.6%	68.7%	68.3%
Google	21.6%	19.6%	19.2%	18.8%
Amazon	4.0%	5.9%	6.2%	6.9%
Twitter	3.8%	3.4%	3.1%	2.9%
Snap	1.5%	1.5%	1.8%	1.9%
Pinterest	0.9%	0.9%	1.1%	1.2%
Total	100.0%	100.0%	100.0%	100.0%

Market Sizing Data

Open Programmatic Spending By Platform

	Gross Ad Spend (\$B)				
	2017	2018	2019	2020	CAGR
Google AdWords	\$14.0	\$18.5	\$20.7	\$22.6	17.4%
Google DV360	\$1.9	\$2.6	\$3.5	\$4.1	29.1%
Facebook Audience Network	\$2.0	\$2.5	\$3.1	\$3.4	19.8%
Amazon Advertising Platform	\$0.6	\$1.5	\$2.6	\$3.5	84.7%
The Trade Desk	\$1.5	\$2.4	\$3.4	\$4.5	43.0%
Xandr	\$1.4	\$1.7	\$2.0	\$2.4	19.7%
Criteo	\$2.3	\$2.3	\$2.3	\$2.3	-0.4%
Verizon	\$7.9	\$7.7	\$7.4	\$7.2	-3.1%
All Other Buy-Side Platforms	\$19.9	\$18.5	\$12.2	\$6.3	-31.9%
Total	\$51.5	\$57.8	\$57.2	\$56.3	3.0%

	Share Of Total			
	2017	2018	2019	2020
Google AdWords	27.2%	32.0%	36.2%	40.2%
Google DV360	3.7%	4.5%	6.0%	7.4%
Facebook Audience Network	3.9%	4.3%	5.5%	6.1%
Amazon Advertising Platform	1.1%	2.6%	4.6%	6.2%
The Trade Desk	3.0%	4.1%	5.9%	8.0%
Xandr	2.7%	3.0%	3.6%	4.2%
Criteo	4.5%	4.0%	4.0%	4.0%
Verizon	15.3%	13.3%	13.0%	12.8%
All Other Buy-Side Platforms	38.7%	32.1%	21.3%	11.2%
Total	100.0%	100.0%	100.0%	100.0%



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