GUIDE TO DIGITAL VIDEO ADVERTISING

Practical Advice For Cross-Platform Video Advertising **SEPTEMBER 2017**

Credits

The 2017 Guide to Digital Video Advertising was developed by the Digital Video Committee, a working group of the IAB Digital Video Center of Excellence, primary forum for discussing and addressing the challenges that arise from delivering video content and advertising. This comprehensive, practical guide to the current state of digital video is the centerpiece of the working group's educational mission.

This Guide to Digital Video Advertising would not be possible without the invaluable input of the following contributing IAB member companies:

- <u>33 Across</u>
- <u>ABC</u>
- Activision
- <u>Bidtellect</u>
- Brightcove
- <u>CBS Interactive</u>
- <u>Cedato</u>
- <u>Comcast</u>
- <u>Eko</u>
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- FreeWheel
- <u>Hulu</u>
- Index Exchange
- Integral Ad Science (IAS)
- JW Player
- <u>LogoBar</u>
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- <u>Spotify</u>
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- <u>Synacor</u>
- <u>Teads</u>
- Viant (Xumo)
- <u>Videology</u>
- <u>ZEFR</u>

About the IAB Digital Video Center of Excellence

IAB Digital Video Center of Excellence—a dedicated unit within IAB—is devoted to the advancement of the digital video medium in the global marketplace. Its board and members reflect a dynamic mix of top television brands, original digital video content producers, pure digital players, digital video technology leaders, and innovative startups spanning the growing digital video programming, marketing, and distribution spectrum. Together with its member companies and in cooperation with IAB Tech Lab, IAB Digital Video Center produces technical standards, research, and thought leadership critical to the field. Established in November 2014, the Digital Video Center is based at the New York headquarters of IAB, and membership is open to all IAB member companies.

For more information about the IAB Digital Video Center of Excellence, please visit <u>iab.com/video</u> or email <u>video@iab.com</u>.

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1. Executive Summary

The current video landscape is being transformed by the confluence of technological innovation and consumer behavior shifts. This new media landscape created by the TV-video shift is increasingly automated, data-driven, addressable, and accountable, where audience is as important as content and context. The perceived dichotomies of television vs. video, broadcast vs. cable, and desktop vs. mobile are breaking down under the pressure of an accelerated convergence of technologies and markets. In a world of endless choices, accessibility, quality content and user experiences are key.

Sight, sound, and motion have always been the most engaging way to reach an audience, and the continued vitality of ad spend in linear TV demonstrates that the compelling nature of television advertising has not abated. The introduction of internet technologies to the TV market has certainly blurred the lines between linear TV and digital video—by introducing more data, addressability, and cross-platform capabilities—but without diminishing TV's core value proposition. Whether viewed on a connected TV set at home, on a streaming device at the gym, or on a desktop at work, video remains an advertiser's most powerful tool to connect with audiences, wherever, whenever, and however they may be watching.

When ad buyers—particularly brand advertisers—look at this new media landscape, they see the persistent value of television as a high-reach medium. They also see how valuable digital video is in targeting and delivering cross-platform niche audiences to advertisers, especially younger, tech-savvy, and thus highly desirable demographics. Buying only linear TV would leave out a growing audience that doesn't necessarily tune in for primetime, but are accustomed to watching video on the go.

A key question continues to vex cross-platform marketers: which screen is most effective for reaching a particular audience or communicating about a particular product? The measurement and attribution side of video marketing is an ongoing challenge facing the converged TV-video space.

These market forces have culminated in a critical inflection point, illuminating the industry's need for a clearer and more detailed understanding of the ongoing interplay between traditional TV and digital video. This Guide to Digital Video Advertising seeks to make sense of those changes.

If TV is increasingly digital, what does digital video mean? What will it become? How can video best be used to reach, engage, and drive actions?

To start tackling these questions, IAB and its members have created this Guide to Digital Video Advertising. The guide seeks to help the industry demystify video by giving publishers, marketers, and brands the tools they need to understand the evolving video landscape. The guide is presented as a reference for all things video in the digital advertising space, providing best practices, thoughtleading perspectives, and practical advice on the state of the video advertising ecosystem. It will offer a deep dive into data and targeting, automated buying and selling processes and mobile video, as well as the future of digital video-the New TV. This guide draws extensively from research papers, primers, and standards authored by IAB, IAB Tech Lab, Media Rating Council (MRC), Trustworthy Accountability Group (TAG), and a wide range of external research sources. The guide provides links to all current IAB working groups with the hope to promote broader industry participation in advancing video advertising space education.

We encourage our members to read through sections of interest, share the content with their co-workers and social networks, and to communicate feedback and suggest updates to <u>digitalvideocenter@iab.com</u>. This guide will be updated periodically to reflect the continuing evolution of the digital video advertising marketplace.



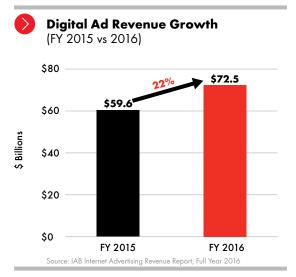
2. Digital Video Advertising Opportunities

The continued growth in digital video advertising demonstrates the indomitable power of sight, sound and motion to capture attention, drive engagement, and build brands. As U.S. digital advertising revenue increases, mobile advertising is helping drive the growth, surpassing desktop advertising revenues for the first time in 2016. We see more growth and new opportunities for digital video in the near future. Read about the latest trends and a forecast in this section.

2.1. Market Size, Forecast, and Trends

The digital ecosystem has never been more vibrant and exciting. The latest industry data demonstrates record digital ad revenues, continued robust double-digit compound annual growth, and a dramatic shift from desktop dominance to the seemingly inevitable march of mobile revenue prominence.

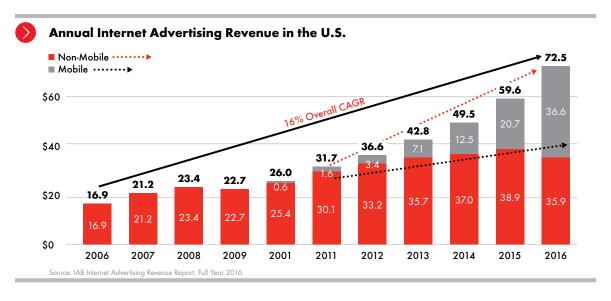
2.1.1. Market Size



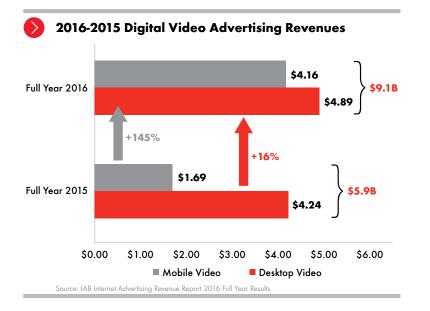
Digital Advertising Revenue grew 22%

from \$59.6 billion in 2015 to \$72.5 billion in 2016. According to Nielsen, total U.S. media revenue only increased by one percent during the same period.¹

2016 showed record revenues, with a strong overall compounded annual growth rate (CAGR) of 16%, and an astounding 87% CAGR for mobile ad revenues for the 2011-2016 period.



¹ The Nielsen Company, Monitor Plus (Standard Calendar, Total includes B2B, National Internet (Display only), FSI Coupons), Oct. 2016

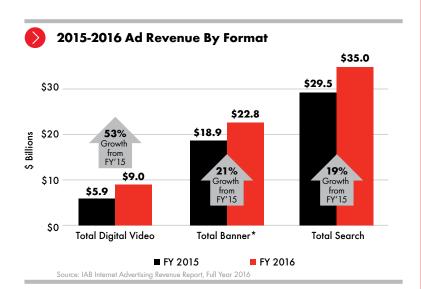


In terms of digital video advertising revenues, 2016 has been an extraordinary year with revenues reaching \$9.1 billion, a gain of 53 percent across mobile and desktop.

Mobile video saw an extraordinary increase of 145 percent, with revenues of \$4.16 billion. Desktop video advertising revenue reached \$4.9 billion, representing 16 percent growth over 2015.²

Video ad revenue, including desktop and mobile devices, had the biggest increase compared to other formats.

This massive growth is a result of the explosive mobile device usage combined with new content consumption channels, properties, and platforms including social media.³ As streaming opportunities have never been so abundant and continue to expand, content will also be more inclined towards video.

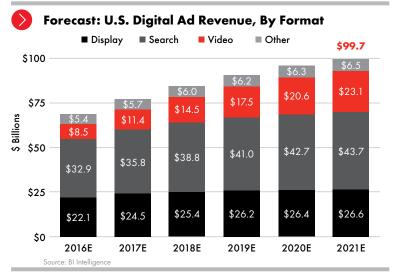


² IAB/PwC 2016 Internet Advertising Revenue Report

³ To view the Top 10 Video Content Properties by Unique Viewers, see comScore's monthly release of their <u>Video metrix data</u>.



2.1.2. Forecast



Note: Includes mobile and nonmobile; display includes banner, sponsorship, and rich media Source: BI Intelligence estimates based off historical data from the Interactive Advertising Bureau, PricewaterhouseCoopers, and Magna Global

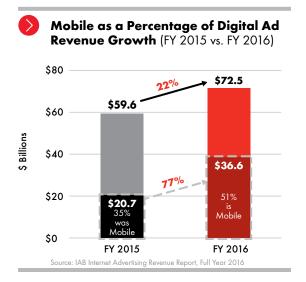
The U.S. digital market is continuing its growth trajectory, with expected total ad revenue reaching nearly \$100 billion by 2021.

Filtered by format, digital video advertising is forecasted to show the biggest CAGR, (Compounded Annual Growth Rate) reaching \$23 billion in revenue in 2021.⁴

Growth in digital ad revenue is supplemented by the continued increase of mobile and social spending.

2.1.3. Trends

As we examine the continued convergence of TV and digital, a few key trends are emerging: the



dramatic growth of mobile video revenue, the deep penetration of smartphone adoption, and the rise of automation in buying and selling of video inventory.

The anticipated and seemingly inevitable "year of mobile" finally arrived in 2016. For the first time, mobile advertising spend surpassed that of desktop. According to <u>IAB Full Year 2016</u> <u>Internet Advertising Revenue Report</u>, mobile ad spend has grown to account for over half of digital ad revenue for full-year 2016.

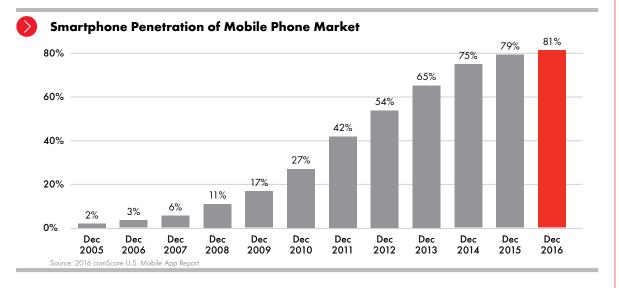
Overall, mobile video advertising has grown an astonishing 145% year-over-year to \$4.2 billion.⁵

⁴ Business Insider: "The U.S. Digital Media Ad Revenue Report: The path to \$100 billion in annual revenue by 2021."

⁵ IAB/PwC 2016 Ad Revenue Report



The explosion of smartphone ownership has made mobile the number one platform for brands looking to access audiences. A recent ZenithOptimedia report suggests that consumers spend nearly 20 minutes a day watching online videos on mobile devices.⁶ PwC's Global Entertainment and Media Outlook⁷ projects that growth will fuel equally rapid expansion for mobile advertising, making it the fastest-growing ad channel globally.



Smartphone adoption surpassed 80 percent of all mobile phone owners as of July 2016 and has inched up to 81 percent by December 2016.

Given that the average U.S. adult now juggles four connected devices (the majority being smart phones and tablets), it's no wonder that mobile advertising is demonstrating such strong revenue growth.⁸

Automated buying is becoming the new normal in transacting digital video advertising as its efficiency, ease, and analytics have already garnered profits across all advertising verticals. In the last 3-5 years, programmatic has gone from a fringe term used to describe the automated buying and selling of remnant inventory to a widely adopted marketplace enabler, garnering billions of ad dollars. Automation in buying and selling has moved beyond display and is now a significant force in digital video ad buying as well.

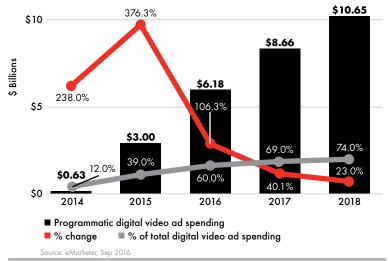
⁶ Business Insider: "<u>5 video advertising trends that will change your business.</u>"

⁷ PwC: "2017-2021 Global Entertainment and Media Outlook."

⁸ Forrester Research, 2016



billions, % change and % of total digital video ad spending



Note: Digital video ads transacted via an API, including everything from publisher-erected APIs to more standardize RTB technology; includes advertising that appears on desktop/ laptop computers, mobile phones, tablets and other internet-connected devices; includes advertising that appears before, during or after digital video content in a video player

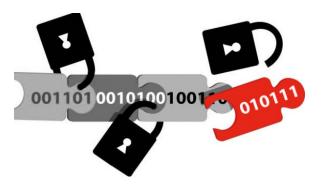
Blockchain: A Glimpse of the Future Video Marketplace

Blockchain, best known at this point in the context of financial markets, is the technology underpinning bitcoin, essentially a massive shared excel sheet with many <u>innovative uses</u>. While synonymous with crypto-currency, new transactional use cases are emerging for block chain, including the buying and selling of media. Some pundits are hopeful that the use of blockchain can bring greater efficiency and transparency to the marketplace.⁹

How does it work? Blockchain is a protocol that enables a time series of data to be recorded, creating a distributed ledger through which logs from a tagged piece of creative can be tracked to determine its path and audience, conversion rates, and budget spend along the chain.

The process is as follows:

- 1. A buyer buys an impression which is encrypted in a block and then broadcasted to every single participant on the chain.
- 2. The impression is verified by the publisher, then added to the ledger.
- 3. Everyone in the blockchain gets to see the impression event, validate, and approve it (creating ideally, a more transparent marketplace).



The key benefit of blockchain is that it potentially allows multiple parts of the industry to work together with no dependency on any single party's data.

According to eMarketer,

(automated buying / selling) has become mainstream with

60% of U.S. digital video ad spend expected to be

automated channels in 2016.

These projections are echoed

by the latest <u>IAB Ad Spend</u> Study that show that the share

of digital video ad spend

bought in an automated

in 2017.

fashion will continue to grow

advertiser adoption of

programmatic video

transacted through

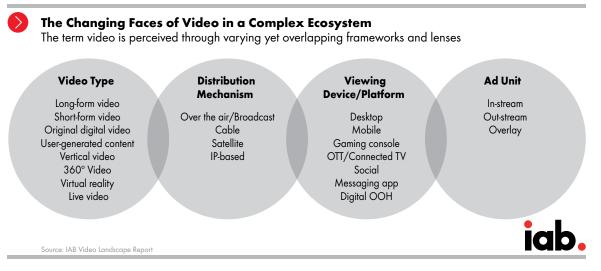
⁹ Pathak, S. (2017). "<u>Why digital advertising is experimenting with blockchain</u>." Digiday, 4 Apr 2017



3. The Digital Video Advertising Landscape

Changing consumer behavior and technological advances in content delivery have resulted in a new media landscape, one where the lines between TV and video are increasingly blurred. This TV-video-shift is prompting the marketplace to rethink definitions and approaches to video advertising.

In order to understand digital video and its many benefits, we must seek to understand its complex and ever-shifting ecosystem. This section outlines how all these moving parts interact, including branding opportunities, the planning processes, pricing models, and creative decisions required to ensure high quality consumer experiences.



Across video platforms, new opportunities to reach and engage consumers come in many shapes and forms. Brands and marketers utilize these options to better connect and engage with consumers.

3.1 Mapping the Ecosystem

From start to finish, buying and selling digital video involves a number of steps—often dependent on multiple vendors—to ensure a high quality video asset makes it through the entire lifecycle of a video ad and with all usage rights in order. So, what are these different components and who are the key participants throughout the lifecycle of a campaign?

Publishers: Organizations with owned or curated media who sell inventory on their websites and/or apps.

Publisher Networks: Organizations that aggregate advertising space but don't necessarily own them.

Agencies: A service business dedicated to planning, creating, and handling advertising for its clients. An ad agency is independent from the client and provides an outside point of view to the effort of selling the client's products or services.

Trading Desks: A centralized agency team or organization that provides a managed service layer, typically on top of a licensed demand-side platform (DSP) and other audience buying technologies. This group typically manages automated, bid-based media, and audience buying on behalf of their advertiser clients.

Brands: The company or product being advertised.

Demand-Side Platform (DSP): Software used by buyers to access and decision against publisher inventory. Other functions usually include bundled bidding algorithms/optimization techniques, third- and first-party data integrations, tagging and attribution functionality, and media delivery reporting.



Sell-Side Platform (SSP): Software used by publishers to aggregate, consolidate, and manage available demand sources and exchange inventory. Sometimes includes ad serving functionality.

Data Management Platform (DMP): Technology service that allows participants/operators to aggregate and normalize disparate data sets for advanced campaign analytics/reporting as well as segmentation and targeting.

Advertiser Ad Server: Technology that provides centralized storage, tracking, and delivery of media campaign assets.

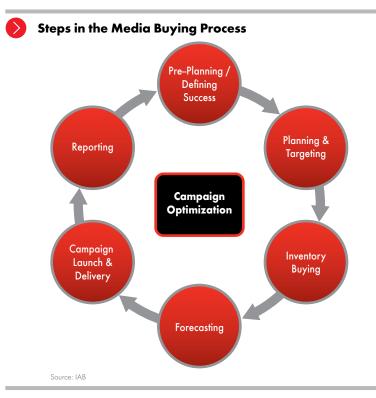
Publisher Ad Server: Software to manage advertiser creative tags and delivery priority amongst many advertisers.

Measurement Vendors: Companies that measure a range of metrics valuable to advertisers and publishers, including but not limited to, measuring for viewability, online or offline sales, and brand awareness.

Verification Vendors: Third-party technology companies intended to measure target delivery, viewability, brand safety, and fraud.

Creative Vendors: Third-party vendors who offer their creative skills, consulting, and products. These fall into two buckets. 1) (as you have it written) and 2) vendors that manage and deliver the creative assets, including quality control and rights management.

IAB offers a <u>Digital Fundamentals</u> class—available as an in-person class and as an online learning curriculum—that provides learners with a comprehensive introduction to the digital advertising ecosystem.



3.2 The Media Buying Process

The media planning process involves selecting where to advertise and when to use specific media vehicles (the right timing) to deliver a message, to reach and engage a target audience.

Within the brand's budget constraints, the media planning process includes: determining the media objectives and establishing communications goals, developing a media strategy and tactics to enable the media objectives, and determining how to measure the effectiveness of the media plan.

Key Pre-Planning Considerations

- What objectives do you have for your campaign?
- Are there specific measurement goals that are important to meet?



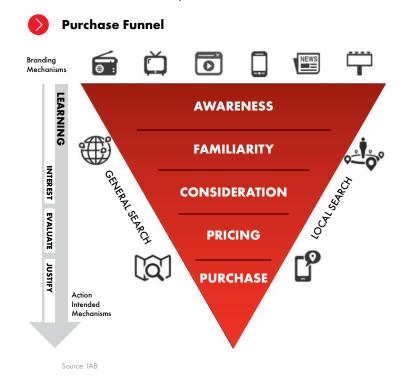
- What is your budget?
- Do you need to utilize a third-party party vendor to perform measurement?
- In thinking about the audience you're trying to reach, which targeting parameters will be most important? Age, Gender, Behavioral Targeting Segment, Re-Targeting Segment, Household/Purchase Targeting Segment, Country, Designated Market Area (DMA), Time Zone?
- What's the most relevant inventory medium or media mix given the target audience? Desktop, Mobile, Connected TV, Inventory Source, Contextual Category, Genre?

These key considerations will help define the scope of the campaign and determine measures of success, a.k.a. Key Performance Indicators (KPIs). KPIs are measurable performance metrics that allow marketers and agencies to work towards a common goal. A campaign can be sold against a number of KPIs. In TV, the most common KPIs are achieving a certain Gross Rating Point (GRP),¹⁰ reach,¹¹ or frequency.¹² In digital video advertising, the abundance of data allows campaigns to measure a wider variety of KPIs, including a specific target audience, verified ratings delivery, viewability rates, and/or other criteria. Brand advertisers also require brand and sales metrics such as brand awareness, brand consideration, and offline sales to be available to them.

Planning and Targeting

After determining the campaign success metrics, budget, and desired outcomes, the next steps are defining the target audience to reach, the creative formats and media/channels to utilize. The audience will be based on the desired outcome of the campaign. For example, an automotive advertiser may be trying to incite higher in-dealer test drives for their newest car model. For them the target audience could be families in suburban areas that have owned the brand in the past.

The purchase funnel, or purchasing funnel, is a consumer focused marketing model which illustrates the theoretical customer journey towards the purchase of a product or service. Digital video is used throughout the purchase funnel as a branding mechanism, driving awareness, brand familiarity, consideration, through interactive capabilities and calls to action to purchase.



¹⁰ Gross Rating Point: Measured by the % of households that tune into to a particular show or network and have the opportunity to see an ad.

¹¹ Reach: Represents the total number of people exposed to the media plan or ad over a certain time period, based on the total size of the target audience.

¹² Frequency: Is a measure of media repetition.



Media mix modelling can be used in strategic planning to determine which platforms, publishers, and formats to use. Some useful questions to ask at this stage include:

- Is the campaign focused on driving brand awareness, direct response (i.e. purchase), or loyalty?
- Should we use a combination of display, video, and mobile ads?

Next step is adding targeting parameters to better reach the desired audience. In contrast to TV where demographics (age and gender) are the most commonly used targeting parameters, digital video advertising allows additional targeting types, including:

- **Behavioral Targeting:** Targeting based on user behavior typically from third-party data providers, or information collected from owned and operated properties. This data could include user purchase history and intent, general interest, web navigation history, and customer relationship management information
- **Geographic Targeting:** Targeting limiting the delivery of a campaign to specified countries, states, postal codes or DMAs (Designated Market Areas)
- **Daypart Targeting:** Limiting ad delivery to specific time frames when the target audience is expected to be most receptive. For example, you can set the ad to run only in the evening or only on weekdays
- **Contextual Targeting:** Targeting to inventory based on the content of the page on which the ad is running
- **Technology Targeting:** Targeting based on the technology the user is utilizing to access the content, such as Browser, Operating System (OS), Device, and more

Inventory Buying

After defining KPIs, audience, and targeting criteria for the ad campaign, the next step might be the development of specific media tactics. This is separated from the task of media planning and traditionally is the responsibility of the media buyer. Media buyers select the media vehicles and inventory needed to execute the media strategy. Their key considerations include which media properties will give them the reach and frequency (considering quantitative measures such as audience duplication and cost) to develop an optimal "media mix" inventory plan to fulfill the campaign.

Depending on the platform utilized, agencies/DSPs may be able to select inventory offered by a publisher, which may be an entire website/web property or mobile apps or particular ad locations within a website or mobile app. In addition to managing inventory, domain-level whitelists and blacklists may be applied to campaigns. **Whitelists** (generally more restrictive) declare the campaign may run only on the listed domains, whereas **blacklists** declare a campaign may *not* run on the listed domains. Whitelist of select both a whitelist and blacklist, as that would overly restrict targeting options.

Forecasting

At this stage, forecasting is important to ensure full delivery of the campaign. **Forecasting** is the ability to calculate in advance how much inventory you'll need, through the combination of reach and frequency, to deliver against the desired KPIs. Historical campaign data, available inventory, and targeting parameters help determine spend amount and specific price points at various volumes. The ability to forecast against specific audience segments enables automated audience buying. This is complex because it doesn't simply require connecting the right pipes or hooking up publishers' backends with DSP platforms. It requires anticipating available inventory with certain specific audience characteristics beyond age and gender at a certain time. This isn't an easy task and few technology partners can accomplish this precisely, particularly in video where supply is limited.

Campaign Launch and Delivery

Launching and delivering a campaign requires an IO, sourcing the right creative and trafficking the media.

IO Approval: Insertion order (IO) is generated and approved as a commitment from an advertiser to run the campaign.

Sourcing Creative Assets: Typically, the video plan requires assets in many different formats and specifications. The activation team also has to get confirmation that the rights are in place for all placements on the media plan.

Traffic Media: The trafficking process starts after the planning and creation phase, and assumes that you have the required video/companion assets and tracking tags.

Once a campaign has been set up in the system, the IO approved by buyer and seller, and creative assets trafficked, it is ready for launch. Once launched, an account manager or delivery manager will monitor the campaign closely to ensure there aren't any setup mistakes.

Reporting

Campaign effectiveness is critical to campaign optimization. In some cases, advertisers can get daily reporting on the health of their campaign, and can see how the campaign is performing against their KPIs. The data gleaned from these reports can provide insight into potential adjustments.

Campaign reporting can normally be customized to meet the end-client's needs, but typical metrics reported may include:

Brand Awareness: How many of the target audience have become aware of the brand postcampaign?

Purchase Intent: How many of the target audience purchased the brand or product as a result of the media campaign?

Additional video metrics may include: click-through rate (CTR), video completion rate, video viewthrough rate (VTR), quartile analysis, creative type, creative length, video starts, video view count, average view rate, average view time, and conversion rate.

Examples of additional studies and advanced reporting include:

- Real-time brand metrics that can be used to measure specific campaign objectives to include message recall, awareness, purchase intent and brand favorability through a control/exposure survey-based approach
- Insights showing both TV & Digital ad exposure as well as the brand's customers TV viewing behavior
- Audience verification reports that use verified demographic data to identify audiences exposed to an online ad campaign
- Online and offline sales studies that rely on different methods to track how the video campaign ties back to sales
- Viewability and invalid or fraudulent traffic analysis and verification

In 2016, IAB established the <u>Digital Media Buying & Planning Certification</u> exam to set an industry benchmark for digital media planning and buying competency. One to two years of digital media planning and/or buying experience is required to be eligible for certification. IAB also offers preparatory classes supporting this exam.

Campaign Optimization and Path to Conversion

How does it all come together?

Using information from the current campaign (such as how it's pacing against the delivery plan, forecast and KPIs) the technology partner can optimize and re-adjust the campaign to achieve the desired outcome. This ongoing feedback loop is a part of every campaign.

To optimize against advertiser goals, the platform needs to be capable of processing billions of events, dynamically combining first-, second-, and third-party user data in real-time. A comprehensive DSP can also self-learn, improve, and continuously optimize against brand KPIs, thereby delivering the best outcomes.

Video campaigns, just as with any other medium, are evaluated by their effectiveness through a path to conversion or an increase in brand awareness, depending on the campaign's overall goal. Simply put, this is the process of evaluating a sequence of events that will help to infer behavioral scenarios that are likely to produce the end goal. This analysis can then inform future planning or in-flight optimization between channels, audiences, or creative messaging.

To find out more about attribution, path to conversion and incrementalism of impression delivery, please reference <u>IAB's attribution primer</u>.

3.3 Digital Video Ad Formats

Digital video ads can be broken down into two different formats: **linear** and **nonlinear**. Either format may include a "**companion**" ad that displays outside the player.¹³

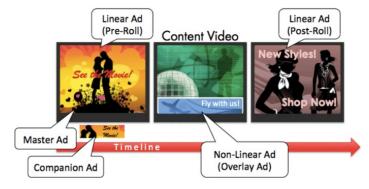
Linear video ads are ads that are sandwiched between segments of streaming video content much like a TV commercial. They can play before (pre-roll), during (mid-roll), or after (post-roll) the streaming content. Linear ad formats can be accompanied by a companion ad or they can include an interactive component such as branded components of the video player (i.e. logos within the control bar, progress bar, etc.)

Non-linear video ads are

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typically served as images that "overlay" the video content. The ad runs concurrently with the streaming content so the user sees the ad while also viewing the content without interruption. Ideally, the non-linear video ad is small enough to allow a relatively unobstructed view of the content. Non-linear video ads can be delivered as text, static images, interactive rich media, or as video overlays. Typically, a nonlinear video ad developer can take advantage of the medium and use the small overlay as an invitation for





Source: IAB Digital Video In-Stream Ad Format Guideline

consumers to further engage with a more robust set of interactions. As with linear ads, nonlinear ads can be served with companion ads.

Companion ads are served along with linear or nonlinear ads in the form of text, static image display ads, rich media, or skins that wrap around the video experience. These ads come in a number of sizes and shapes and typically run alongside (or surrounding) the video player. The primary purpose of the companion ad is to offer sustained visibility of the sponsor throughout the streaming video experience. Digital video companion ads are always served with a master ad, which is either the linear or

¹³ This section is derived from the IAB <u>Digital Video In-Stream Ad Format Guideline</u>.

nonlinear ad.



3.4 Digital Video Ad Units

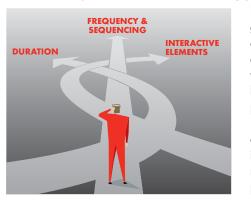
There are two primary types of ad units: in-stream & out-stream.

- In-stream video ads are played before (pre-roll), during (mid-roll), or after (post-roll) the streaming video content that the consumer has requested. In-stream video ads are displayed within the context of streaming video, frequently used to monetize the video content that the publisher is delivering, and can be played inside short-form or long-form video. Users typically cannot stop in-stream ads from being played, particularly with pre-roll. There are three different types of video content where in-stream may play: journalistic (i.e. news content); syndicated (i.e. distributed content); and user-generated content.
- Out-stream video ads is video advertising that takes place <u>outside</u> of in-stream video content. The key difference between in-stream and out-stream video ads is that out-stream video ads leverage the existence of standard display ad units to deliver a video experience. For example, a site visitor may view an article on a news website and a muted, auto-play video ad may load in a standard display ad unit.

Out-stream video ads are not the primary focus of the page and typically not rendered in a prominent video player. The visitor did not visit the page with the intent to view a video nor did they actively initiate the experience.

The out-stream definition includes:

- **In-banner video** is a video clip within a web banner that leverages the banner space to deliver a video experience as opposed to another static or rich media format. The format relies on the existence of display ad inventory on the page to be delivered.
- **In-article video** ads load dynamically between paragraphs of editorial content when a user scrolls through the page, playing video when the ad unit is in view.
- **Native videos** are promoted videos within one of the six IAB native core ads¹⁴ (i.e. in-feed unit, paid search unit, recommendation widget, promoted listing, in-ad with native elements, or custom). Native videos include a headline, description, and context for the ad.
- In-feed videos are native video ads found in content, social, or product feeds, often paired with a headline, description, and logo.
- Interstitial video are ads that appear between two content pages. Also known as transition ads, inter-commercial ads, and splash pages. Other terms such as in-page, mobile pre-roll, and incentivized videos appear in the context of mobile interstitials or ads that have 100% share of voice/screen.



3.5 Digital Video Content Types

Inventory opportunities are expanding as a result of the growing number of screens, devices, and platforms. Video content types range from <u>long-form</u>, which IAB glossary defines as typically more than 10 minutes, and <u>short-form</u>, typically less than 10 minutes. Full Episode Players (FEP) haven't yet been defined by IAB, but as described by <u>ABC</u> provide schedule-free viewing of premium, full-length shows. User-generated content (UGC) is defined as any form of content such as blogs, posts, chats, tweets, podcasts, digital images, video, audio files, advertisements and other forms of media that are created by users (i.e. not professionally produced). Most of these videos are found on YouTube.

¹⁴ IAB Deep-Dive on In-Feed Ad Units: A Supplement to the IAB Native Advertising Playbook

3.6 Online Video Platforms (OLV)

IAB defines video platforms as those environments in which video content is shown or streamed, including desktop, mobile devices, tablets, <u>Over-The-Top (OTT) devices</u>, and Advanced TV. As technology advances, we can expect to see more new devices and ways of consuming content entering the marketplace. One example of this is shaping up in Digital Out-of-Home (DOOH) media. From large, digital billboard-style formats to screens in taxis, elevators, and gyms, we are seeing digital video content and ads, discovered and consumed in unique formats, reaching consumers in locations they frequent most.

Visit the <u>IAB DOOH Committee</u> page for additional Digital Out-of-Home resources for buyers and publishers alike.

3.7 Digital Video Creative Decisions

In addition to the steps outlined above, there are creative decisions required to achieve a campaign's desired result. These include (beyond the duration of the campaign itself) the duration of the advertisement, frequency and sequencing, as well as the campaign's interactive elements.

Duration

The duration of the ad will depend on the target audience, and the device on which it will be shown. Several studies (including the <u>IAB Multiscreen Video Best Practices</u> report) indicate that the ideal ad length can vary by generation and screen. Ten-second videos for instance can help maximize impact among millennials and multiscreen videos should be branded with smaller mobile screen sizes in mind.

Frequency & Sequencing

Frequency and sequencing will also depend on the campaign's target audience, budget constraints and the campaign's media mix modelling. The effective frequency is the number of times a person must be exposed to an advertising message before a response is made and before additional exposure is considered wasteful. The subject of effective frequency is quite controversial. In digital advertising context, ad sequencing refers to scheduling a particular and ordered ad sequence made of different creatives; should the ad be shown during primetime and have burst during the weekend, or should it be shown in specific times during the day?

Interactive Elements

Interactive elements can be used in video ads, and are generally executed with a VPAID tag that allows for interactivity with the user. There are various forms of interactivity: a campaign can be set to have personalized assets—if the user's locale is New York, it can present the user with relevant financing options for New York as opposed to Los Angeles. Social icons can also be utilized to make video sharable, and an "add to calendar" feature can work well for movie releases. If the brand is trying to drive in-store car testing, they could add an interactive form to be completed by the user prior to going to the showroom.

These are only some of the interactive elements used in video campaigns. To explore additional examples of interactive and cross-platform creative executions, please visit the IAB <u>Cross-Platform</u> <u>Creative Showcase</u>.

3.8 What Makes for Quality Digital Video Creative?

Some of the most often shared content is video advertising. The 2016 Rio Paralympics trailer "<u>We're</u> the Superhuman?" is a great example. The three-minute video was viewed over eight million times on YouTube, and now has over 1.8 million shares across social media. It's proof that great content works– even when it's advertising.

So what can advertisers do to garner more views and shares? For starters: Do *not* just repurpose the same TV commercial on every platform!

It may seem as though this option is a money saver, but it will inevitably cost more in terms of negative brand perception—for instance, when a 60-second ad designed for a TV screen is served to a user on a mobile device. Traditional TV and digital video environments are profoundly different. TV viewers are used to lean-back experiences; digital consumers are typically more leanforward, short-term task focused and susceptible to clicking away at a moment's notice. Mobile consumers have also grown accustomed to content that has been meticulously tailored to their tastes, and they expect advertising to be no less relevant and personalized. While in some cases repetition may improve recall, too much frequency on any



platform can cause annoyance among consumers. A good way to ensure a better consumer experience is to shoot video ad creative from the outset in different aspect ratios (9:16 and 16:9) with story lines of different lengths so as to better match the ad to every platform on which it will be viewed (i.e. vertical video ads for mobile app platforms such as Snapchat and Instagram).

Considering the digital video viewers' experience is vital. Think critically about audience and the platform the ad will appear on, and use targeting to send messages tailored to unique groups in the campaign. With video viewability (the opportunity to see a video ad) defined as a video advertisement playing for two continuous seconds with half of the ad's pixels in focus in the browser, advertisers need to hook their audiences quickly. Additionally, with the power of the internet at viewers' fingertips,



marketers are advised to offer a strong, concise call-to-action or message that the video viewer can act upon or remember. Interaction points can include a "click-to-call" to learn more about the brand, the option to fill out a post-video form or end card, to request a test drive for a new car, or to download a coupon for a discount.

Many platforms will offer the ability to run dynamic creative—in other words, the ability to allow advertisers to schedule slightly modified ads as the timeline of the campaign progresses. Be sure to take advantage of this capability. While some platforms offer advertisers the ability to run short creative, other brands are responding with longer creative. Though challenges can arise from placing and promoting long form

video ads, the payoff-if done correctly-can lead to increased attention, earned media, and even virality. In the end, people respond to ads that challenge their expectations, pull at their heart strings, and show them something they've never seen before.

Finally, if you want humans to respond to your message, be sure your message sounds human. Internet users have spent the last 20 years overwhelmed with offers and messages, and will often quickly tune out messages that are executed poorly, or are just irrelevant to them. Targeting and personalization will be the name of the game-delivering fewer ads, to the right people, at the right time.

Location-based advertising, campaigns enhanced by location data and/or utilizing location-based ad targeting capabilities, can deliver more meaningful ad experiences and increased return on investment (ROI) when used effectively. Marketers can, through the use of location data, gain insights into their target audiences enabling them to develop proximity-specific campaigns such as serving a localized version of video ad to in-market auto intenders.

To learn more about location-based marketing strategies, see the IAB <u>Mobile Location Playbook</u>. To get involved with the IAB Local Advertising Committee and related location working groups, please email. <u>committees@iab.com</u>.



3.9 Video Pricing Models

The most common video pricing models in the digital video landscape today include:

- **CPM:** Cost per thousand impressions, calculated as CPM = Total Cost / Total Impressions x 1000. For example, a website that charges \$1,500 per ad and reports 100,000 impressions has a CPM of \$15.
- **CPCV:** Cost per completed view. Pricing model in which the advertiser pays for every time a video ad runs through to completion, calculated as CPCV = Total Cost / Completed Views. Rather than paying for all views, some of which may have been stopped before completion, an advertiser only pays for ads that finished playing.
- **CPV:** Cost per view. Pricing model in which the advertiser pays for every time a video ad starts (each start is counted as a view), calculated as CPV = Total Cost / Total Views.
- VCPM: Viewable cost per thousand. Pricing model in which the advertiser pays based on the cost of 1,000 viewable impressions, calculated as VCPM = Total Cost / Total Viewable Impressions x 1000. A viewable impression refers to an opportunity to view an ad for more than two seconds.
- VCPV: Viewable cost per view. Pricing model in which costs, views, and viewability are all taken into account to determine what the advertiser pays. Calculated as VCPV = VCPM / CPV where "view" usually means a completed view.
- CPAOT: Cost per audience on target
- **CPE/CPI:** Cost per engagement/cost per interaction. Pricing model in which the advertiser pays for every time a user actively engages—or interacts—with an ad. For example, when a user hovers over a lightbox ad to expand it, that's an engagement/interaction.
- **Time-Based Pricing:** CPH (cost per hour) and CPS (cost per second) are pricing models in which the advertiser is guaranteed a minimum exposure time for their viewable impressions and then charged based on how much time 1000 impressions create. Read more about how the *Financial Times* implemented this measurement.

As the business model for video is so dependent on views, marketers should be aware that the definition of a view can vary depending on the platform (i.e. Facebook vs. Snap Inc. vs. YouTube).¹⁵

¹⁵ Herrmann, J. & Isaac, M. (2016). "The Online Video View: We Can Count It, but Can We Count on It?" The New York Times, 2 Oct 2016



4. Video Ad Tech: Overview

Having understood the participants involved in the ecosystem, the next step in understanding digital video is learning how digital video advertising is executed. This chapter focuses on the "how," honing in on the video player–digital video's central character–its role, and the technologies it utilizes. The Video Ad Serving Template (VAST) and the Video Player Ad-Serving Interface Definition (VPAID) are broken down in both technical and practical terms and event tracking and tags are highlighted. Finally, it introduces digital video creative formats and containers, adaptive bitrate support capabilities, as well as iframes and their function. At the end of this chapter you will find further in-depth information on the player, video ad serving requirements and Digital Rights Management (DRM) cross-platform capabilities.

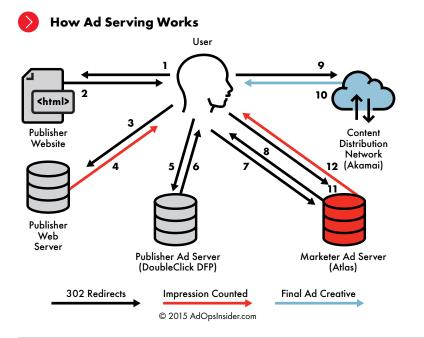
4.1 The Player



At the most basic level, the main technical difference between display advertising and digital video advertising is **the player**. When the call goes out for a display ad, the publisher's ad server is looking to find a set of HTML code on the page to insert the ad. Once it finds it, the ad is shown.

Before including the player into the equation, it is important to understand how ad serving works. <u>Ad Ops Insider</u> published this useful overview.





When a browser navigates to a publisher website (1), the publisher's web server sends HTML code that (2) tells the browser where to get the content (3) and how to format it. Part of the HTML code returned to the browser (4) will include a coded link known as an ad tag.

Here is a theoretical <u>example</u> of what an ad tag from DoubleClick by Google, one of the major ad serving companies, could look like:

https://pubads.g.doubleclick.net/gampad/ads?sz=640x480&iu=/124319096/external/ single_ad_samples&ciu_szs=300x250&impl=s&gdfp_req=1&env=vp&output=vast&unview ed_position_start=1&cust_params=deployment%3Ddevsite%26sample_ct%3Dlinear&correlator=

The ad tag points the browser to the publisher's ad server, a system designed exclusively for delivering and tracking advertising. In most cases, the publisher's ad server (5) is a network of cloud servers¹⁶ owned and maintained by a separate company. In the case of the tag shown above, the content server tells the browser to get the ad from DoubleClick.

¹⁶ A cloud server is a logical server that is built, hosted, and delivered through a cloud computing platform over the internet. Cloud servers possess and exhibit similar capabilities and functionality to a typical server but are accessed remotely from a cloud service provider.



4.1.2 The Ad Selection Process

In many cases the ad server is deciding among thousands of potential ads to deliver to the page in mere milliseconds. The ad server makes a decision, and usually sends back another ad tag (6), or redirects the browser by pointing it to the marketer's ad server. These are technically 302 redirects, which tells the browser the page has been "temporarily moved." This allows ad servers to count the 302 call as an impression and serve the actual ad content on a different server. Once the publisher's ad server sends the browser a redirect to the marketer, it counts a delivered impression in its own reports database. The only exception here is if the publisher decides to deliver a house ad or the marketer has asked the publisher to "site-serve" the ads, both of which require the publisher to load the actual creative files into their ad server. This indicates the publisher is the final source and destination of the ad, and the browser can skip the loop through the marketer's ad server (steps 7, 8, 11, 12).

Read more from Ad Ops Insider about Why Publishers and Marketers Have Their Own Ad Servers.

Image files, on the other hand, are kilobytes or even megabytes in size and could be called millions of times a day, requiring a much faster and robust infrastructure. Ad servers might maintain multiple data centers across the world, but a **content delivery network (CDN)** can distribute delivery, process heavy bandwidth, and deliver the ad content faster. They operate hundreds of data centers and can route requests to the one nearest to the user, no matter where they are. Think of the ad server as the brain and the CDN as the brawn.

Ad servers aren't the only companies that use CDNs, in fact many websites host their bandwidth intensive files in these cloud networks. A CDN is almost always another independent company, such as Akamai, that hosts the heavy creative assets.

In addition to sending back the redirect to the CDN, the marketer's ad server also appends a second redirect (10) back to itself with a query string to fetch a 1x1 pixel for tracking (11) after the ad content has been called. When the browser fires this last redirect, calling a 1x1 pixel from the marketer's ad server, the ad server knows the ad was successfully downloaded and it finally counts an impression in its own database. In many cases, the browser has to make at least four calls for site served ads and six in the case of third-party served ads (if not more) for the process to work. This should not take more than a second, regardless of the number of parties involved.

To visualize the process explained above, please see the <u>Ad Ops Insider</u> diagram in 4.1–302 redirects are highlighted in blue, and the <u>ad creative is highlighted in red</u>.

4.1.3 Adding the Player to the Ad Selection Process

When adding the video player to the ad serving process, a publisher ad server is asked to pull a video asset and show it in a publisher video player as a continuous stream of images and sounds. **The player is**



the interface between the video content and the end user, running the ad and communicating with the page. It also has the ability to pass user data, record engagement information, and coordinate with content on the page to run companion ads. Additionally, the video ad can interact with the video player, ad server, and ad source.

A video ad server will deliver an ad response that has multiple formats for the ad creative. It is important that the video player technology can determine the most appropriate format to play and has the ability to render that ad. The player should choose a creative file size based on the user's available bandwidth to ensure a quality user experience, especially on mobile.

While the video ad is playing, the player technology is responsible for requesting tracking pixels to capture impressions served, time spent, and various other important events. Once the ad has finished playing, a video player must be able to seamlessly transition to playing the content the viewer was expecting to see in the first place. This content can be anything from a video stream to a video-on-demand asset that is hosted on a CDN or is syndicated.¹⁷ Just like the ad, the video player requests the content file and makes decisions on the files to be played. When the content ends, a video player can provide recommendations targeted towards the user's ad preferences. This is usually provided as

Advanced video players are not only able to identify the absence of creative, but can also add an additional layer of optimization that maximizes yield and fill rate. An optimized video player not only reduces the risk of a creative not showing, it also helps to maximize prices, drive publisher revenue growth by improving yield and fill rate update with 'not showing', and create an optimization loop.

a service from vendors and can be turned on from a video content management system (CMS), or by

4.2 Video Ad Server

adding additional scripts to the page.

An ad server is a web based tool used by publishers, networks, and advertisers to help with ad management, campaign management, and ad trafficking. An ad server also provides reporting on ads served on the website.

There are numerous parties involved in digital video ad serving. Determining whether a party is first, third (or fourth) is based on the technical concept of internet delivery (and not who the party is), or who contracted with the party. First party, third party (and fourth party) essentially refers to the sequential number of internet round trips required to execute all elements of an ad delivery transaction, including calling to ad servers for delivery of creative assets, and calls to measurement providers.

IAB defines third-party ad servers as **independent outsourced companies that specialize in managing, maintaining, serving, tracking, and analyzing the results of online ad campaigns.** They deliver targeted advertising that can be tailored to a consumer's declared or predicted characteristics or preferences.

Third-party ad servers can also be used for:

- Tracking/counting impressions
- Filtering for GIVT (general invalid traffic)
- Choosing the appropriate ad content for each site
- Reporting, verification, and auditing
- Creative rotation, frequency capping by and sequencing
- Targeting
- Optimization

4.3 Video Tags: VAST and VPAID

The video ad serving protocols <u>VAST</u> and <u>VPAID</u> may seem complex at first glance, but they are analogous to something familiar: The original VHS video tape format.



In the early days of video cassette recorders, there were two competing tape formats: VHS and Beta. A Beta cassette was smaller than VHS. Initially, movie companies had to manufacture and distribute two sets of cassettes for each format for the same movie. The bifurcation was expensive, not scalable, and resulted in a fragmented industry. Ultimately, the consumer electronics and film industries picked one format as the standard: VHS (Video Home System).

¹⁷ Syndication is a term that is used in both print and broadcast media. It indicates content that for instance is purchased for use by a local newspaper, TV, or radio station. It is not produced by the media company's owner but through an outside source.

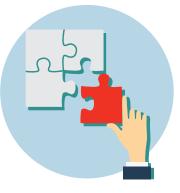


The advertising and media industries faced a similarly fragmented landscape for the delivery of digital video content. Initially, publishers created their own custom implementations for video content and ad serving, making it un-scalable and expensive for advertisers. The industry needed a "create once, run everywhere" solution. In response, IAB developed a standard template for video players with protocols guiding actions when an ad is received and after the ad is played. **VAST** (Video Ad Serving Template) and **VPAID** (Video Player-Ad Interface Definition) advance the video advertising ecosystem by providing a standard interface between video players and ad units.

VAST, is a standard protocol or set of XML code used by advertisers to instruct their ads how to work with any VAST-compliant video player.

DVD was the next step in video playback standards, enabling users to skip different chapters, access bonus features, turn on subtitles, and change language settings. This is analogous to functionality added by **VPAID**, or Video Player Ad Interface Definition. Advertisers can, through standard VPAID functionality, program interactive features into ads, such as sharing ads through social media channels, enabling user registration within the video ad, inserting a survey, and more. Just as in VHS, where it wasn't able to handle interactivity as DVDs were, VAST too was not equipped to handle the more complex communication with the video player. Therefore, IAB built upon VAST to create a standard called VPAID that supports greater interactivity.

Layering VPAID onto VAST offers an enhanced solution. It enables the executable ad unit to expect and rely upon a common set of interactive functionalities from the video player. This is significant as advertisers using VPAID ads can provide rich ad experiences for viewers and collect ad playback and interaction details that are just as rich as the ad experience. With VAST and VPAID both being utilized widely, it is common to assume that a video player is both VAST and VPAID compliant. The reality is most players are VAST compliant and some are also VPAID compliant, but it is not safe to assume that every VAST compliant player also supports VPAID, especially in the mobile world. Broadly speaking when an ad request is made from a video player for a video ad, information about which protocols are supported are



passed with the ad request, informing advertisers of the type of ad the player can support. Without this information, the assumption is that the video player does not support VAST or VPAID.

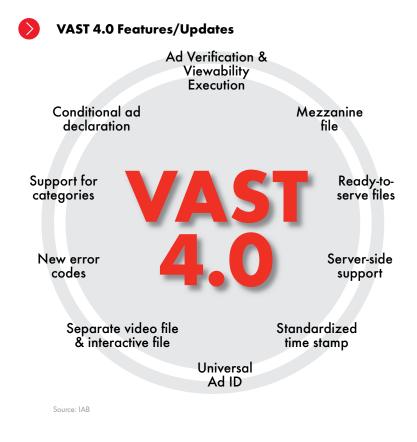
It is important that advertisers understand the requirements of the standards to which they're building creative assets as it impacts the potential audience they can reach. Simply put, in the same way that video playback standards have evolved from the early days of VHS to support greater interactivity and scale, so too have VAST and VPAID standards, supporting more complex forms of video advertising and engagement.

4.3.1 Evolution of IAB Video Standards

Video advertisers have two important execution goals for the delivery of their video ad campaigns: to provide viewers with a rich ad experience, and to capture ad playback and user-interaction details that report on the viewed ad experience. To achieve these goals in a world without common video player functionality, advertisers would have to develop multiple specialized versions of their ad creative for every unique video player—an expensive proposition that doesn't scale well.

VAST kick-started an industry-wide standard solution to these issues in 2008, and IAB has since released several new versions of VAST, VPAID, <u>VMAP</u>, <u>OpenRTB</u> and <u>DAAST</u>.





The latest update to the VAST standard <u>VAST 4.0</u>, released in 2016, aims to ensure smooth communication between video players and ad servers by making multiple improvements in delivery and measurement. A list of the main updates and challenges are summarized on the adjacent graphic.

VAST 4.0 enables advertisers to send variants of a creative file, from high quality mezzanine files (viewable by high-resolution TV screens) to standard MP4 and interactive (VPAID) ads. With this update the video creative file is handled separately from the interactive API file (Application Programming Interface), so publishers across multiple platforms can now choose the right format of ad on the fly to deliver to the right device and application.

The focus of this new update has been on improving the quality of video ads by adding support for features like Server Side Ad Insertion, Mezzanine file support, and "**UniversalAdId**," which is used to provide a unique creative identifier that is maintained and tracked across all systems. As part of the VAST 4.0 requirement for the UniversalAdId, Ad-ID is considered the registration authority for advertising in the United States.

Using the **UniversalAdId** feature as the creative identifier ensures that an individual video ad will have a single unique identifier across publishers and campaigns. Having a unique identifier creates efficiencies in workflows and allows the creative to be consistently tracked by enabling all data associated with the creative to follow it across systems. Tracking the creative streamlines data collection and provides more accurate reporting and "real-time" measurement when running cross-platform campaigns. The UniversalAdId can also be used for identifying and tracking ads in ad-stitching processes.

To find out more about Ad-ID please go to the following link.

For a list of the benefits of using Ad-ID for advertisers, agencies, media and vendors, please access the following <u>link</u>.

With **VPAID**, IAB aims to address the following market inefficiencies for publishers, advertisers, and vendors:

- Increase common video ad supply technologies so that video publishers can readily accept video ad serving from agency ad servers and networks
- Provide common technology specifications for advertisers to develop against, as well as decrease the cost of creative production and increase business ROI
- Improve video ad supply liquidity as cost of integration decreases

VPAID was originally developed to support interactivity in video ads but its use has evolved, and there have been issues with complexity. VPAID 3.0 is therefore being developed to provide better separation of media files from interactive creative and verification/viewability code, reducing implementation complexity while offering enhanced OTT/Smart TV support.

The Digital Video Technical Working Group within IAB Tech Lab is currently working on updates to VAST and VPAID. IAB Tech Lab members who would like to participate in the working groups should contact <u>techlab@iabtechlab.com</u>. For those interested in the latest on VAST/VPAID, please visit the recently recorded webinar: "<u>VAST4 and Server Side Ad Insertion–Technology and Best Practices.</u>"

To learn more about VAST & VPAID, please watch this short video on understanding <u>IAB Digital Video</u> <u>Suite</u>. Additional IAB Tech Lab resources of note for this section include:

- VPAID 1.0 documentation
- VPAID 2.0 documentation
- VAST validator
- VAST sample tags
- <u>VAST XSDs</u>
- <u>Ad-ID</u>

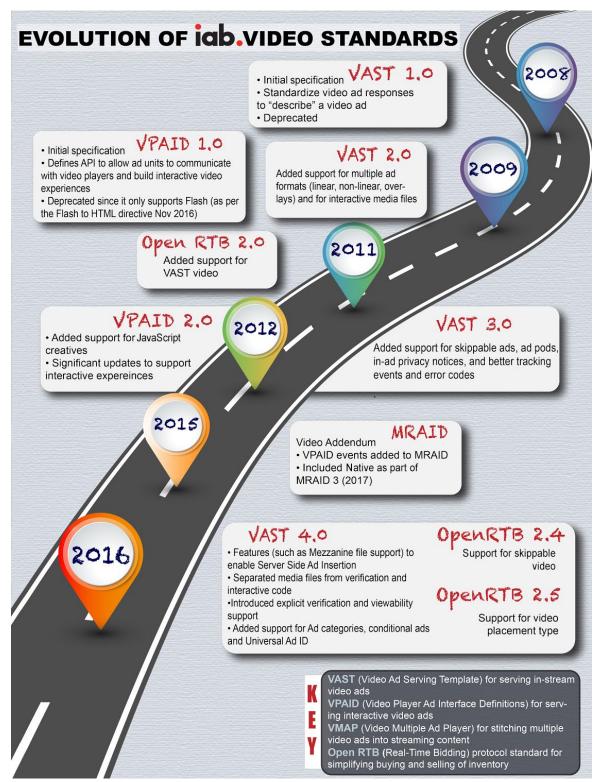
Understanding IAB Digital Video Suite

The below table s	summarizes V-Suite function	nality and the evolution a	of the standards:

	VAST	VPAID
Capabilities	 Structures scripts that serve ads to video players Sends metadata about how to serve the ad Server sends VAST file (XML¹⁸ document) to video player with creative files, click-through URLs, reporting trackers, etc Instructs how the video player should handle an ad, including but not limited to how it is displayed, how long it should play, whether it's skippable, etc Defines how the video is measured in terms of impressions and clicks as well as tracking points such as completed views Gives media agencies and publishers the opportunity to define the price of video inventory using cost-percompleted-view (CPCV) 	 Provides support for rich interactivity the interface controls the player and defines a set of API that allows the ad to identify the state of the video ad Provides the ability to collect rich interaction data Allows the video ad to provide instructions to the video player on how to handle errors and timeouts Allows publishers to set latency thresholds Allows advertisers to run any piece of logic; including cookie dropping, ad serving logic, viewability measurement etc
Limitations	 No support for rich interactivity Limited ability for advertisers to collect rich interaction data 	 Allows advertisers to run any piece of logic; including cookie dropping, ad serving logic, viewability measurement etc (which wasn't the intended use of VPAID) More complex, expensive to develop (can lead to complications or errors)

¹⁸ Extensible Markup Language (XML) defines a set of rules for encoding documents in a format that is both human/machine-readable.

This timeline shows the evolution of IAB video standards:



4.4 Video Player Technologies

Until relatively recently, the predominant way to decode and render streamed or downloaded video files on the web was through a browser plugin (Flash player). Adobe released the first version of its Flash player in 1997. There were other web-based players, but they required a full-blown software installation. The Flash player was both easy to install by the user, and frequently came pre-installed with browsers.

The emergence and penetration of mobile quickly flagged a need for an alternative: the HTML5 player. HTML5 offers critical benefits, <u>studies show</u> that on average, a Flash video will take up 17 percent more battery life than HTML5 video on a desktop and 12 percent more on a tablet. HTML5 is supported on all mobile devices, while Flash is not. Developers prefer HTML5 since it does not have as many versions as Flash, and HTML5 allows for better user experience since it does not require the user to install a video player plugin. The HTML5 player comes as a native part of standard HTML code that the browser understands. Finally, unlike Flash, HTML5 technology utilizes the ubiquitous JavaScript scripting language.

So why is Flash still present? The Flash browser plug-in technology was released by Adobe in 1997, and was widely adopted long before work on the HTML5 standard had begun. While changes in technology are continuous (and often rapid), industries move more slowly, and so while HTML5 support for video within the browser has been available as a replacement for Flash for a while, some companies and agencies are still producing creative using Flash (despite the fact that browsers not longer support Flash). For the sake of the consumer experience, it's time everyone in the ecosystem stops using Flash and migrates to HTML5. Transitioning to another video player technology would mean requiring the conversion of millions of websites. HTML5 also allows video ads to be streamed in connected TV/Smart TV with built-in browser capabilities, while Flash doesn't. Flash only supports flash proprietary video formats (.flv and .f4v). HTML5 supports multiple video formats including popular formats such as mp4.

The following table provides a comparison of Flash and HTML5 technologies:

Technology Suppor	ŀ
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Feature	Flash Technology	HTML5 Technology
Supported Codecs	VP6, H.264	H.264 (most browsers) VP8/VP9 (Firefox, Chrome, Opera, Android)
DRM Support	PrimeTime	Widevine, Playready, Fairplay PrimeTime (depends upon browser)
Supported Containers	Mp4, flv	Mp4, WebM, m2ts (depends on browser)
Adaptive Bitrate Support	HLS, HDS	MPEG-DASH

Feature	Flash Video	HTML5 Video
Customizable Player	Yes	Yes
Platform	Plugin	Native support in browser
DRM decryption	Yes	Yes
Adaptive Bitrate Streaming	Yes	Yes
Ad Insertion	Yes	Yes
Plugin load time	500ms-2000ms	N/A (0 m/s)
Full screen viewing	Yes	Yes
Ad protocol support	VPAID 1 and 2	VPAID 2



All of the major browser vendors have been announcing plans to restrict the use of Flash, and replace it with HTML5 as the default media playback option. Some of the changes announced have a direct impact on video ads and will require the video advertising community to move from Flash to HTML5/JS based technologies.

IAB Tech Lab has been working with members of the Digital Video Technical Working Group to determine the best approach for publishers and agencies to orchestrate this transition.

References to Flash in all IAB technical standards and guidelines (including VAST, VPAID, OpenRTB, Ad format guidelines) should be considered as "deprecated" as of January 2017. The goal has been the complete elimination of Flash video ads by July 2017. IAB has released checklists for agencies and publishers on how to transition to HTML5.

4.4.1 Captions

Captions and accessibility for the hard of hearing are an important aspect of player technologies, especially with regard to publishers or broadcasters who need to be FCC (Federal Communications Commission) compliant. The basic formats are WebVTT, SRT, and DFXP. It's also useful to know that captions can be used as separate text files and can be included in an HLS (Adaptive Bitrate) manifest. 608 and 708 caption formats are also relevant, as they were/are standards for TV broadcasts.

To learn more about captions, visit Adobe's "Introduction to Closed Captions."

4.4.2 Digital Rights Management

Digital rights management (DRM) is a systematic approach to copyright protection for digital media. The purpose of DRM is to prevent unauthorized redistribution of digital media and restrict the ways consumers can copy content they've purchased. DRM products were developed in response to the rapid increase in online piracy of commercially marketed material, which proliferated through the widespread use of peer-to-peer file exchange programs. Typically, DRM is implemented by embedding code that prevents copying, specifies a time period in which the content can be accessed or limits the number of devices the media can be installed on. DRM helps you protect your content. Some DRM providers of note are Apple FairPlay, Microsoft PlayReady, Google Widevine, the open Clear Key standard, and AES 128-bit encryption.

4.5 Event Tracking

Improved user experience and effective targeting enabled through the use of data are critical qualities in an optimized ad campaign. In order to acquire reliable analytics on all activity generated by a campaign, event tracking is implemented. This table shows the commonly tracked events that appear either directly in the ad server, or third-party analytics tools. Some of these are specified and others are events that are fired by a rich-media (VPAID) creative itself.

User session related metrics (such as video view quartile tracking) is slowly beginning to take precedence over click-through rate (CTR) as one of the most valued metrics. Instead of simply tracking clicks on the ad, session based duration metrics measure the amount of user engagement generated by the impression.

While CTR is a performance metric that represents a clear one-to-one relationship between the ad being viewed and action being taken, engagement is becoming more desirable to advertisers in some cases as a way to assess their branding, and forge new relationships and connections with their audience.

The number of trackable events continues to grow as clients demand more ways to assess the effectiveness of their campaigns. Some more custom metrics are valuable to certain clients such as downloads, number of shares of a video, scroll tracking, conversions to a purchase, and number of interactions with a VPAID ad.



Event Name	Description	Analytics Usage
start	When player initializes	Buffer time
Event Name	Description	Analytics Usage
play	When a video starts playing. Report video ID and channel ID and video offset	# of video playback; video play by content hierarchy
resume	When a video is resumed based on view history. Report progress marker, video ID and channel ID and video offset	# of video playback, which video is played
progress	"Progress" event indicates play progress of a video. Always report progress marker, video ID, and channel ID with this event. It is triggered every 10 seconds after the video is played (or resumed). Even when the user skips or rewinds, keep sending this event every 10 seconds of actual video played. This is also referred to as the "heartbeat"	Minutes of video played
pause	When the user pauses the ad	# of pause events
Rewind	When the user clicks the rewind button on video player, report rewind action with asset ID, channel ID and playlist ID	# of rewind events
end	When playback ends, user closeout or move to another video. Also report: video ID, channel ID, progress marker	Minute of video played
adStart	When ad starts	Ad impression
adEnd	When ad ends	Ad completion
click	When a user clicks on the ad	CTR

Source: comcast - watchable team

4.6 VAST Error Guide

Spearheaded by Rubicon project, together with JW Player, Brightcove, Radium One, The Trade Desk, publishers, and other DSPs, this group has put together a video creative troubleshooting guide. The goal is to create a repository to help solve the many video creative issues that plague the industry.

To access the VAST error guide, please visit IAB Tech Lab's <u>Video Tech FAQs</u>. If you are interested in joining IAB Digital Video Technical task force, please contact <u>techlab@iabtechlab.com</u>.

4.7 Digital Video Container Format/Creative Format

Have you ever heard of rich media creative format, media files, video container format or streaming protocols and wondered what they were? Another important decision in the life cycle of a video ad is format: rich or non-rich media?



4.7.1 Rich Media

Rich Media Creative formats: VPAID-js (.js) / MRAID (.js) / VPAID-flash (.swf) are like giving an artist a blank canvas and telling them to paint it however they want, using whatever they want. They could even paint a different picture for each user or interact with the user in other ways. If a creative is not rich media and there is nothing dynamic about the playback, the player will show every user the same thing.

Rich Media Creative format capabilities depend upon a player supporting their technologies. If the player doesn't support VPAID or MRAID, it cannot play the files.

VPAID-js (.js) and MRAID (.js) require HTML5, whereas VPAID-flash (.swf) requires Flash.

Media Files

- (.js) Similar to .swf, this is a JavaScript file. This is the <media> type used for VPAID-js.
- (.swf) Is a Flash video file format. It contains additional Flash scripting logic that can allow the file to render its own player and take its own measurements. A normal industry player just loads it up and calls play() on it. These files are typically VPAID-enabled wrappers, but don't have to be. Despite the fact that Flash video file format will no longer be supported, advertisers continue to send flash video creative, risking the ad not being executed on desktop or mobile.

With the migration to HTML5 .js VPAID will likely completely replace .swf VPAID. Google provides additional details on Interactive Media Ads (IMA) Flash Software Development Kit (SDK) Version 3.

On June 1, 2017, Google ceased support for the IMA SDK for Flash and Flash VPAID ads in the HTML5 SDK. We strongly encourage all publishers using the Flash SDK to migrate to the HTML5 SDK. We also strongly encourage advertisers trafficking Flash VPAID ads to migrate those ads to JavaScript VPAID.

4.7.2 Non-Rich Media

Non-rich media creative formats (solely video with no extra logic or functionality):

- Streaming Protocol (how the video is transmitted): HDS, HLS, MPEG-DASH, RTMP
- Streaming Protocols are often handled by the internal ActionScript or JavaScript of the player (developed by the player's author), although in some cases Streaming Protocols can be handled directly by Flash or the browser (ex. MPEG-DASH)
- Non-streamed plain files over HTTP
- Video Container Format: The envelope and packaging that holds the video and audio when transmitted
- Examples: .flv, .mp4, .wmv, .mov, .webm
 - (.flv): is the container format used by Flash, like .mp4
 - (.mp4): Type code: MPG4, File extension: mp4 is the container format used to store video
 - (.wmv): Type code: ASF is Microsoft's advanced systems format; video container format for streaming
 - (.mov): Type code: MOOV is a multimedia file format for Apple's QuickTime
 - (.webm): Open graph video codec

For all videos (streamed and otherwise):

- Video Codec is the compression and encoding of the video; the "language" the video is written in: Sorenson Spark, On2 VP6/VP7/VP8, Google VP9, MPEG-4 H.263/H.264
- Audio Codec is the compression and encoding of the audio; the "language" the audio is written in: AAC, MP3, Vorbis
- Video Container Formats and Video/Audio Codecs must either be supported by Flash or the browser to play



Here is a snippet from a VPAID-enabled VAST response showing the .js response type returned and .js response types returned (not based on real links). Most VAST responses in the industry today follow a similar format:

<creative></creative>
<linear></linear>
<pre><duration></duration></pre>
00:00:30
<adparameters></adparameters>
adTagUrl=
<mediafiles></mediafiles>
<pre><mediafile apiframework="VPAID" delivery="progressive" height="300" type="application/</pre></td></tr><tr><td>javascript" width="400"></mediafile></pre>
<[[CDATA[http://vast.example.com/redir/javascript/jsvpaid.js]]>
?adTagUrl=]>
,

A player that supports VPAID will 'in principle' select either the .js or the .swf based upon whether or not Flash is installed or if the player prefers one type over the other. This is the ideal goal but is not guaranteed. After it loads the appropriate file, it calls the VPAID unit method handshakeVersion () to determine the VPAID protocol version to use.

Both the player and the media file determine the highest version they both support, then use the VPAID interface to call back and forth to one-another to play a creative. Media format support is determined by the player at runtime based upon the browser/native device's installed plugins or built-in media. As such, it's not consistent even from one device to the next.

It's worth noting that a VPAID-enabled creative does not, itself, have to play a video file. The VPAID creative could just be a wrapper with additional logic to make more VAST calls and load more VPAID wrappers until eventually a wrapper plays a creative. You can end up loading several VPAID wrappers before getting a creative. Each wrapper is likely doing its own waterfall or bidding scheme to select what to play and what not to play. Each of these layers of wrappers takes a lot of time and network bandwidth, resulting in latency and high abandonment rates, which result in wasted impressions for the publisher and a poor user experience.

For more information on HTML5 codec/container support by browser, visit MDN's "<u>Media formats</u> supported by the HTML audio and video elements."



4.8 Adaptive Bitrate Support

Adaptive streaming is a technical process that adjusts the quality of a video delivered to the client/video player of a connected device based on changing network conditions, video buffer status, and CPU utilization to ensure the best possible viewer experience. The video quality is determined and set by real time detections of a user's available bandwidth (throughput), video buffer capacity and CPU utilization. Based on these conditions the bit rate is adjusted in real time to ensure the best possible quality.

A simplistic example: "When you watch a movie that is streaming from your mobile device while travelling by train, network conditions are changing all the time. In order to ensure the best user experience, buffering and adaptive bitrate streaming occur."

How? Adaptive bitrate streaming splits a video into multiple, separate video files with different bandwidth requirements and provides the ability to switch seamlessly between those different files during playback. Normally, without adaptive bitrate streaming, when network congestion occurs and the video file cannot be delivered as quickly as is required to play it, playback of that video will work off of a buffer of the video that had been pre-loaded. When this buffer runs out, the player will pause while the player pre-loads a new "buffer" of content from which to play. With adaptive bitrate streaming, the player can start requesting a different video segment with either higher or lower bandwidth requirements to match conditions. This can avoid a rebuffering condition. However, it is important to note that a rebuffering interruption can still occur even with adaptive bitrate streaming. For example, if the network drops out entirely (such as the train going through a tunnel) or if the network is slower than the lowest bitrate file that was encoded rebuffering will still occur.

Adaptive bitrate streaming enables the quality of the video to adjust on-the-fly without the interruption of having to pause the video and rebuffer a new video at a different quality.

4.9 iFrames

An **inline frame**—more commonly known as an iFrame—is an HTML document embedded inside another HTML document, like creating a box full of HTML code as its own compartment within a webpage.

Why are iFrames used?

Both publishers and advertisers may choose to have content served into an iFrame to avoid disruptive behavior and potential security risks in serving ads and other third-party content in line with the page. Using an iFrame ensures that elements such as CSS styles¹⁹ and JavaScript libraries of different versions don't interfere with those being utilized by the ad. This prevents a collision between advertiser code and publisher code.

Depending upon the type of iFrame that is used, content can be completely sequestered within the iFrame and be unable to access information about the main HTML document within which it is embedded. This prevents an ad from doing things like expanding over the content of the page without permission, but it can also prevent the ad from interacting with the user in dynamic ways. Since this happens on both sides, the main publisher page is also prevented from accessing information inside the iFrame and the ad content within the iFrame cannot expand outside its borders, move around the page or slide into and out of view from the bottom of the page. This can also prevent collection of data that might be necessary to determine ad effectiveness, such as viewability.

Why do iFrames come into play even more with video?

Video represents some of the most complex interactivity on a webpage. Therefore, to isolate each component as much as possible to simplify its implementation and maintenance, video is sometimes placed within an iFrame. Additionally, when rich media video advertisements are involved, such as VPAID or MRAID, the entire player may be wrapped within an iFrame to sequester any third-party code an advertisement may execute.

¹⁹ CSS: is the language for describing the presentation of Web pages, including colors, layout, and fonts. It allows one to adapt the presentation to different types of devices, such as large screens, small screens, or printers. CSS is independent of HTML and can be used with any XML-based markup language

Types of iFrames

IAB defines two different types of iFrames: "<u>Friendly IFrame</u>" (FIF) and "<u>SafeFrame</u>." A FIF is typically used as a simple container in which to push HTML. A FIF allows full access to the parent page's code. This type of usage is only recommended where the publisher trusts the advertiser and vice versa.

A SafeFrame is different in that it loads the frame's content from a URL at a different domain from the parent page. This is referred to as "cross-domain iframe." Doing this makes the browser block access to the parent page by the code in the frame. Likewise, it blocks the parent page from accessing the frame's code.

Additionally, a technology called <u>cross-document messaging</u> allows both the parent page and the SafeFrame's code to communicate on a limited basis. Without the SafeFrame specification, a standard cross-domain iFrame has no communication.

DEEP DIVE THE PLAYER

4.10 The Player

DEEP

DIVE

4.10.1 Home-Built vs. Third-Party Video Player Companies

Players can be home-built by digital content providers (i.e. Hulu) or provided by third party companies such as Brightcove, JW Player, and Ooyala. In both cases, the player provides the controls for the consumer to manage the video experience (i.e. play/pause, full screen, closed captions, etc.). It also must make run-time decisions about the environment it sits within (i.e. web vs. mobile browser, mobile apps, smart TVs), and determine what's possible and optimal given the capabilities or limitations of any given environment (i.e. small screen size, Flash is disabled, device is Dolby 5.1 audio capable).

The player must then render the video content the best it can, performing an ongoing balance of providing the best video quality possible for a given (and often changing) network connection speed (adaptive bitrate streaming) without forcing the viewer to wait (video buffering). Finally, it must seamlessly fetch and serve ads when and where desired by the content publisher, typically as pre-roll, mid-roll and/or post-roll videos.



	PROS	CONS
Home Built	 Home-built players can afford more control over the user experience. Proprietary player solutions must accomplish much of the same, but may be tailored and optimized for specific use-cases of a particular brand. Custom solutions can have built-in options specific to their sites, providing more control of the user experience unique to their particular brand and audience. Home-built video player solutions usually handle a primary use-case. (i.e. Hulu's player displaying TV shows with TV-style commercial breaks). 	Might not perform as well outside of their use-case (i.e. displaying playlists of short 30-second clips) New features need to be researched, developed, tested, and then supported making it expensive and cumbersome to stay abreast of technology innovations. Brands building custom players build on top of existing underlying players— either open source or proprietary (i.e. Brightcove is built upon the open-source video.js player and JW Player also uses open source technology like Google's Shaka player).
Third-Party Video Players	Pre-packaged integrations with video advertising companies (i.e. ad servers, ad networks, ad analytics), along with many other vertically integrated services to optimize the overall online video publishing process (video ingestion workflow management, content management, syndication, video analytics, content recommendation engines, and digital rights management). Typically handle a wide variety of use- cases (advertising, streaming media, captions and accessibility. Customer/ user footprint and the necessity for a high uptime). Can handle many scenarios out of the box without custom development work.	New features must go through third- party development cycle which might not meet the customer's timeline.

4.10.2 Player Impact on Ad Playback

When it comes to actually displaying an ad, several variables are taken into account. Standard VAST linear ads interrupt content playback.

Interactive Media Ads (IMA) HTML5 SDK renders VPAID creatives in a cross-domain iFrame by default, which limits VPAID creatives access to the page **DOM**. As a result, some creatives may not work properly. Most VPAID ads expect friendly iframe access to the page DOM in order to work properly.

Additionally, the IMA SDK team <u>calls out</u> standard vs. custom ad playback and the pros and cons of each in a recent <u>blog post</u>.

4.10.3 Standard Rendering

If you're using the HTML5 SDK you probably have a web page playing your content in a <video> element. In standard rendering, the SDK will create another <video> element and render it in the ad display container you provided, which should be placed on top of your video player.

The ads will then play in this SDK-owned video player on top of your content player. To the user, it looks like one video player switching from content to an ad, but in reality it's another video player appearing on top of your content to play an ad and then disappearing. The main benefit to this



standard rendering involves buffering. Using a separate video player to render ads allows us to preserve your content buffer while ads are playing. If you're playing a pre-roll, you can start loading your content when the ad starts and buffer the content the whole time the ad is playing. For mid-rolls, the separate player allows you to preserve your content buffer while ads are playing; if your viewer has buffered ten minutes of your content, and you play an ad at the five-minute mark, they won't lose the content in the buffer for 00:05:00-00:10:00.

4.10.4 Custom Ad Playback

Per Google, the recommendation is to always pass your content video element as the custom playback element. The HTML5 SDK will intelligently use custom ad playback only when it deems necessary, as described below. When it's not necessary, it will use standard ad playback.

When the SDK decides to use custom playback mode, it renders video ads in the same player as your content. This means you lose the buffer-related benefits of standard rendering. If your viewer has buffered 10 minutes of your content, and you play an ad at the 5-minute mark, they will lose the content in the buffer beyond the ad. Certain ad formats (such as AdSense) require an SDK-owned player and can't play in your content player.

So then why use custom ad playback? Simply put, some platforms do not support multiple, simultaneous, active video elements. On those platforms, the SDK can't create its own ad player because the one allotted video player slot per page is already occupied by your content player. If the SDK tries to play an ad in a second video player, it will either fail to play (freezing the player) or make it impossible for the content to restart after the ad is finished (again freezing the player). Thus we must show the ad and video content in the same player. Custom ad playback is sometimes referred to as single player ad-serving.

For **client-side ad insertion (CSAI)**, single-player opportunities typically exist where the content publisher also controls the ad inventory all within a common infrastructure. This provides more direct-control of the end-to-end consumer viewing experience by a single entity, reducing a lot of the variables that can impact the viewing experience quality related to ads. The ads and main content can operate through a common CDN. The ads can be processed and streamed in identical formats compared to the main content, and there are fewer network hops and less run-time logic compared to automated ad scenarios.



Another single-player scenario is with **server-side ad insertion (SSAI**). With SSAI, the ads are stitched into the same stream as the main content, and continuously played through by a common player. There's no need for the player to pause and either hand-off playback to another player for ads or switch streams in the single-player CSAI scenario. SSAI has the significant advantage in that it's impervious to ad blockers (the main video content and ads look the same to ad blockers), and there are few variables that can degrade the user-experience during ad transitions. SSAI can also be particularly attractive in low-bandwidth environments such as 2G or 3G mobile networks, as it can achieve much higher fill-rates due to eliminating ad timeouts commonly seen with CSAI under these environmental conditions. The downside of SSAI includes limitations on supported ad formats (e.g. SSAI typically cannot support interactive ad formats, such as VPAID) and that ad analytics are built around CSAI and don't work as well with SSAI.

4.11 Ad Playback Capabilities and Limitations

Because of the different technologies involved with browsers, video players and ad creatives, certain combinations can't be supported. For example, given VPAID ads' interaction with the player, Flash (.swf) VPAIDs typically don't work with HTML5 players.

Workarounds exist, such as the above-mentioned IMA situation where a second video player is layered on top of the base player. This allows the primary player to be HTML5 with the player on top to use Flash and successfully play a Flash VPAID, including use of the interactive functionality.

Latency can also impact ad playback. <u>Latency</u> is the delay between request and display of content and an ad. Latency sometimes leads to the user leaving the site prior to the opportunity to see. In streaming media, latency can create stream degradation if it causes the packets—which must be received and played in order—to arrive out of order. Typically, the balance between latency, time to first frame, ad timeouts, and other functionality on the page including tracking and analytics is one that anyone employing a video player with ads must focus on to ensure optimal viewer experience. Lightweight and otherwise performance-focused players aim to ensure ad playback is not impacted by these other variables.

Ad pods are another scenario where the player can impact ad playback. When electing to play a Pod of ads returned by the ad server, the video player should play the ads in the Pod in <u>the prescribed</u> <u>sequence</u> and should play as many of the ads as possible. The player may elect not to play all of the ads (truncating the Pod from the end) if either, the ads cannot be played because they cannot physically fit into the stream (such as when time is limited in a live stream) or if the entire Pod of ads returned by the ad server violated any limits specified by the calling video player (i.e. number of ads to return, or maximum Pod duration). When an Ad Pod is the result of following a VAST <Wrapper> the same impression and tracking Uniform Resource Identifiers (URIs) in the VAST <Wrapper> are called as each ad is played in the pod. Should an ad in a pod fail to play after a "no ad" response from a secondary ad server, the video player should substitute an unplayed standalone ad from the response. See section 2.4.2.4 of the VAST spec for further details on a "no ad" response.

4.12 Video Ad Server: Minimum Recommended Requirements

When selecting an ad server, we recommend that you have these minimum requirements:

- MRC accreditation
- Ability to support all IAB recommended tag types (VAST, VPAID, etc.)
- Easy integration with your video player, or ability to create integration
- Support IAB specifications for ad units (including companion ads) per the guidelines issued in IAB New Ad Portfolio
- Be able to deliver across multiple platforms (mobile, desktop, etc.) with on-the-fly transcoding to customize video assets to inventory requirements



Ideally, your ad server should also be able to offer customizable and near real-time reports that are easy to read, include geo-targeting capabilities, thorough vetting of the vendors they serve, and allow for flexible setups to customize across sites.

4.13 Digital Rights Management (DRM) Cross-Platform Capabilities

Planning for cross-platform compatibility is a mission-critical sill in digital video advertising. If your video use case requires DRM and you know the budget and time investment involved, understanding the support in various browsers is critical. Most DRM technologies are proprietary and are only supported on Original Equipment Manufacturer (OEM)-specific products. For example, Apple FairPlay is only compatible with Apple's Safari web browser and other Apple products.

Here is a list of <u>DRM technologies</u> that are supported and which browsers support them (used with permission from <u>JW Player</u>).

DRM	BROWSER & MOBILE OS SUPPORTED
Google Widevine	Chrome 35+ (Desktop and Android) Firefox 47+ (Windows, Mac only)
	Android v4.3+ (via native JW Player SDK)
Microsoft PlayReady	Internet Explorer 11+ (Windows 8.1+ only) Microsoft Edge 12+ (Windows desktop and Phone)
Apple FairPlay Streaming (FPS)	Safari 8+ on MacOS 10.11+ (El Capitan) Apple iOS v8+ (via native JW Player iOS SDK)
Clear Key	Chrome 35+ Firefox 47+ Internet Explorer 11+ Microsoft Edge 12+ Android v4.3+ Apple iOS v8+
AES 128-bit	Chrome 35+ Firefox 47+ Internet Explorer 11+ Microsoft Edge 12+ Safari 8+ Android v4.3+ Apple iOS v8+

5. Audience, Data, and Measurement

Previous chapters documented the media planning process which involves selecting *where* to advertise and *when* to use specific media vehicles (the right timing) to deliver a message in order to reach and engage a target audience.

This chapter will focus on audience, data, and measurement, including different methods of collecting, analyzing, and utilizing audience data. It examines Key Performance Indicators (KPIs) and metrics such as reach, frequency, and engagement, and also highlights the importance of verification data in validating these metrics.

5.1 Introduction: The Centrality of Data

In the "Mad Men" era of advertising, data flowed in a linear and highly front-loaded process. Data on how to effectively reach a particular target audience was based on research about the target consumer, then passed to a communications' strategy team within an agency. From there it was sent to a creative agency to devise the "big idea," which in turn informed the media plan and campaign.

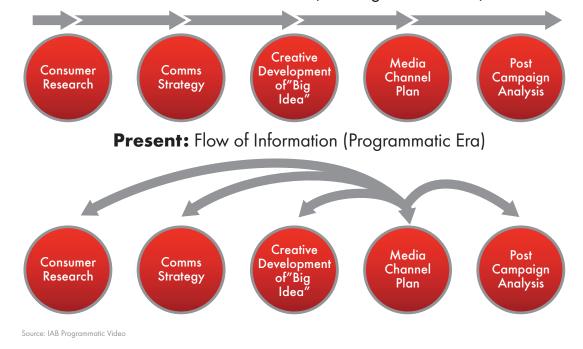
In today's world, decision-making is based upon a much more decentralized flow of data, originating in the media platform and going to various teams in no particular order.

Such data informs all steps in the advertising process, and includes:

- Age, gender, and behavioral characteristics
- Geo, time of day, day of week analysis
- Media consumption patterns
- Devices, content, context
- Path to conversion analysis

Past and Present Flow of Information

Past: Flow of Information (Pre-Programmatic Era)



²⁰ Audience segments are subsets of user data signifying specific facts, interests and other attributes. Audience segments, and the techniques employed to create and use them, are becoming more complex as real-time algorithmic scoring and mobile devices increase both the quantity and variety of input data.

- Recency/frequency analysisCopy/imagery efficacy
- Sequential messaging analysis
- Audience segments²⁰



These ever-evolving techniques and technologies are enhancing opportunities for accurate campaign targeting and measurement to improve both advertiser ROI and publisher yields.

Key Performance Indicators (KPIs) and post-campaign analysis rely on data. Media platforms must source data points against contextual, geographic, device, browser, time of day, day of week, and reach/frequency signals for marketers to confirm positive return on investment (ROI) and accurate measurement.

Additional information on this section can be found in "<u>IAB Programmatic Video: A Spectrum of</u> <u>Automation</u>."

5.2 Common Video Key Performance Indicator (KPI) Metrics

Unlike other formats, video advertising as a branding format, shouldn't be solely assessed by performance metrics such as clicks (CTR), but rather, the users' engagement and attention throughout streamed content. The most common KPIs (Key Performance Indicators), or metrics identified as a core means of tracking performance, may include impressions, completion rate, viewable completed rate, completed view, reach & frequency, total unduplicated reach, brand lift, engagement, and attention.

The initial delivery of a **video ad impression** is typically a core metric and a minimum input or precursor to viewability measurement and metrics. As defined in the version 1.1 draft of the IAB / MRC Digital Video Impression Measurement Guidelines (currently in public comment) "Digital Video Ads" which appear before (pre-roll), during (mid-roll), and after (post-roll) content, are counted as the "measurement of responses from an ad delivery system to an ad request from the user's browser, which is filtered for invalid traffic and is recorded at a point as late as possible in the process of delivery of the creative material to the user's browser. The ad must be loaded and at minimum begin to render in order to count it as a valid ad impression."

KPIs are measurable performance metrics that allow marketers and agencies to work towards a common goal. A campaign can be sold against a number of KPIs. In TV, the most common KPIs are achieving a certain Gross Rating Point (GRP), reach, or frequency. In digital video advertising, the abundance of data allows campaigns to measure a wider variety of KPIs, including a specific target audience, verified ratings delivery, viewability rates, and/or other criteria. Brand advertisers also need brand and sales metrics such as brand awareness, brand consideration, and offline sales to be available to them.

5.2.1 KPIs vs. Secondary/Tertiary Metrics

Today's technology allows us to slice and dice data in many ways. Video campaigns are typically measured by selecting various KPIs usually staggered by priority. If using a platform, the machine learning algorithm will optimize the campaign according to the primary KPI first and then apply logic for the subsequent ones. If the campaign is not pacing for delivery, the account manager can tweak certain levers in the platform to relax certain parameters in order to achieve the desired outcome.

Reach & Frequency

Reach and frequency are terms generally used when planning and analyzing advertising campaigns; along with GRP, they are the two most commonly used metrics to assess TV advertising effectiveness. Understanding these metrics will help you achieve your short- and long-term advertising goals.

Reach is the percentage of targets who are exposed to your media at least once during a predetermined period of time. To properly determine reach, you need to define who your target audience is. Reach isn't a percentage of total customers, but rather a percentage of a specified audience. For example, you may want to reach car owners in a particular metropolitan area or within a certain demographic. You will determine how many people you want to connect to within this audience and calculate the reach of your campaign as a percentage of that. Measuring audience reach quantifies the number of people that visit a site—either directly or indirectly. These measurements are called "uniques" and play an important role in marketing and decision-making.

The <u>IAB Audience Reach Measurement Guidelines</u> help to ensure companies audited for audience reach measurement are transparent and accountable especially as brands allocate more budget to online advertising.



To find out more about measurement of audience in browser or browser-equivalent based internet activity including any emerging technology that uses HTTP, please refer to the <u>IAB</u> <u>Audience Reach Measurement Guidelines</u>.

Evaluating Frequency

Frequency is the average number of times a household/uniques/users are exposed to your campaign over a set period of time. The real trick lies in understanding your campaign's "optimal frequency" to achieve maximum effectiveness. In academic circles, the process for evaluating this is known as "frequency value planning."

How Much is Enough in Ad Frequency? More than you think...

How Much is Enough in Ad Frequency? More than you think...

Increasing the frequency of exposure to online video ads can lead to stronger growth in brand awareness and consideration. Using Kantar Millward Brown's MarketNorms® database, an analysis was conducted on almost 2,000 video advertising campaigns to understand the relationship between frequency and awareness and persuasion metrics.

Ć	Think Minimums not Maximums	For most metrics, incremental exposures lead to higher results, thus think about <u>frequency minimums required as</u> opposed to maximums
	5+ Exposures for Optimal Messaging	Message association peaks at <u>five to seven</u> exposures
	9+ Exposures to Drive Persuasion Metrics	Purchase intent and brand favorability averages are highest at 9+ exposures
٢	30 Second Ads Can Drive Purchase Intent	For campaigns that have a minimum of eight exposures, data shows <u>30-second</u> ads generate higher purchase intent scores than 15-second ones
research@yume.ca © 2017 YuMe Inc. All Rig logo is a registered trad	hts Reserved. The YuMe	KANTAR MIIIWARDBROWN YUME

YuMe recently partnered with Kantar Millward Brown to understand the relationship between frequency, awareness, and persuasion metrics in video. According to their study:

- Regardless of frequency, video ad exposure leads to increases across all brand metrics (aided awareness, message association, brand favorability & purchase intent).
- While one video exposure is sufficient to trigger increases across all awareness metrics, multiple exposures garner higher awareness scores.
- Lower funnel metrics benefit most significantly after 8+ exposures.
- Strongest gains emerge at 8+ exposures for 30 second ads and 15 second ads. 15 second ads showed incremental growth in performance with increased exposures.
- For vertical videos purchase intent is increased by more exposures (8+).



Frequency Versus Reach: Which Matters Most?

Both reach and frequency are important to consider throughout the lifecycle of your campaign. The value you place on these metrics, however, depends on your goals and your product's buying cycle.

Reach should be a high priority with a new campaign. If you're promoting new products, packaging, or distribution, then reach is where you want to focus. Concentrating on reach is also more effective with a broad demographic.

Frequency is a more important metric when facing stiff competition. When you're struggling to establish yourself as an industry leader with your targeted audience, frequency is your primary focus. Frequency is most important for a narrowly defined audience within a very specific demographic.

Total Unduplicated Reach & Frequency (TURF) Analysis

TURF refers to Total Unduplicated Reach & Frequency, a technique that allows you to assess which combination of ad campaigns will allow you to appeal to the greatest number of customers. It takes a step further than frequency analysis, which defines how often a user is exposed to an ad, or number of people it reached.

Several companies in the space provide multi-platform reach and frequency services that deliver an unduplicated view of audience scale, ad frequency, and costs associated with a single, multiplatform campaign.

5.2.2 Engagement/Attention

<u>Engagement metrics</u> for digital video can vary based on type of ad, device, campaign goal and advertising category. It is not a single concept, but a spectrum of interconnected dynamics that will ultimately have a positive impact on the consumer-brand connection.

Engagement assumes active participation, but does not necessarily require an action; engagement may describe a cognitive or emotional connection, in addition to or instead of a physical one. Although it is assumed to be a prerequisite to advertising effectiveness, it does not, in and of itself, always result in tangible, immediate effectiveness. This definition communicates that engagement is a "push/pull" process. The "push" is the advertising itself, dependent on both the media platform and, critically, the creative execution and brand storytelling. The "pull" is the consumer who is aware of, spending time with, and internalizing that advertising.

Engagement can include any of the following:

- Ad/Campaign Awareness
- Brand Message Recall
- Attribute Recall
- Change in Message/Attribute Recall and Association

<u>The Media Ratings Council (MRC)</u> is currently engaged in iterating through the final phases of <u>3MS</u> (<u>Making Measurement Make Sense</u>) including drafting Engagement Standards. Such efforts will leverage the existing research such as the IAB Engagement whitepaper: <u>Defining and Measuring Digital</u> <u>Ad Engagement in a Cross-Platform World</u>.

Completion Rate/Completed Views

A critical function of the video player, when requesting and displaying VAST ads from ad servers, is to send tracking information back to the ad server(s) exactly as specified in the VAST document. Failure to send accurate tracking data renders inconsistent results between the video player and ad server counts.

"Complete" is a tracking event type in the VAST standard that signifies the creative was played to the end at normal speed ensuring 100% of the creative was played.



When the video player detects that a completion event occurs, the video player is required to trigger the tracking Uniform Resource Identifier²¹ (URI) provided in the VAST tag. When the server receives this request, it records the event and the time it occurred.

Completion rate is a more widely used measurement of consumer attention and interest in a brand's message. For more information please refer to IAB <u>VAST 4.0</u> and eMarketer's <u>Quantifying Digital Brand</u> <u>Ad Effectiveness</u>.

Brand Lift, Awareness, Purchase Intent

Brand Lift refers to an increase in a user's interaction with a particular brand as a result of an ad campaign. It is the measurable difference in a specific KPI metric over a set period of time. <u>Brand</u> <u>awareness</u> measures whether a consumer is familiar with a brand.

Brand awareness studies enable advertisers to benchmark and track the effects of an advertising campaign on the percentage of the audience that is aware of the advertised brand and ad campaign. Brand awareness measurements can be segmented into aided or unaided, whether mentioned in a set position (e.g. top three) or influenced by survey methodology. Differences in pre- and post-metrics should be significance tested, ideally at a 95 percent confidence interval. For recall, the time between exposure and the survey should be noted, i.e. immediately after exposure, within one hour, same day, etc. Note that high brand awareness is not always a positive outcome, as consumers can be aware of a brand, but have a negative opinion of it, due to scandal or negative news stories, e.g. Exxon Valdez oil spill, Tylenol scare, etc.

Brand lift surveys will usually measure the pre-post delta (change) in brand awareness, purchase intent, consideration, favorability, perception, and recall.

Brand lift surveys allow marketers to quantify the behavioral impact of their digital ad campaigns on brand measures such as purchase consideration and favorability. These surveys can be deployed directly within a digital video player, a companion banner on a website or within an online consumer panel. Brand lift surveys ask a standard set of questions aimed at measuring ad recall, brand awareness, message association, purchase consideration, and brand favorability. These measurements allow for pre- and post-campaign analysis that will indicate brand lift.

<u>Brand lift</u> could include a quantifiable positive change in message and attribute association; change in brand recognition or familiarity; and change in purchase consideration. Brand lift could also include a quantifiable positive change in brand perception, favorability, and loyalty.

<u>MRC</u> is currently engaged in iterating the Ad Effectiveness Standards as the final phase of <u>3MS</u>.²² To learn about the mission of Making Measurement Make Sense (3MS), read this <u>3MS primer</u> on this important industry initiative.

CTR

- CTR ("click-through rate") is the percentage of users who clicked an ad relative to the total number of users who were exposed to the ad. CTR is calculated as clicks divided by impressions.
- "Click" or "click-through" is a user-initiated action on an ad element, usually causing an HTTP 302 redirect to another web location. This thereby transfers the user from a publisher site to an advertiser site. Additionally, internet-based search activity or shopping activity can lead to click-through transactions on search results or other content sites that display ad impressions. This can similarly result in redirects to other web locations, such as an advertiser site.
- When measuring clicks, the actions should be filtered to account for invalid traffic and click activity in accordance with the provisions of the guidelines linked above.

²¹ A URI is a string of characters used to identify a resource. Such identification enables interaction with representations of the resource over a network using specific protocols. Schemes specifying a concrete syntax and associated protocols define each URI. The most common form of URI is the Uniform Resource Locator (URL), frequently referred to informally as a web address.

²² Making Measurement Make Sense (3MS) is a cross-industry initiative founded by the American Association of Advertising Agencies (4A's), the Association of National Advertisers (ANA), and Interactive Advertising Bureau (IAB). The Media Rating Council (MRC), an independent body, is responsible for setting and implementing measurement standards.



 <u>Video click-through</u> occurs when a user clicks a pre-roll, mid-roll, or post-roll ad that plays within an online video.

MRC's effort along with the modernizing measurement task force (MMTF) are updating the existing <u>IAB</u> <u>Click Measurement Guidelines</u>. IAB members interested in participating in this task force may contact <u>techlab@iabtechlab.com</u>.

5.3 The Role of Data to Validate KPI Metrics

Data plays an integral role in validating the objectives set for the campaign and advertising effectiveness. According to the <u>2016 IAB NewFronts Video Ad Spend Report</u>, advertisers use multiple data sources to optimize their digital video buys.

Viewability and verification are two metrics that are widely adopted in the video advertisement space. For digital ads to make an impact, they have to be viewed, not just served, by a human being in an advertisement safe environment.

As digital advertising becomes more sophisticated, advertisers want to not only prove ROI, they also want to transact on viewability. In addition, it's more important than ever to ensure your advertising appears alongside content that is brand safe and free of fraud.

5.3.1 Viewability

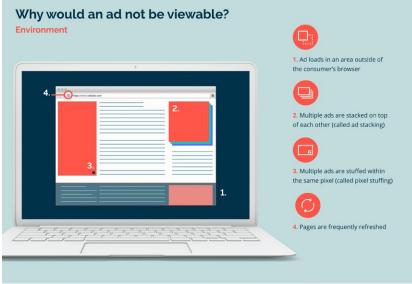
A <u>viewable video impression</u> is a desktop video ad or mobile video ad where there's an opportunity to see an ad, if fifty percent or more of the ad is visible for two seconds or more. See the <u>list of MRC</u> accredited vendors for viewable video ad impressions as well as the <u>MRC's Digital Landscape Chart</u>.

According to the latest report from <u>IAS Viewability: The Essentials</u>, an ad would not be viewable for the following possible reasons:

- Ad loads in an area outside of the consumer's browser
- Multiple ads are stacked on top of each other (ad stacking)
- Multiple ads are stuffed within the same pixel (pixel stuffing)
- Pages are frequently refreshed

From a consumer point of view, IAS research indicates that an ad would not be viewable due to the following reasons:

- A consumer takes an action before the ad can load
- 2. Takes an action before the minimum requirement is met
- 3. Minimizes browser
- Opens multiple tabs, and the ad is displayed in a tab that's not currently open
- 5. Isn't a real person







In December 2016, IAS surveyed over 1,000 digital advertising professionals across ad tech companies, agencies, brands, and publishers, about 2016 trends and where they see digital advertising heading in 2017.²³ Viewability and ad fraud were the two most important aspects in media qualities for both publishers and agencies.

5.3.2 Verification (Brand Safety, Fraud)

<u>Ad verification</u> is a process which attempts to verify that one or more attributes of a served online ad have been executed in a manner consistent with the terms specified by the advertiser or agency and agreed to as part of the ad campaign terms.

Ad Verification is often leveraged for brand safety. The goal of brand safety is to ensure an ad will not appear in a context that can damage the advertiser's brand, minimizing the risk of media delivery against placements that have been deemed questionable or off-brand. Advertisers have defined two types of content that fall under brand safety: objectionable content such as adult content, and content that falls under the specific brands or legal criteria (i.e. natural disasters, opinion content, competitors, etc.).

Five primary service lines of ad verification include: site context, geo-targeting, ad placement, competitive separation, and fraud detection. <u>MRC accredited vendors</u> for safety/ verification features include: IAS, Double Verify, comScore. These vendors are MRC accredited based on <u>IAB ad verification guidelines</u>.

5.4 Audience Measurement Methods/Types

5.4.1 Deterministic & Probabilistic Approaches

Early measurement systems revolved around desktop browser functionality where, at the time, media consumption largely took place on personal or family computers. Cookies were the primary markers to determine when a person was exposed to pay messaging and if a person engaged with the ad unit in a specific way, as well as the events that took place along the path to conversion within a specific campaign.

As media consumption began to fragment across mobile, tablet, and OTT TV platforms, the lack of cookie support within these devices forced industry participants to find new techniques for identifying when the same user saw campaign messaging across different devices and channels. The resulting approach–known as user level device mapping–attempts to assemble an individual consumer's device graph, largely based on the likelihood that seemingly disparate devices are being used by the same individual. Device graphs are now seen as a necessary foundation for a holistic view of message delivery within a modern, omni-channel digital media campaign.

Device graphs are generally built and maintained by third party analytics organizations that rely on two distinct approaches: probabilistic methods and deterministic methods. Challenges with both approaches are testing accuracy against a consistent baseline and controlling for errors.

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The following is drawn from the <u>Digital Attribution Primer 2.0</u> published by IAB in August 2016.

²³ IAS 2016 year-end survey results

<u>Deterministic approaches</u>: The deterministic method relies on personally identifiable information (PII) to make device matches when a person uses the same persistent identifier—namely an email address, a phone number, or credit card information—when logging into an app or website. When a user logs in at any point across multiple devices, deterministic data providers can associate those device IDs in a device graph and use that information to identify or target the same user across multiple screens with great confidence. Because of the ability to authenticate across devices, deterministic approaches are thought of as the most accurate way to determine user-level device graphs. However, one downside is that this approach cannot control for when other individuals—friends, family, etc.—are using a person's device. Another is the perceived lack of scale across devices, as there are hard limits to the amount of registration data that companies have contingent upon growing user bases.

Probabilistic approaches: By drawing on aggregation techniques, probabilistic approaches incorporate thousands of anonymous data points—things like device type, operating system, and location data associated with bid requests, time of day, and a host of others—to identify statistically significant correlations between devices. Signals may also be drawn from known multi-user identifiers like IP addresses or from geographic regions. By using IP to Geo technology—which can establish a ZIP code or other geographical coordinates from an IP address—the incorporation of aggregate signals is possible. Based on these signals, probabilistic techniques attempt to determine the devices that are likely being used by the same person. Once this determination is made, that provider would likely assign a particular statistical ID to the device. For example, if a smartphone, desktop computer, and a laptop connect to the same networks or Wi-Fi hotspots at the same time and in the same places every weekday, one can develop a degree of confidence that all three devices belong to a specific person. Probabilistic approaches are generally considered to be less accurate than deterministic approaches when associating device pairings, as they are largely based on inferred and/or modelled data. One benefit is that these solutions have greater flexibility to scale across devices, meaning that device mappings can potentially incorporate more overall consumer devices than deterministic partners.

5.4.2 Data Collectors

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Data Se Lexicon

The following section is drawn from the IAB 2016 Data Lexicon Update.

The collector of data refers to the entity that gathers and stores the user activity and derived information associated with that activity. Oftentimes the attribute eventually generated from the collected information is derived from multiple different collectors. One of the key principles in defining ownership and control of data is determined by the relationship between the data collector and its user. There are three forms of relationship: first-party, second-party and third-party.

A "**first party**" is an entity that collects information from or about users and is the owner or controller of the website or service with which the user interacts directly. A first party also includes the first party's "affiliates."²⁴ Examples: The publisher of a site visited by a user–or an advertiser's site the user clicks through to. Data collected and used by the site is first-party data.

A "**second party**" is a first party that sells or shares data to a non-affiliated website or service. Given that the rules around data ownership, use and control are governed only in relation to first and third-party definitions, the reason to distinguish a second party from either a first or third party has fallen out of favor. This is because in relation to data collection, it is treated as a first-party and in relation to data sharing it is treated as a third-party.

- Online Example: AOL/Adap.tv sells behavioral segments collected from its own website to monetize traffic on Yahoo!
- Offline Example: Safeway offers discounts on fuel to customers of Chevron to incent users to opt-into rewards program

²⁴ An "affiliate" is an entity that controls, is controlled by, or is under common control with another entity. Control of an entity means that one entity (1) has significant common ownership or operational control over the other, or (2) can exercise a controlling influence over the management or policies of the other entity. In addition, for an entity to be under the control of another—and thus be treated as first party under these Principles—that entity must adhere to online behavioral advertising policies that are not materially inconsistent with the other entity's policies.



A "**third party**" is an entity that collects information from or about users from a non-affiliate's website or service. Third-parties, such as data aggregators and ad networks, often create data products that span collection from websites and stores not owned or controlled by a single entity. By aggregating this information, third-parties can offer smaller websites and stores that do not have the technical, data or service resources the ability to compete against large vertically-integrated companies. Information collected by an entity that does not have a direct relationship with a customer.

- Online Example: Google Analytics collects a user's visit path when visiting a sports website. Oracle/ BlueKai collects information from ESPN.com
- Offline Example: Experian collects information about a user's mortgage from their lending institution

For an in-depth explanation of the process of generating an attribute, or combination of attributes to form a segment, please refer to the *IAB* <u>2016 Data Lexicon Update</u>.

According to the IAB <u>2016 NewFronts Video Ad Spend Report</u>, confidence in third-party data accuracy is high, though 8 in 10 agree that an independent measurement audit influences their decision to work with a media brand.

6 Mobile Video

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6.1 Overview

Video advertising is the gold standard for brand storytelling enabling marketers to reach customers with rich content on their most personal device that rarely leaves their side. Indeed, according to a recent study by Deloitte,²⁵ on average, consumers across all age groups in the U.S. check their phones 46 times per day. Given that smartphones have now become ubiquitous to all ages and at all times of day, advertisers have no choice but to fully embrace mobile in order to engage and stay relevant with consumers wherever they are.

Despite the growth in content and video consumption on mobile, advertisers and publishers are challenged with bridging the "mobile opportunity gap"—or the gap between the amount of time people spend on their smartphones and tablets versus the amount of money advertisers are willing to spend on the medium.

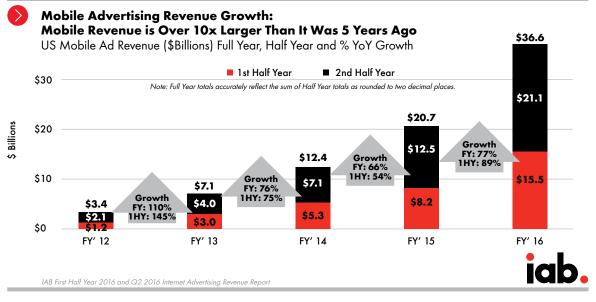
Much of the friction in the mobile video marketplace comes from the difficulty of measuring the effectiveness of video (and any ad format for that matter), on mobile. While desktop advertising has benefitted from having the cookie as its primary identifier to support measurement and interest-based ad delivery, cookies on mobile have limited applicability. On mobile, because of browser limitations and fragmented app/web environments, cookies cannot be relied on as a source of truth for identifying a user with a device. There are workarounds, which will be addressed further on in this



section, but as the variety of apps and experiences continues to evolve—especially with the introduction of new formats like vertical and 360° videos—the role of standards will be increasingly important to enable buyers and sellers to agree on how video should be measured and transacted.

6.2 **Opportunity**

Despite the challenges in the mobile video advertising space, advertisers are seeing the opportunity as evidenced in the latest <u>IAB 2016 Ad Revenue Report</u>, where consumers shift to mobile media consumption is reflected in mobile ad-revenue growth.



²⁵ Deloitte. "2015 Global Mobile Consumer Survey: U.S. Edition. The rise of the always-connected consumer."

U.S. mobile ad spend reached \$36.6 billion in 2016 accounting for 51 percent of overall U.S. digital ad revenue. Spend is greater than other platforms in an otherwise flat media market. In fact, U.S. mobile revenue is over 10x larger than it was just five years ago.

145%

Full Year 2016

Total Digital Video Advertising Revenue reached \$9.1B for 2016, a revenue gain of 53% across mobile and desktop.

Mobile video was one of the greatest contributors to this growth with a 145% YoY increase, amounting to \$4.2B, and is forecasted to see double-digit growth through 2019 with no signs of slowing down.²⁶

Mobile video—the main driver of digital video advertising growth in 2016—presents great branding and targeted ROI opportunities for

advertisers and great revenue opportunities for publishers.

Several factors played into these results:

- A shift towards mobile, the most personal screen experience
- Prioritization of video as the highest yield format
- Major growth in content, tablet, smartphone, and connected app penetration
- Broadband deployment, speed, and bandwidth capacity enabling high quality video delivery

US Digital Video and TV Viewer Metrics, 2012-2017						
	2012	2013	2014	2015	2016	2017
Monthly digital video viewers (millions)	171.6	186.2	195.6	204.6	213.6	221.4
Monthly traditional TV viewers (millions)	283.9	286.7	285.1	282.3	278.0	272.5
Daily time spent with digital video (minutes)	50	52	57	64	70	77
—Via mobile devices	12	17	25	34	42	51
—Via desktop/nonmobile devices	38	35	32	30	28	26
195470				www	eMarke	ter.com

The statistics for time spent watching videos on mobile devices is another indicator of the opportunities that lie in digital video advertising.

\$4.16

In 2015, average daily time spent watching digital video on mobile devices in the U.S. surpassed desktop time for the first time ever²⁷. By 2017, mobile time will be almost double its desktop counterpart.

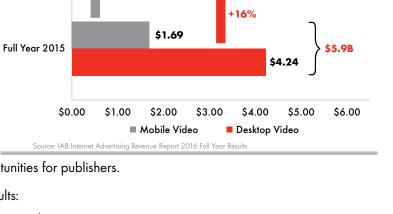
According to ZenithOptimedia, mobile video consumption is set to reach 33.4 minutes a day by 2018, with mobile devices accounting for 64% of all online video consumption.

In considering video content length, <u>long-form video</u> is the dominant performer, accounting for 47 percent of all mobile video plays in Q1-2016.²⁸ Short-form video followed at 40 percent.

²⁶ "Mobile Spearheads Digital Video Advertising's Growth," <u>eMarketer, 22 Feb 2016</u>.

²⁷ comScore Inc., Nielsen, and ZenithOptimedia

²⁸ Nielsen Q2 2016 Comparable Metrics report.



2016-2015 Digital Video Advertising Revenues



Breaking this down into ad formats, we see pre-roll is still critical, accounting for 47 percent of video impressions. Mid-roll ads are on the rise, attracting users who are already engaged with the content and hence have a propensity for high completion rates.

In terms of consumer demographics, people of all ages are keeping up with technology. Even though millennials are considered to be the biggest consumers of mobile video,²⁹ baby boomers are now catching up in mobile device ownership,³⁰ according to data from <u>AARP</u>, the American Association of Retired People. This is echoed by Nielsen in their <u>Cross-Screen Reports series</u>,³¹ where they note that nearly three-quarters of Boomers in the U.S. watch at least some video on their smartphones.

While primetime was traditionally defined as the time when households gather around the TV to watch a scheduled evening program, today primetime is becoming "personal" as it moves to mobile, presenting brands with the potential to engage users through digital video in a more immediate and personal way. However, while video consumption is increasingly moving from desktop to mobile environments,³² this does not signal a de-prioritization of desktop. Advertisers should take a multi-screen approach, as users expect to consume content on whichever device is most accessible to them. The user experience should always reflect the unique capabilities of each device.

6.3 Challenges

While mobile is one of the fastest growing areas in video advertising, it does present a number of challenges:

- Constrained supply of high quality, professionally produced content: Media buyers looking for high-quality, TV-like content may have trouble finding scale for their campaigns. There are still a limited number of mobile publishers offering longer-form, well-produced content. However, with the rise of TV-everywhere applications and lower cost of entry to producing mobile optimized video content, this situation is improving.
- 2. Inconsistent measurement: With so many different formats, devices and platforms-including web and app-advertisers are struggling to calculate the ROI for mobile video campaigns. It's particularly difficult to measure a video campaign that spans multiple devices, due in part to the fact that third-party cookies have limited applicability inside apps and are natively turned off in Apple's Safari mobile browser.
- 3. **Mobile-optimized creative assets:** This issue is mainly driven by reusing :15 and :30 second video spots originally created for TV and desktop without regard to mobile device and platform-specific user contexts and screen aspect ratios, or not having web versus app optimized assets.
- 4. **Organizational fragmentation:** While silos between traditional and digital media are beginning to fall away, many media agencies still have separate strategies and teams for the different types of inventory they purchase such as mobile,

video, TV, or display. Siloed approaches hinder the development of more holistic (and successful) multi-platform campaign strategies.



²⁹ Q2 2016 Comparable Metrics report.

³⁰ AARP.

³¹ Nielsen Q2 2016 Comparable Metrics report.

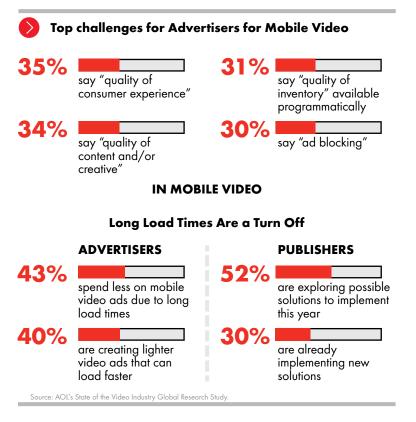
³² Mobile Spearheads Digital Video Advertising's Growth.



5. Viewability: While the industry has made significant progress in measuring viewability on desktop devices, challenges remain in the mobile space. However, there's optimism as <u>Media Ratings</u> <u>Council (MRC)</u> and IAB recently issued standards for video viewability for both desktop and mobile video that are similar to those of display (50 percent of the ad placement in view, for at least two continuous seconds). Key issues include different brands and agencies having different viewability requirements, different vendors measuring viewability differently resulting in report discrepancies, and discrepancies that result from advertiser vendors calculating viewability differently than publisher side vendors.

Viewability is an area that IAB is currently addressing through the Tech Lab Open Measurement Working Group, which will develop an open source SDK for measurement of viewability in in-app environments. For browser environments, the IAB Tech Lab is developing the HTML5 version of <u>Open Video Viewability</u> in order to standardize this metric. If you are interested in participating in these working groups and your company is an IAB Tech Lab Member, please contact techlab@iabtechlab.com.

6. Fraud: Fraud remains prevalent in mobile advertising. <u>The Association of National Advertisers</u> (ANA) and White Ops suggest that while the mobile fraud market is reasonably immature at this point, the threat for this channel is something to watch in the coming years with significant risk affecting mobile ad revenue.³³



Additional setbacks in mobile include latency and long load times, which for both advertisers and publishers result in high abandonment rates.

Some of the mistakes seen often include:

- Serving the same video preroll multiple times during a content series
- Forcing long-form ads ahead of short-form videos
- Reusing video spots without regard to screen aspect ratios
- Auto playing with audio without user initiation
- Repurposing a TV ad, not accounting for ad time tolerance

Poor user experience will most likely prevent a desired outcome, yet effective mobile video ads are hard to find.

6.4 Standards & Adoption Levels

In section 4 we discussed the ad tech aspects of video and in doing so we explained VAST and VPAID. Before we jump into the standards used in mobile and their adoption, let's quickly provide you with a glimpse of the next section about channels.

In mobile you can browse the web through a mobile web or by using a mobile application.

Video on mobile devices can be played:

- Inline through the mobile browser viewing a web page
- Through an in-app web view
- By opening a native mobile video player on the device

The below graph provides a summary of mobile video playback capabilities.

Type of Mobile Video Playback	User experience	Audio enabled?	Share of Device Screen	Interactivity	Metrics/ reporting
In the native player	Interruptive– moves from app or browser to video player	Default on	Usually full- screen	Not available	Generally very limited
Inline with the content	Fairly seamless with current activity	Could be on or muted	Could be any share of screen size	Possibly available	Can be very good

Source: IAB Mobile Video Buyer's Guide

- For many advertising applications, inline playback is preferred since it is less disruptive to the viewer's experience. Playback within a web view also enables HTML5 reporting on metrics related to how much of the creative was viewed.
- When video is viewed in the native player, these metrics are generally harder to access or are unavailable.

Now let's talk about the standards used in mobile and their adoption.

- VAST is commonly used in mobile for both web in-app.
- VAST-compliant mobile video players are becoming the norm.
- Unlike the desktop video advertising ecosystem, where VPAID is widely available, most mobile video runs via VAST.
- The majority of mobile video impressions are in-banner video or interstitial, where most of the video interactivity is achieved via MRAID.
- MRAID does not apply for in-stream video, but only for banner and interstitial units.

<u>Mobile Rich Media Ad Interface Definitions</u> (MRAID) handles the interaction between rich media ads and the app or the web view. Without MRAID, ad developers would have to design interactive ads specifically for each proprietary system into which it would serve. The cost of such development would be prohibitive for brands to effectively advertise in mobile apps/web.

MRAID offers a standardized set of commands, designed to work with HTML5 and JavaScript. Developers creating rich media ads can use it to communicate what those ads do (expand, resize, get access to device functionalities such as the accelerometer, etc.) with the apps/web into which they are being served.

<u>MRAID 3.0</u> offers updates that improve mobile ad execution with features that help track viewability, audibility, clarity on initialization and ad readiness, and detect MRAID environments. It also collects data to present users with the best possible experience, integrates with IAB VPAID for ads with interactive video, and provides guidance on pre-loading ads. Additionally, it integrates the above addendum and offers optional compliance for the host to support ads developed using both MRAID and VPAID.

The VPAID integration with MRAID does NOT handle ad interactions with the player. The integration enables the MRAID host to listen to VPAID events.

- Mobile web typically uses VPAID, but VPAID is still pending adoption in mobile apps.
- MRAID is applicable in mobile app and allows the ad to interact with the native application.
- MRAID allows for ad expansion, inline video play, and interaction with contacts stored on device, photo gallery, etc. MRAID also allows for ads to interact with the hosting application. To do so, the hosting app needs to have MRAID-compliant SDK, and the ad must adhere to MRAID specs as well.
- MRAID 2.0 allows for playing video inline, while MRAID 1.0 does not allow for video.

IAB, IAB Mobile Marketing Center of Excellence (MMCoE) and IAB Tech Lab are continuing to work on solutions to these challenges, particularly through MRAID and VPAID.

IAB Tech Lab and the MRAID working group have developed multiple tools and utilities to help developers test and validate their MRAID ads as well as MRAID implementations in their app or ads SDK. You can find the <u>MRAID v2.0 Test Ads for Video Interstitial Ad</u>.

Other supporting documents:

- <u>MRAID 2.0</u> is accompanied by the <u>MRAID Video Addendum</u> to address video ads in MRAID environments using VPAID
- MRAID Best Practices
- Choosing Between VPAID, MRAID, and SafeFrame: Moving towards cross-platform delivery
- MRAID Ad Examples (Interstitial and Expandable)

6.5 Channels

Mobile internet use is divided into two modes: browsing the mobile web and using mobile apps. Many kinds of content or service can be provided or accessed equally well via either app or mobile web. However, some are available exclusively on one or the other.

Media companies, agencies, and marketers face some confusion deciding on whether to focus their strategies predominantly on apps or on mobile web. There is a notion that somehow mobile apps have won, leaving mobile web as unimportant. This overlooks the important role mobile websites play in the total mobile internet experience. In practice, consumers make use of both apps and web browsing, trading off based on expediency and personal preference.

To investigate the question of consumer preferences and behaviors in browsing mobile web versus using mobile apps, <u>IAB commissioned Harris Poll</u> to survey over 2,000 U.S. adults about their views on apps and mobile websites, and how they find and share both apps and websites accessed on their smartphones.

6.5.1 Mobile Web

The <u>mobile web</u> is defined as a website that is viewed through a device's web browser (i.e. Safari or Chrome). It refers to the website's content and ads within it, displayed within the mobile web browser or displayed by an embedded browser within an application environment (excluding interstitials).

Video impressions on the mobile web are most frequently available as interstitials and there is a limited amount of pre-roll or mid-roll. Currently, mobile web inventory is much easier to whitelist or black-list than in-app placements. If an ad is shown inside a mobile web browser, technology solutions can use the same interest-based advertising methods that are used in desktop, i.e. re-targeting consumers based on previous browsing patterns or serving subject-matter ads based on content categories.

6.5.2 Mobile In-App

<u>Mobile apps</u> are natively designed to run on various mobile devices such as smartphones and tablets. It refers to content and ads within the native user interface of an application and not content within either a mobile browser or an embedded browser within an application environment (an instance where browser is embedded within a native application. Typically, this occurs when a user clicks on a URL in a mobile application and the application executes the embedded browser).



6.6 Measurement/Identifiers

There is a lot of confusion in the marketplace around what is possible in terms of identifying users on mobile and cross-device and how marketers leverage user identity to create more effective cross-screen campaigns.

As mentioned in the IAB <u>Mobile Identity for Marketers Best Practices Primer</u>, mobile device manufacturers and operating system providers offer several identifiers for differentiating device owners, some of which can be used for consumer advertising and marketing purposes and some that can't. These identifiers can be grouped into two categories; hardware-based and software-based.

6.6.1 Hardware-Based Identifiers (a.k.a. Persistent Device IDs)

Hardware Based Identifiers are associated with physical components on the mobile device, are nonprivacy supporting and should not be used for marketing purposes because consumers cannot turn them off or opt-out of sharing. For this reason, in <u>2012</u>, Apple, and in <u>2013</u>, Google, disabled access to these persistent IDs in order to protect consumer privacy. A description of these persistent IDs is presented in this table:

HARDWARE IDS	DESCRIPTION	WHAT THEY LOOK LIKE	NOTES
Universal Device Identifier (UDID)	The manufacturer's persistent and unique ID for the actual mobile device	2b6f0cc904d137be2e17302 35f5664094b831186	Non-privacy supporting Non-privacy supporting. Most
Media Access Control (MAC) Address	The manufacturer's persistent and unique ID for each network interface card on the mobile device	B8:53:AC:B1:12:87	phones have two MAC addresses which equate to one for each antenna – the Wi-Fi antennae & the cell network antennae

6.6.2 Software-Based Advertising Identifiers

These can be disabled and/or reset by the consumer. The major operating system manufacturers have their own implementations for generating and controlling advertising identifiers. The most prevalent advertising identifiers today, offering the scale needed for marketing purposes, are noted in this table:

SOFTWARE BASED ADVERTISING IDS	DESCRIPTION	WHAT THEY LOOK LIKE	NOTES
IDFA AAID	Apple's Identifier for Advertising on the iOS operating system	AEBE52E7-03EE-455A- B3C4-E57283966239	Privacy-supporting (may be disabled / reset by user). Used for advertising purposes
	Google's Android Advertising ID	97987BCA-AE59-4C7D- 94BA-EE4F19AB8C21	Privacy-supporting (may be disabled / reset by user). Used for advertising purposes

There are additional software developers in the space offering unique probabilistic IDs produced through statistical modeling to identify individual devices or environments. These tools are designed to take multiple disparate data points (screen size, processor, OS, etc.) from the same devices in mobile web and app environments and produce a unique ID completely independent of cookies.



In summary

- Cookies and advertising IDs are software based mobile identifiers used by advertisers and publishers to manage identity for marketing purposes.
- IDFA (Identifier For Advertisers) is the software based identifier used for advertising purposes on Apple iOS.
- AAID (Android Advertising ID), the Google software-based advertising ID is used by marketers and advertisers on Android devices.

6.6.3 Cookies in Mobile Web Browser Environments

As mentioned in the IAB white paper <u>Cookies on Mobile 101</u>, there is a commonly-held belief that "cookies don't work on mobile." A more nuanced and accurate version of this statement would be "cookies don't work on mobile the way we expect, based on desktop."

On desktop, cookies work almost universally. For instance, when a user clicks an ad or a link on a website on their desktop browser, a cookie is typically placed on that user's computer that can be used for follow-on marketing.

On mobile devices, because of browser limitations and fragmented environments, cookies cannot be relied on as a sole source of truth for identifying a device. A number of other tracking methods have been developed to overcome these challenges, because the reality is, cookie tracking on mobile alone is of limited utility.

In thinking about mobile cookie availability and usefulness, it is helpful to review applicability in the browsers/websites and mobile apps world. Most mobile web browsers accept first-party cookies (e.g., a cookie whose domain is the same as the domain of the visited website).

For example, a cookie whose domain is news.com, may be placed by <u>news.com</u>. Different mobile browsers behave differently when it comes to accepting third-party cookies (that is, cookies whose domain is different from the visited website—for example a cookie whose domain is advertisinginfo.com placed on news.com).

While third-party cookies are supported in Android devices, on iOS they are not (the default setting on Apple's Safari browser has third-party cookies disabled). The variation on this rule comes into play when a consumer clicks on or engages with an ad and then is redirected to a third-party's website. At that point, the third-party site becomes a first-party since the consumer has now visited its web site on its own domain (and that former third-party, now first-party, is able to set cookie in the user's mobile browser). Hence, cookies have limited support on mobile browsers, in particular Safari on iOS, but work on the Chrome browser on Android.

There are time limitations that apply to cookies as well. Mobile cookies can be short-lived (sessionbased) or persistent for longer periods.

- Session-based cookies (assuming the user has configured their browser to allow cookies) are temporarily set in the user's mobile browser while they are visiting a website, but are then deleted when the user leaves the site (or when the user shuts down their mobile browser or turns off their device).
- Persistent cookies however (again, assuming the user has configured their browser to allow first and third-party cookies) can stay within the user's browser until the cookie expires (as defined by the web site developer or mobile app developer, or until the user deletes their cookies. A cookie without a defined expiration date is a session cookie.



6.6.4 Cookies in Mobile App Environments

As highlighted in "<u>Cookies on Mobile 101</u>," mobile apps handle cookies somewhat differently than mobile browsers. Apps use a technology called a "webview" which lets people briefly access online content such as websites without leaving the app. Cookies generated through a webview can be stored on the device in an app-specific space commonly referred to as a "sandbox" environment.



This sandboxed environment limits the application's ability to access data from other apps. The application can still store and access cookies and other data within the application itself, but it is restricted from accessing information from any other app on the device. Because of this, advertisers cannot follow a user from app to app based on a cookie in the same way that they can track behavior within a browser window. Therefore, for any given webview session, the cookies stored in it are unique to the application that launched it.

Apple further describes the purpose of the <u>app sandbox</u> as follows: "By

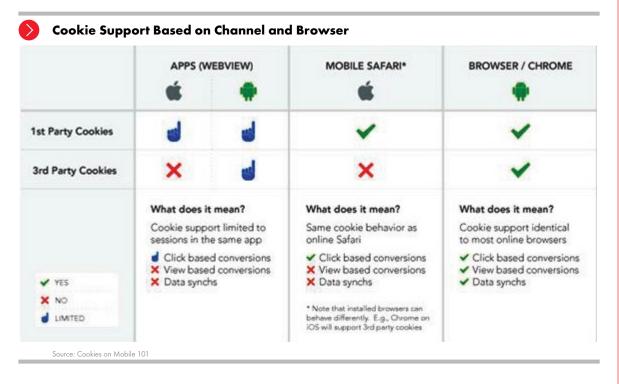
limiting access to sensitive resources on a per-app basis, app sandbox provides a last line of defense against theft, corruption, or deletion of user data, or the hijacking of system hardware."

The table on "Mobile Cookie Alternatives" was created by IAB Mobile Center of Excellence in their <u>Cookies on Mobile 101</u> to shows cookie applicability in the various mobile environments.

For more information on mobile cookies, please refer to the IAB <u>Understanding Mobile Cookies</u>.

6.6.5 Mobile Cookie Alternatives

The limitations of cookie tracking on mobile devices have catalyzed various alternative methods of tracking.





The approaches vary in methodology, implementation, and scale. The four most common solutions that are emerging in today's marketplace include:

- Encryption and Hashing of Advertising Identifiers: Some publishers encrypt or hash their advertising IDs before sharing externally with third parties. Encryption is a practice of encoding this information with a mathematical algorithm so that only authorized parties can interpret the ID. In the mobile ecosystem, the most common forms of Advertising ID encryption are <u>SHA1</u> (Secure Hash Algorithm 1) and <u>MD5</u>.
- **Statistical ID:** A server-side algorithm for identifying a device or user based on the values of a combination of standard attributes passed by the device. Typical device attributes include: device type, operating system, user-agent, fonts, and IP address. Those attributes change over time due to device changes or updates.
- **HTML5 Cookie Tracking:** Involves storing a cookie-like file in HTML5 local storage on the device. These are similar to traditional cookies, but can only be set or retrieved when the browser is open and running.
- Universal Login Tracking: Requires consumers to log into different experiences using a pre-existing login rather than create a unique one for that experience. This type of tracking is limited to specific vendors, but enables companies with this type of universal login to gather data across applications and devices.

6.6.6 Viewability

In a continuous effort to standardize mobile measurement, the <u>Media Rating Council</u> (MRC) issued the final version of its <u>Mobile Viewable Advertising Impression Measurement Guidelines</u> in June 2016. The guidelines (subject to periodic updates) provide guidance for measuring viewable impressions in mobile web and mobile in-app environments. They establish parameters for measuring viewable impressions, an industry standard metric designed to represent mobile ads for which the opportunity-to-see is established:

Requirements for Mobile Viewable Video Advertising Impressions:

- A Mobile Video Ad that meets the criteria of 50% of the ad's pixels on an in-focus browser or a fully downloaded, opened, initialized application, on the viewable space of the device can be counted as a Mobile Viewable Video Ad Impression if it meets the following time criterion:
- Video Time Requirement: To qualify for counting as a Mobile Viewable Video Ad Impression, it is required that 2 continuous seconds of the video advertisement is played, meeting the same Pixel Requirement necessary for a Mobile Viewable Display Ad. This required time is not necessarily the first 2 seconds of the video ad; any unduplicated content of the ad comprising 2 continuous seconds qualifies in this regard.

Sub-Second Ad Impressions apply to display ads only; it is our conclusion that a 2 continuous second exposure is the minimum threshold that should be applied as a measure of the establishment of **Opportunity-to-See** for mobile video ads.

• Similar to the rules for counting **Mobile Display Ad Viewable Impressions**, strong user interaction with a mobile video ad may, in certain instances, be considered a proxy for viewability. Specifically, a legitimate tap or click on a video ad (i.e., the click satisfies the requirements for counting a click, based on the IAB Click Measurement Guidelines) may optionally result in a Mobile Viewable Video Impression even if the ad does not meet the pixel and time criteria necessary for a Mobile Viewable Video Impression (but, as noted earlier in these guidelines, a tap or click that initiates a Click to Play video ad would not, in itself, be considered a user interaction that satisfies this criteria). Given the nature of mobile environments which may involve more frequent and inadvertent interaction, clicks or taps to minimize or close ads as a proxy for viewability should be supported empirically.



As is the case with mobile display ads, specific user interactions that will satisfy the requirement of a "**strong user interaction**" should be appropriate to the advertisement and the environment in which it appears, and they should be empirically defensible as reasonable proxies for viewability. If Mobile Viewable Video Impressions are counted as a result of such user interactions, this methodology should be fully disclosed, and these counts should be segregated for reporting purposes.

The Mobile Video Ad above refers to an in-stream and stand-alone (out-stream) video ad. Banner ads with video embedded within them generally are covered by the display ad criteria for viewable impression measurement. Also note that the criteria specified here is "50% of the ad's pixels" (emphasis added); if the criteria used to determine viewability is based on "50% of the video player's pixels", rather than those of the ad, this distinction should be prominently disclosed, and should be supported by evidence that the impact of using the player as the basis of viewability measurement rather than the ad itself is immaterial.

It is encouraged, but not required, that the orientation (landscape or portrait) of video ads be disclosed as part of placement level reporting.

6.7 Emerging Creative Formats

Mobile video ads play a key role in helping advertisers meet their goals in brand marketing campaigns. Vertical, in-stream, and opt-in videos have been proven to enhance brand awareness, with vertical video delivering up to 9x completion rates compared to horizontal video.³⁴ Furthermore, interactive videos with rich-media, 360° videos, and native in-feed videos help increase user engagement and conversions, and drive sales and app installs.

Given the massive shift toward smartphone and tablet video, focusing on the user experience means, by necessity, putting a premium on mobile. Niche content providers—or "mobile-first publishers"—were among the earliest content owners to get their assets onto mobile devices, allowing them to reap some of the first-mover advantages. However as major studios, broadcasters and operators jump into the game, making their assets available on mobile devices won't be enough to guarantee success. To stand out in the crowd you'll need to be able to draw critical insights from the data on every asset, analyzing audience, geographies, latitude/longitude data, engagement and viewing formats, all of which will allow you to better serve your customer.

As the ecosystem matures, it will be increasingly important to adapt to the changing environment. Some of the new formats gaining traction are VR/AR, 360° videos, vertical videos, esports etc. The list will keep on growing so it is vital to adapt quickly. For additional information on these emerging formats, please visit the IAB May 2017 <u>Video Landscape Report</u>.

6.7.1 Virtual Reality (VR) and Augmented Reality (AR)

Everyone has their "first experience with virtual reality" story. These first VR experiences are often profound, providing breakthrough glimpses into artificial realities that previously were only part of our imagination. For those in publishing, marketing, ad tech, and creative communities, VR opens the door to exciting new opportunities for developing immersive content and brand storytelling.

According to the <u>2016 IAB NewFronts Video Ad Spend Report</u>, more than three in four survey respondents intend to buy either virtual reality, 360° Video, or augmented reality advertising in the next 12 months.

Market estimates are large. <u>BI-Intelligence</u> estimates that shipments of virtual reality (VR) headsets increased by about 1047% percent year-over-year to 8.2 million in 2016. This enabled the virtual reality space to exceed \$1 billion in revenue for the first time, according to research by Deloitte.

³⁴ Snapchat internal data snapchat.com/ads

The IAB report: "Is Virtual the New Reality?" offers an overview of observations and opinions on VR from a distinguished panel of over two dozen industry-leading voices in publishing, advertising, VR software, and developer platforms. IAB conducted the study in 2016 and the findings offer a market snapshot detailing key takeaways, lessons learned, and future plans in the emerging field of VR.

C Advertisers are always looking for new ways to connect their brands with strong custom content, ideally something that's never been done before. VR offers a great opportunity, provided the storytelling is front and center.

Some notable strengths of VR include:

- Immersive storytelling: VR allows for focus as viewers are totally immersed in the experience.
- Monetization opportunities: VR will have a massive impact in shopping, real estate, and product demos.
- **Emotive:** VR has the power to stir emotions and create empathy among viewers in an entirely new way, putting the viewer in the center of a situation that they might not otherwise experience.
- **Consumer as storyteller:** VR enables the viewer to control what they see as they move their head or their virtual bodies (avatars) through space, essentially turning the viewer into the storyteller.

"VR will change the way people travel and experience new things. You'll be testing your hotels before you go and testing out products before you purchase"

-Yale Cohen, Publicis Media

Still, the growth of VR faces obstacles:

- VR is still largely a niche offering.
- The rate of adoption is slow and there is currently a lack of audience scale.
- To fulfill VR's potential, video content quality and production investment will need to increase and the user's experience needs to improve.
- While the price of VR headsets are starting to drop, tethered (computer-based) VR remains expensive and cumbersome to use.
- VR headsets require a more solitary undertaking and wearing them for more than brief periods is uncomfortable, limiting interest in longer-form VR content.
- First impressions are critical: While it's possible to be 'wowed' by first VR experiences, there's an equal chance for them to have an underwhelming, or even nauseating experience.
- The social aspect of VR remains sorely lacking at this point.
- VR is a standalone medium completely separated from other forms of media.

Meanwhile, AR and 360-degree experiences are gaining steam and attention because they don't necessarily require a headset. Pokémon Go showed how big Artificial Reality (AR)³⁵ could be. Social platforms like Snapchat and Twitter (through partners like NBC) have also been using AR, and news broadcasters like CBS now have 360-degree apps to help audiences more fully engage with stories of interest in a fully immersive fashion. Facebook also recently announced the availability of <u>360-degree live streaming</u> and along with YouTube's announcement of its VR 180 format (which will also support live streaming), immersive video will become more accessible for creators. In addition, Google



and Apple's recent announcements of operating system level support for AR will help foster the development of exciting new AR experiences from the developer community.

6.7.2 The Growth of Esports



Esports is a fast-growing competitive multiplayer electronic video gaming sport, played competitively for spectators, including at major sports venues like Madison Square Garden. Just like traditional sports dominate television screens, esports has found a home in programming as it appeals to a valued, younger audience of gamers and enthusiasts.

Experts in the industry believe this new exposure is bound to catch the attention of casual viewers and to secure a space for esports in mainstream culture. Esports offers media companies and brands new means of engaging with younger

audiences who both play games and watch game content. According to Imari Oliver, head of sales and global partnerships at WME/IMG, "Forty percent of people who watch esports don't play the game."³⁶

As noted in the 2017 <u>IAB Video Landscape Report</u>, the esports enthusiast audience currently skews young (half between age 21-35) and male (71 percent men). The majority of enthusiasts are employed full time and earn a good income, making them a desirable target group for marketers, especially big brands.

If you are interested in participating in the esports working group, please email <u>committees@iab.com</u> as we will be creating a working group.

6.7.3 Vertical Video

Vertical video—ads that play in a vertical (portrait) orientation rather than the typical horizontal (landscape) orientation—is growing, owing especially to the growth in popularity of Snapchat, one of the largest platforms leveraging the format. According to the IAB Newfronts Video Ad Spend Study, half of advertisers interviewed purchased vertical video ads in 2016.



³⁵ The continued evolution of enhanced mobile experiences that overlay digital information on top of the physical world

³⁶ Duffy, F. (2017). "<u>Turner Takes on eSports in a Big Way.</u>" NCTA Platform, 6 Jan 2017.

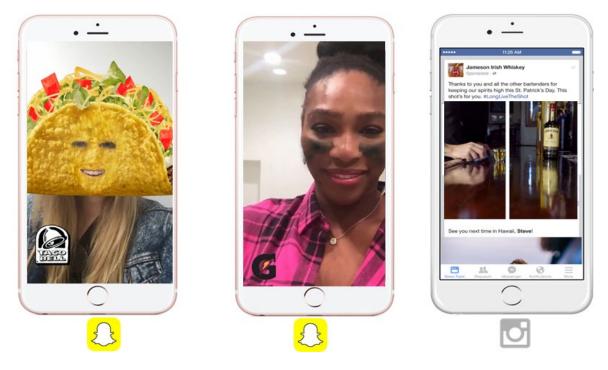
Some advantages and best practices of vertical video advertising include:

iab.

- Ads fill the full screen.
- Works well on apps where users are comfortable seeing interstitials during breaks in their user session.
- Users will likely not rotate their phones to landscape mode to view an ad in native vertical-orientation apps. Advertisers should therefore leverage the natural (vertical) hand position.
- While it is possible to re-size and crop horizontal ads for vertical use, the user experience is often lacking, especially when borders (letterboxing) appear around the video.
- According to Snap Inc., vertical video ads gain a higher level of user attention, emotional response, and purchase intent than the horizontal video ads on other social platforms.

Best Practices

- Vertical Videos and 360° Videos should be filmed in portrait mode (9:16).
- Video files should be 5MB or less.



Examples of Vertical Video Ads

The <u>IAB New Ad Portfolio</u> provides initial guidelines for AR/VR, 360 videos, vertical video, emoji/sticker ads for messaging environments and 360 degree imaging.

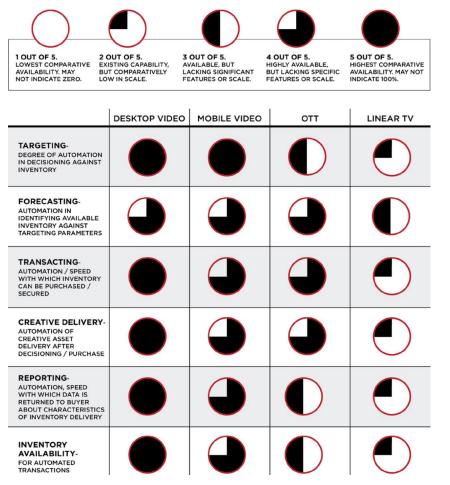
7. Video Automation (or "Programmatic")

7.1 Introduction

The term "programmatic" has become ambiguous shorthand for some or all of a diverse range of platforms, tools, and processes in digital advertising. Despite its widespread use, there is still confusion around how to differentiate one programmatic solution from another, specifically as it relates to digital video.

The IAB Data Center of Excellence has specifically acknowledged the functional limitations of the word "programmatic" to meaningfully describe software-driven processes, formats and tasks, and has subsequently developed a <u>Framework for Advertising Automation</u> that encourages the use of more nuanced language when discussing this class of tools and capabilities. It does so by focusing readers on specific supply-chain processes and associated sub-tasks that more specifically illustrate the utility that data and software add to media planning and selling.

IAB defines programmatic very simply as the automated buying and selling of inventory. Thinking about automation beyond simple "yes" or "no" dichotomies, the reality is that there are many distinct processes within buying and selling workflows that can and cannot be automated, including targeting, forecasting, transacting, delivery, and reporting. The degree to which these processes can be automated is largely a function of the channels within which the video inventory is being sourced– desktop, mobile, OTT, linear TV–as well as the technical infrastructures upon which they're being monetized–reserved inventory prioritization within an ad server, network-based monetization via tags or SDKs or exchange-based monetization.



In the IAB report, <u>Programmatic Video: a</u> <u>Spectrum of Automation</u>, each process is outlined along with channels and technical monetization infrastructures in a grid that illustrates range of automation capabilities by platform, highlighting the degree of automation in each step of the supply chain.

This section of the guide expands on the concepts described in the <u>IAB</u> <u>Programmatic Video Paper</u>.

Now that automation via software and data has become the de-facto means of executing digital advertising investments—just as automation has become central and disruptive to most industries—understanding and evolving the roles and utility of each component involved in automation is critical to ensuring an effective marketplace.

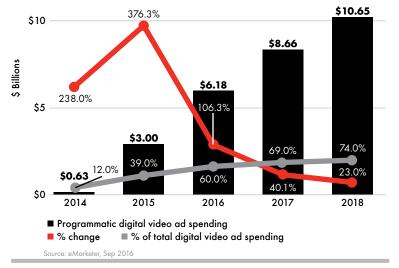
Source: Programmatic Video: a Spectrum of Automation



7.2 Video Automation Opportunity

U.S. Programmatic Digital Video Ad Spending 2014-2018

billions, % change and % of total digital video ad spending



Note: Digital video ads transacted via an API, including everything from publisher-erected APIs to more standardize RTB technology; includes advertising that appears on desktop/ laptop computers, mobile phones, tablets and other internet-connected devices; includes advertising that appears before, during or after digital video content in a video player According to the <u>2016 IAB</u>

NewFronts Video Ad Spend Report, programmatic video buying is seeing broad adoption and steady growth, accounting for 45 percent of all Digital Video dollars spent and is expected to continue to grow.

Programmatic video, which <u>eMarketer</u> estimates will account for 69 percent of U.S. digital video ad spending in 2017, is mutating into a more holistic endeavor. The expectation is the term "programmatic" may eventually fall away as automation and convergence of digital video and linear TV solidify to become the new industry norm.

According to the <u>IAB 2017 Video Ad Spend Study</u>, multiple factors will drive automated buying and selling to account for nearly three-quarters of U.S. video ad spending by 2018 including:

- Greater comfort with automated tools and audience-based selling will drive publishers to offer a
 greater portion of their inventory for purchase in an automated way as advertisers are willing to pay
 more to reach the right audiences.
- More demand for audience-informed video ad buys will drive publishers to adopt automation to enable such data-driven capabilities.
- Improved automated ad technologies offering guarantees both private and similar to traditional direct-sold agreements, will provide greater comfort for publishers as they push their most precious asset through the automated pipes.

Automated video bidding was driven by the need to revolutionize the waterfall model³⁷ and democratize the access to a publisher's video inventory. For publishers, it offers a way to connect and manage multiple demand partners easily, and gain more flexibility and control over the transaction process. For brands, though the ability to buy video in an automated fashion exists today, doing it at scale with precision targeting is challenging due to the scarcity of premium video content.

IAB hosts a deep-dive crash course on programmatic advertising and inventory management called <u>Programmatic 360: Automation Decoded</u>.

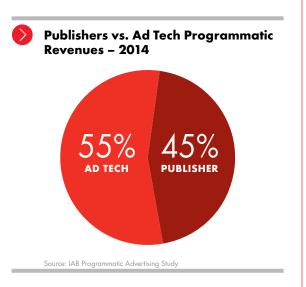
³⁷ The waterfall model is a sequential process in which progress is seen as flowing steadily downwards (like a waterfall) through the various phases, in this case, the potential demand sources or buyers



Ad Technology vs. Publisher Revenues

While ad technology fees incurred by buyers and sellers vary greatly depending on which services are applied and the levels of managed services being requested, they cumulatively represent a significant portion of programmatic (automated buying / selling) revenues. IAB estimates that, in 2014, ad technology services cumulatively captured 55 percent of programmatic (automated buying / selling) revenue while publishers captured the remaining 45 percent.³⁸

While these fees are an inevitable and important part of the ecosystem that support the platforms that enable automated transactions, it's clear that buyers and sellers need to have better tools to help them evaluate the overall costs of automated technologies and services relative to the benefits they provide. For those who want to go one step



further, IAB developed a <u>programmatic fee transparency calculator</u>. The calculator is intended to provide advertisers and publishers more granular, campaign specific cost breakouts based on their particular implementations. The tool tabulates the overall cost of each actor in the supply chain (as a percentage of the effective CPM) after the user enters his/her channel specific planning rates, budgets, and ad technologies/services.

7.3 Video Automation Landscape

The diversity of automated buying / selling ad technology services—as well as their associated implementation options and cost models—has exploded over the past several years as the industry responds to changing marketplace dynamics. The increasing complexity in the programmatic value chain has also created unforeseen consequences.

SERVICE	VALUE	COST MODEL	PAYER
Ad Blocking (Pre/ Post)	Technology that allows advertisers to block ad delivery based on a set of inventory quality signals, which could include viewability, brand safety, and fraud. Can be blocked on either a pre-bid or a post- bid basis after inventory is won.	СРМ	Advertiser
Advertiser Ad Serving	Technology that provides centralized storage, tracking, and delivery of media campaign assets	СРМ	Advertiser
Management Service	Service for setting up, managing, and optimizing automated delivery, as well as building / maintaining buy or sell side infrastructure (inventory, technology, data and reporting relationships). There are many different types of managed service offerings, as outlined below.	Full-Time Employee (FTE), % Media	Advertiser
Data / Targeting	Third-party data segments used for identifying and targeting specific types of users or devices. Generally speaking, first-party segments (data collected and applied by user) are not paid for.	CPM, % Media	Advertiser, Publisher

³⁸ IAB Programmatic Revenue Report 2014 Results. July 2015

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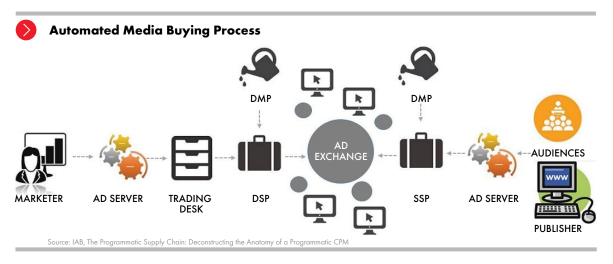
Data Management Platform (DMP)	Technology service that allows operators to aggregate and normalize disparate data sets for advanced campaign analytics/reporting.	CPM, Flat Fee	Advertiser, Publisher
Demand-Side Platform (DSP)	Software used to access and decision against publisher inventory. Other functions usually include bundled bidding algorithms/optimization techniques, third- and first-party data integrations, tagging and attribution functionality, and media delivery reporting.	CPM, % Media	Advertiser
Pre-Bid Decisioning / Targeting	Tools that allow advertisers to evaluate the quality of individual publisher impressions and influence decisioning <i>before bidding</i> . Quality is evaluated largely against viewability, brand safety and/ or fraud, and is often coupled with ad blocking functionality (see above).	СРМ	Advertiser
Publisher Ad Serving	Software to manage advertiser creative tags and delivery priority amongst many advertisers.	СРМ	Publisher

Source: IAB The Programmatic Supply Chain: Deconstructing the anatomy of a programmatic CPM

First, given the number of ad tech services commonly applied to automated buys, it has become difficult for advertisers and marketers to keep track of what specific service types are being used, and their relative value compared to other components of the buy. Second, there is a lack of communication between buyers and sellers about the ad technologies being used by each side, as well as the fees that are removed in the bidding process³⁹ before publishers' net CPMs are realized. This creates a discrepancy between buy and sell side inventory valuations, which has the potential to erode trust in the marketplace and reduce inventory and price liquidity. The first step in improving transparency is to deconstruct the individual components of these ad technology layers and their value propositions.

While it would be self-defeating to identify and define every type of automated service in a constantly evolving landscape, the table describes the most common automated ad technologies and services within the supply chain, frequently used cost models, and the party (buy vs. sell) that generally applies the service.

This graph shows an example of some of the participants that might be involved in the automated media buying process.



³⁹ IAB: Transparency Is the Key to Programmatic Success

7.4 Participants, Roles, and Monetization Infrastructure

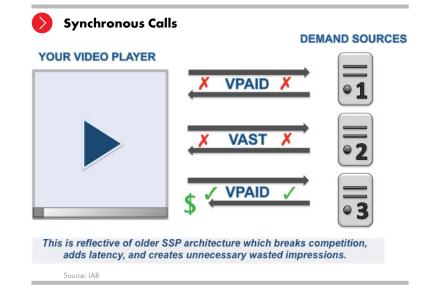
This section explores the core ad technology—the cost of doing business—including Supply-Side Platforms (SSPs), Demand-Side Platforms (DSPs), and their monetization infrastructures.

7.4.1 SSPs (Supply Side Platforms)

In addressing SSPs, we'll examine the various ways in which an SSP can make calls to demand partners and the ways in which an SSP integrates demand partners into their auction. We'll also review potential errors that can be encountered when integrating demand sources as well as the various tactics a publisher, using an SSP, can implement to push their inventory through the programmatic pipes. We'll finish this section with a game to test your knowledge.

Asynchronous calls mean everything (objects, nodes, signals) happens in parallel and the SSP receives the responses typically before the page has loaded. This is the way most SSP auctions work these days. The bid request is 'broadcasted' to all buyers at the same time which is the most efficient way of calling video buyers as it reduces latency and it also creates competition.

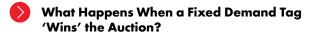
Synchronous calls wait until the previous object has loaded before starting the next object. Its architecture stems from the traditional 'waterfall,' which causes additional latency between page load and ad delivery.

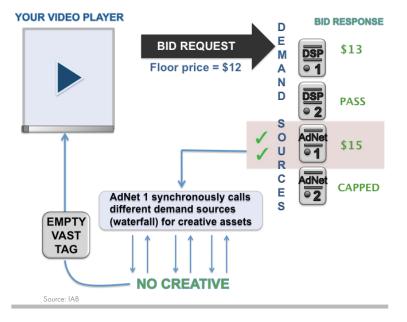


Integrations refer to the process of adding a demand source to an exchange environment. It can also refer to the process of linking a video player to an ad server. In this section, we will go through the two primary ways in which an SSP adds demand sources to their auction tag, based/fixed demand tags, and server-to-server integrations.

Tag Based/Fixed Demand Tags

Fixed demand tags are typically used as a way to compensate for low server-to-server demand (the result of few integrated DSPs) or to increase bid density. Ad networks that do not adhere to the RTB protocol will send fixed demand tags at specific prices. Let's illustrate this with an example with a fixed tag of \$15.





A publisher makes video impressions available through an SSP. The bid request goes out and demand partners send bid responses. DSP responses are in real time, but ad networks respond with a fixed demand tag (SSPs enable this via proxy bids). These tags are usually VPAID tags, as they allow the demand partner to perform ad decisioning and cookie collection. When they respond with a fixed demand tag, in parallel, they initiate the process of finding a buyer; if they can't find one, they respond with an empty VAST tag. By the time this happens, other demand sources might find that \$15 is too high of a price and assume that someone else bid and won the impression.

The end result is a wasted impression with an inflated price that never clears the auction, and a poor user experience.

Server-to-Server Integrations

Server-to-server integrations are designed to enable faster transfer of data between organizations, quick activation, and enhanced reporting.

In a server-to-server integration, the ad platform is first called from the "client," which is typically a browser, app, or video player running on a user's device. After that, the client only waits for the final creative—to show the user—with all decisioning logic and communication with buyers, running through data centers that are optimized for these direct connections. These connections are typically very fast, they may be in the same, or geographically close data centers, and usually do not need to navigate typical web traffic. They are also fast because they are not limited by the speed of the user's device but can be optimized by the ad tech vendor's server farms.

Because the buyer does not have a direct connection to the client (browser, app or video player), it doesn't have access to their cookie, so it may be more difficult for them to identify the user. One method to bring this data to the buyer, is for the buying and selling platforms to "synch" cookies. This is an ongoing process that allows the seller to share a user identifier with the buyer. In some cases (such as mobile in-app supply) the client has a device ID that can be passed along via parameters to each party.

To learn more about mobile identity, please visit the IAB "<u>Mobile Identity: A Best Practices Primer for</u> <u>Mobile & Cross-Platform Device Marketing</u>."

What Could Go Wrong: Causes for Wasted Impressions

Broadly speaking, there are two reasons for a publisher to waste a valuable video impression: an empty VAST tag, or a VPAID error. These errors lead to latency, wasted impressions, breaking competition and poor user experience.



When a demand partner responds with a VAST tag that has a VPAID component in it, the video player may think that because the scripting language started running (the demand partner responds with a VPAID component), an ad will be served. However, this is a bad assumption. When the VPAID logic executes, it may make calls to different demand partners to see if they return an ad. While this was not the original VPAID goal, the technology has been used innovatively (or hijacked from a different perspective) to perform these tasks.

For VPAID creatives, only an "AdImpression" VPAID event sent to the player should be used by a player to indicate that a VPAID ad is playing.

When a DSP uses VPAID opportunistically to do client-side bidding/decisioning like this, the player only ever sees the initial VAST response that contains the VPAID bidding wrapper creative. The player loads this wrapper and allows the VPAID code to execute. After this, any VAST ad that is loaded is done so **by the VPAID code** using its own loader and the player isn't even aware of it. The way VPAID signals to the player that there was no creative, is by calling the "AdError" VPAID method. This returns control back to the player and the player can then decide to try another demand source or give up. Some video players are sophisticated enough to understand there's no creative and thus the player will call on a different ad source.

Another reason for wasted impressions is when a VPAID wrapper loads another VPAID wrapper in itself. If there is a VPAID error, this is communicated to the parent VPAID wrapper which may then call on another demand partner. All this back and forth adds latency, which is the number one reason for a user to abort their session or close the video player, which results in a wasted impression. Additionally, if the ad doesn't show up on time, the publisher needs to give up the ad impression and show the content instead, therefore also wasting an impression.

7.4.2 DSP (Demand Side Platform)/Exchange Integrations

Integrations, What Could Go Wrong?

Now that we have gone through the SSP set ups, tactics, best practices and priorities, let's look at the various scenarios and possible errors from the DSPs side.

There are several errors we can encounter while integrating a DSP for video. It is worth mentioning that if a DSP has integrated for display and they now want to buy video impressions, they will have to go through a new RTB integration for video. This requires technical expertise on both sides and it usually needs to be in a DSPs integration queue, which can take one year or more. If you are planning on integrating DSPs, plan ahead and target video DSPs first. The open RTB integration can take between 4-12 weeks based on resources on both sides.

The errors you might encounter include:

- Not connecting the data center correctly
- Not seeing impressions
- Not responding to the ad call in the allotted time (usually less than 100 mms)
- Seeing errors in the bid request

The technical account manager on the SSP side will check for all of these possible errors in a phased approach following the <u>IAB Open RTB protocol</u>.

General or Specific?

Do you go for a generic or a video only DSP? It will all depend on your business, whether you want unified reporting and how your video spend compares to the rest of the formats. If that number is high, there will be advantages in dealing with a video specialist as they are created with the eventual convergence of video with TV in mind and are designed to drive metrics important to TV-centric brand advertisers. Generally, programmatic video and TV campaigns that drive the greatest brand results follow a set of principles quite different from those of display, including:

- A combination of RTB & reserved buying and forecasting to ensure campaign certainty in a scarce marketplace
- Data fluidity across time and devices to manage frequency and drive relevancy
- Putting importance on controlling viewability, fraud, and favorable brand environments
- Striving for fewer but better-targeted ads to reach the right consumers, thus eliminating waste and
 preserving user experience
- Optimization to an advertiser's true key performance indicators (KPIs)

Managed vs Self Service

In the ad-tech world, solutions/software can be categorized as either self-service or managed service. The distinction here is as it sounds—self-service tools can be accessed and used directly by the client and independent of the vendor, while managed-service tools may have a component that can be used without help, but requires someone from the vendor to implement actions. Managed services involve setting up, managing, and optimizing automated delivery, as well as building and maintaining buy-side infrastructure such as inventory, technology, data, and reporting relationships.

Due to advertisers' varying degrees of fluency with automated buying tools and concepts, there has been a stratification of managed service options that vary significantly in terms of service and fee levels. For a list of the most common buy-side managed service options used, please refer to the IAB "<u>The</u> Programmatic Supply Chain: Deconstructing the Anatomy of a Programmatic CPM."

7.4.3 Monetization Infrastructure

There are two fundamental ways to buy and sell media: dealing directly with the marketer, or indirectly via a technology platform that would allow the publisher to make their inventory available in some automated way. Historically, video has been transacted in a direct way. Direct selling of video inventory remains the standard approach to doing business. For a deeper dive on the reasoning behind method visit the IAB 2016 white paper, Programmatic Video: A Spectrum of Automation.

In the TV business, each year there are flashy events called upfronts where publishers and marketers commit to buying media in advance. Think about the Super Bowl; the ads we see during this big event were negotiated the prior year.

Video and TV are so constrained for supply that marketers want to ensure they have the spot available to capture their target audience. Though the concept is the same—securing or guaranteeing certain amount of inventory—the execution has evolved due to the technological advancements that have allowed the industry to apply automation and more data-driven buys.

The following table shows some of the ways in which "programmatic" was being applied in 2013. Fast forward to 2017



and though there are more variations, the principle remains the same, there can be automation of the transaction (Real-Time Bidding = RTB), of the process (Automated Guaranteed = AG) or a combination of both.

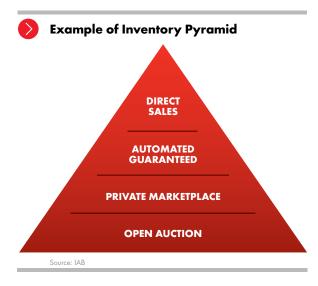
	Type of Inventory (Reserved ¹ , Unreserved)	Pricing (Fixed ² , Auction)	Participation (One Seller-One Buyer, One Seller-Few Buyers, One Seller-All Buyers)	Other Terms Used in Market	Other Considerations
Automated Guaranteed	Reserved	Fixed	One-One	Programmatic guaranteed Programmatic premium Programmatic direct Programmatic reserved	
Unreserved Fixed Rate	Unreserved	Fixed	One-One	Preferred deals Private access First right of refusal	 Prioritization in the ad server Deal ID
Invitation-Only Auction	Unreserved	Auction	One-Few	Private marketplace Private auction Closed auction Private access	 Data usage Transparency to buyer Price floors
Open Auction	Unreserved	Auction	One-All	Real-time bidding (RTB) Open exchange Open marketplace	

Source: Interactive Advertising Bureau 2013

1. Reserved Inventory is advertising space on a publisher's site that is put aside for a specific advertiser for an agreed price

2. Fixed Price is any arrangement where the buyer & seller agree on a flat price that the buyer pays rather than the highest bidder in an auction environment

Source: IAB Digital Simplified: Programmatic & Automation—The Publishers' Perspective



Inventory Hierarchy

Putting all the pieces together in a pyramid, this is how a typical inventory hierarchy looks like.

At the very top of the pyramid, we have direct sold inventory which is guaranteed, as we move down the pyramid, we move towards RTB or real time decisioning (RTD) environments where impressions can or cannot be guaranteed.

Open Exchange/Auctions

Per <u>IAB Programmatic Video: A Spectrum</u> of Automation, IAB defines **exchanges** as exchange-based technology solutions like DSPs and SSPs, that facilitate workflow automation, enabling buyers and sellers to

scale the number of transactions to levels beyond what is possible with network or direct buys. This automation is made possible through mass-market software tools: demand-side platforms on the buy side (DSPs) and supply-side platforms (SSPs) on the sell side. These tools are generally made available to users on a self-service basis; meaning campaign structure, pacing, and optimization are done directly by the user instead of network intermediaries.

A publisher will generally allow any and all buyers to participate in accessing their inventory. Usually there is no direct relationship with the buyer.

- Publishers may choose to use block lists to prevent a certain advertiser/brand from buying their inventory (a publisher might have a direct agreement with the said brand, hence wants to prevent them from buying the same inventory) and floor prices to ensure rate cards are adhered.
- Advertisers usually buy inventory in the open market when trying to buy a broad demographic, where a sniper approach might not be necessary. In the display world, where there's unlimited supply of impressions an advertiser is often unaware of what publisher they are buying on, DSPs usually present a list of exchanges/SSPs to the buyer that they automatically opt into. Buyers may not know they are buying a publisher's inventory. Because of this, publishers can participate in the open auction on a blind basis.

Buyers are able to buy video inventory in the Open Exchange today across multiple exchanges across both desktop and mobile (In App and Mobile Web) through the majority of demand-side platforms.

The main difference between open and private actions is that in the open auction, the publisher doesn't know who is buying their inventory until it happens. They can implement certain tactics to control their inventory, but these are not bulletproofed.

In video, where CPMs are much higher than in display, publishers must show some transparency or the

The Open Exchange runs through Real-Time Bidding (RTB) protocol, which has been created by IAB tech lab, the latest release is of <u>Open RTB2.5</u> and offers the ability for buyers to decision down to the impression level. IAB tech lab members interested in participation in the RTB protocol update working

Invitation-Only Auctions, Private Exchanges/PMPs, and Deal ID

likelihood of buyers buying their inventory will be low.

group may contact openrtb@iabtechlab.com.

An "**invitation-only auction**," or a "**private auction**" is a type of auction where a publisher restricts participation to select buyers/advertisers via whitelists and block lists. A publisher may choose to not participate in an open auction and only run an invitation-only auction. It is important to note that in an invitation-only auction, buyers will be expected to bid on inventory. A publisher may choose to expose different information such as transparency or data, through the use of Deal IDs or Line Items to add value to this select group of buyers while participating in this tactic.

Private Marketplace

A "**private exchange**" is characterized by both one-to-one and one-to-many transactions. A **private marketplace (PMP)** is usually operated by one (or a few) large enterprise(s) and is open to the enterprises' strategic trading partners along its entire supply chain. For sellers, the advantage of entering into a private exchange for video

offers greater control, enabling access to their premium buying platforms and more brand safety controls to the tens of thousands of advertisers they serve. For buyers, it provides greater access over placement, viewability and first-party audience data/segments.

Deal ID

A "**Deal ID**" is a unique identifier for a specific private marketplace deal between buyer(s) and seller(s). Think of a Deal ID as a feature of a PMP. Deal IDs contain a unique string token that is passed on the bid call as a targetable unit between buyer and seller (DSP and SSP). Impressions are classified into a Deal ID based upon selling rules. Bids

are then generated based on the set of rules that align to that particular deal. Deal IDs have evolved greatly since their inception to include multiple buyers and sellers.

As an example, if AMNET (trading desk) wanted to execute a video PMP deal on behalf of three of their brands they can execute that deal through *one* Deal ID, they would set the Deal ID through one of their DSP partners. That same Deal ID can be used across multiple sellers/SSP. The unique token only relates and can communicate between one DSP and one SSP. The evolution in Deal ID set up greatly benefits video, provides greater bid density and competition for the seller, and greater reach and frequency for the buyer.

Automated Guaranteed (AG)

This type of transaction most closely mirrors a traditional digital direct sale. AG helps publishers to manage direct sold, guaranteed deals–Insertion Orders, or IOs–in an automated way. Publishers make their inventory available through their ad server by grouping inventory based on advanced targeting.









The deal is negotiated directly between buyer and seller, the inventory and pricing are guaranteed, and the campaign runs at the same priority as other direct deals in the ad server. They then set prices for each audience package and make it discoverable to buyers through an interface or API connection to the buyer platform. The buyer can then pick the number of impressions that they want to buy or forward reserve, negotiate price and launch the campaign. This eliminates the need for inventory discovery calls as well as any on-going back-and-forth communication which takes a lot of manual efforts and time. The publisher and buyer get engaged directly which brings maximum transparency.

The programmatic element of the transaction that differentiates it from a traditional direct sale is the automation of the request for proposal (RFP) and campaign trafficking process. Negotiation through to fulfillment can be, should the publisher desire, completed within the technology platform providing the automated

reserve functionality.

AG runs via the OpenDirect protocol specification; the latest update, <u>Open Direct 1.5</u>, was released in September 2016. The IAB OpenDirect protocol is a powerful API designed to support automated guaranteed business models and marketplaces, which originally were introduced to automate and replace the traditional IO process and which now have far-reaching applications.

IAB is constantly updating its protocols; if you are an IAB Tech Lab member interested in participation in the OpenDirect protocol update working group, please contact <u>techlab@iabtechlab.com</u>.

7.5 Setups, Tactics, and Best Practices

Once publishers and marketers understand the differences between the open market, private marketplaces and automated guaranteed setup, they can think of tactics to implement.

7.5.1 Open vs. Private Marketplaces (PMP)

Open marketplaces are exchanges that aggregate requests from many different publishers in one general market. This allows a lot of advantages over private marketplaces, which are often limited to a single supply source.

7.5.2 Benefits of the Open Auction for Publishers

Publishers pushing inventory in the open market can access valuable insights, such as:

- Interested buyers can be great lead sources for their direct sales team.
- Blocked buyers can be great leads for Deal IDs.
- Buyers buying a lot of inventory in a certain audience, can lead publisher to create a custom audience package (sold at a higher CPM).

This is where the SSP acts as an extension of a publisher's sales team providing their direct sales team with real-time data to upsell into their clients and sometimes new leads.

7.5.3 Benefits of the Open Auction for Advertisers

Buying inventory in the open market provides DSPs with scale and data. DSPs have the capability of processing many campaigns at the same time. Having the information passed in the bid requests coupled with a robust and compliant RTB integration will enable them to source the right inventory to deliver against their campaigns.

7.5.4 Private Marketplaces

According to the IAB blog post: '<u>To Private Marketplace or Not to Private Marketplace - That is the</u> <u>Question...</u>' for a while, it seemed that Private Marketplaces (PMPs) were the solution to every problem. Worried about the quality of inventory in the open auction? Worried about automation (or 'programmatic') becoming a race to the bottom? Worried about control as a publisher? PMPs were the answer.

In the rush to set up a Private Marketplace, far too few people were evaluating whether a Private Marketplace was truly the most appropriate approach. Even fewer were assessing ahead of time what the overlap was between the buyer's target audience and the publisher's audience. The result was PMPs not delivering ROI and the volume of transactions through PMPs not meeting expectations.

The answer: a <u>PMP checklist</u>. The aim of the checklist is to ensure that buyers and sellers are on the same page about what they are trying to achieve from their private marketplace and that they can appropriately assess whether it is the right channel through which to transact. The PMP checklist provides a list of issues that buyers and sellers need to discuss and agree to ensure ROI from their private marketplaces.



The private marketplace checklist is divided into three sections:

- 1. **Consideration:** The aim at this stage is to determine if a private marketplace is the right approach and will yield positive ROI by comparing the buyer's needs and target audience with publisher's capabilities and audience.
- 2. Activation: Having established that a private marketplace is the right approach, the next stage seeks to ensure that buyer and seller agree on parties involved, inventory transparency, and financial terms/timing to deliver ROI.
- 3. **Troubleshooting:** The aim of the final stage is to help identify common issues such as low impression volume, poor win rate, and flighting/targeting that may arise once the private marketplace is set up.

Private marketplaces are different as they are typically a one-to-one relationship between sellers and buyers. The publisher knows who is buying the inventory. Deals are negotiated beforehand.

Private marketplaces allow publishers to keep tight control, only allowing certain trusted buyers to access their premium inventory. Typically, a publisher will retain complete control over the operation. In addition, this approach still allows them to route traffic to the open marketplace if the inventory isn't cleared in the private environment.

Private marketplaces aren't usually guaranteed, that is, the publisher agrees with the buyer to push a certain audience, and the buyer has the first right of refusal at the agreed price. In certain instances, the private marketplace can be guaranteed which means that the publisher will have to push targeted audience impressions until the buyer has found/matched all the impressions for the audience they have targeted. These types of deals are usually at a higher CPM to compensate for wasted impressions.

It can at times be a good strategy for marketers and publishers to use both open and private marketplaces. The publisher wants to push the most premium impressions to identified buyers, and if these aren't bought in the private exchange, send them to the open exchange with a floor price and certain restrictions so that it doesn't send the wrong signal to the market (that buying in an automated way = cheap inventory). From a buyer's perspective, they can buy the bulk of inventory in the open market, and set up private marketplaces for distinct advanced audience buying tactics.

7.5.5 Mass Reach vs. Precision Targeting

The mass reach versus precision targeting tactic is one that is applied by the buy side.

Choosing the right tactic depends on the campaign's goal. The "**Mass Reach**" method may work for less targeted campaign looking for general awareness. Advertisers can do this with no targeting or by simply focusing on demo/lifestyle segments. If the brand is looking for something more precise or further down the funnel, then the precision targeting or "sniper" approach works better, ensuring the audience is more closely aligned with the target audience. Additionally, segments such as purchase-intent would work well here.

In the video world where premium impressions are scarce and CPM are so much higher than display, DSPs tend to use a more precise targeted approach, or **sniper**.

7.5.6 Optimizing Deal ID



Optimizing Deal IDs means monitoring deal health, audience match, and fill rates.

Optimization occurs on the DSP/SSP side by looking at metrics, audience segmentation alignment and bidding behaviors, along with white- and black-listing i.e. if the Publisher is using Krux audience segments, while the advertiser is using Lotame, there will be a discrepancy in what is classified as a sports enthusiast in both DMPs.

As publishers are dealing with various SSPs and DSPs, there needs to be Deal ID maintenance. These need to be constantly monitored to check

whether the DSP has 'turned them on' or whether the DSP is seeing impressions. Sometimes DSPs create evergreen deals that have no activity. It is also worth mentioning that each SSP will have its own Deal ID identifier, there isn't a set nomenclature to call the Deal IDs, which adds one more layer of complexity and possible errors.

Please refer to the <u>IAB PMP Checklist</u> for additional considerations, activation, and troubleshooting of PMP deals.

7.5.7 Evergreen Deals

These deals are created to utilize one Deal ID across an entire DSP, trading desk, or agency, they are usually open ended and the targeting criteria doesn't change. It's like setting a "spray and pray" tactic in a private marketplace environment for a set audience that is open indefinitely. These are good deals to have, however one should monitor for activity, as if they are in hiatus, they should be closed.

7.6 Priority Level Games: Who Wins?

Ad servers and SSPs have the ability to set priorities in the form of inventory, pricing, or targeting, to name a few. An ad server might have as its first priority to sell all of the direct sold inventory first, or to push a Deal ID to priority one if the direct deals are pacing ahead of schedule. When a publisher decides to move some of their inventory to an auction type setup, they use a supply side platform (SSP) that enables them to push through the impressions to the marketplace. SSPs also have the ability to set priorities, just like servers. In order to understand priority levels and who wins based on a scenario, let's play a game.

Game #1: We have two scenarios. In the first the floor price is \$10, so unless buyers return a response with a bid of at least \$10.01, they won't be considered a participant in the auction. We have two responses above the floor price. Who wins, and at what price?

And The Winner is?

Open Auction	Priority	Bid		Bid Selected
DSP 1 - TD* 1	1	\$ 14.00	Floor Price – \$10	\$ 12.00
DSP 2 - TD 2	2	\$ 12.00		

Open Auction	Priority	Bid		Bid Selected
DSP 1 - TD 1	1	\$ 14.00	Floor Price – \$10	\$ 14.00
DSP 2 - TD 2	2	\$ 16.00		

TD* refers to Trading Desk

- 1. DSP1 wins as they have Priority 1, but the clearing price is \$12 because of the 2nd price auction principle.
- 2. Even though DSP2 bid more, DSP1 had priority 1, which trumps the higher bid response.

Open Auction	Priority	Bid		Bid Selected
DSP 1 - TD 1	1	\$ 12.00	[]	\$ 12.00
DSP 2 - TD 3	1	(Ng) \$ 14.00		
DSP 4 - TD 4	2	\$ 15.00		
DSP 2 - TD 2	2	No \$14.00		
Deal ID			Floor Price – \$10	
DSP 2 - TD 3	First look	(No \$ 13.00		
DSP 5 - TD 1	1	\$ 11.00		
DSP 5 - TD 5	2	\$ 13.00		
DSP 2 - TD 6	2	\$ 15.00		

And The Winner is?

Game #2: Eight potential bid responses above the floor price, though #5 chose not to respond. Who is the winner?

1. This looks complex, but focus on the priority. In this case, DSP1 wins and the clearing price is the one they made.

Open Auction	Priority	Bid		Bid Selected
[1	\$ 14.00		\$ 14.00
Deal ID			Floor Price – \$10	
DSP 2 - TD 2	1st Look	\$ 12.00		
DSP 2 - TD 3	2	\$ 16.00		

And The Winner is?

Deal ID	Priority	Bid		Bid Selected
DSP 1 - TD 1	1st Look	\$ 14.00	Floor Price – \$10	\$ 10.01

Game #3: In the first scenario, we have three possible demand partners responding to a bid request, two of them respond above the floor price.

- 1. DSP1 wins because they have priority 1 and the Deal ID with first look didn't bid, the winning bid goes to DSP1.
- 2. In this case, the Deal ID has first look, as there aren't any other bids, the clearing price is the floor + one cent.

7.7 **Header Bidding Typical Publisher** Ad Server Set Up First priority is given to direct sold ads, even if other demand partners may pay more for a given impression Header Bidding removes prioritization Unreserved Fixed Rate - direct sold demand competes head-tohead against other demand sources Private/ Invitation **Only Auct** When there are no direct sold ads, the ad server then gives access to othe ind sources on oper hanges Source: JAB

"Header bidding, also known as pre-bidding or advanced bidding is an advanced automated technique wherein publishers offer inventory to multiple ad partners simultaneously before making calls to their ad servers. By letting multiple demand sources bid on the same inventory at the same time (as opposed to sequentially), publishers increase their advertising yield and revenue." ⁴⁰

Header bidding is a process that allows publishers to auction ad impressions in a flat parallel auction, across multiple sources of demand facilitated by a snippet of JavaScript in the header of a web page.⁴¹

In most publisher / ad server set ups, demand

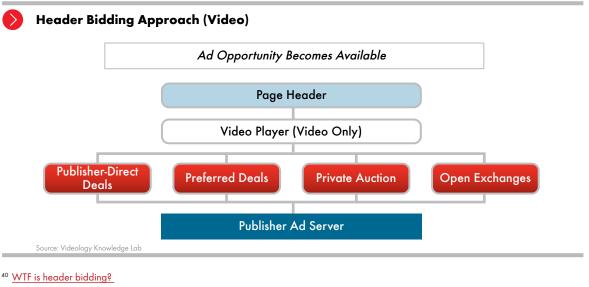
sources are checked sequentially or in a 'waterfall'; direct sold inventory is prioritized over ad networks and indirect demand sources. Header bidding auctions occur before the ad server is called; demand partners respond with bids, which are then passed to the ad server where the winning advertiser is determined.

7.7.1 Header Bidding for Video Advertising

Because of its success in display, publishers have begun to explore header bidding in video.

Today, header bidding is more widely used in display than in video. Display advertising is traditionally more exchange-centric/RTB-driven, than video. However, publishers understand the need to employ datadriven, audience-based selling strategies and the push to automate some of the processes. As such, they are eager to explore other strategies but want to ensure they protect their scarce premium video inventory as it becomes available through automated channels/mediums.

In video, the ad call comes from a video player, not from a page header. Therefore, video ad calls have different requirements than the display world. In other words, with video, there is an entire additional layer of technology that needs to be incorporated into the site's ad stack, so the code used in display header bidding needs to be part of the video player, rather than the header itself. The video player then needs to communicate its decision about where to send the ad to the ad server. And while this communication works with some video ad servers, it does not work for others.



⁴¹ Thomvest ventures



Through some workarounds, a version of "header bidding" is possible in video advertising through the video player.

- The benefits of using header bidding for video would be similar to those in display advertising, e.g. the ability to have multiple demand sources compete for the same available impression, thus theoretically increasing overall yield for the publisher.
- In response to concerns about speed, there is growing traction around the idea of server-side header bidding, which is faster than traditional header bidding because it happens on a remote server, rather than the user's browser. This faster speed means publishers can collect the widest range of available bidding sources before shortlisting the optimum set and sending it back to the client for action, thus increasing yield.

7.8 Automation of the TV Buying and Selling Process

The total TV advertising market size is about \$200 billion worldwide. For the U.S., the overall TV market size currently is about \$70 billion, with Magna Global estimating <u>\$10 billion for Programmatic TV (PTV)</u> advertising by 2019.

7.8.1 Overview: What is TV Automation (or Programmatic TV)?

The use of the term programmatic or automation in the context of television is challenged and confusing, largely because the current capabilities in TV are not comparable relative to display media bought and sold in an automated way. For this reason there are those who prefer to use the term automated, or audience index-based TV buying. <u>IDC</u> defines Programmatic TV or Automated TV as: The use of software platforms to automate the workflow of TV advertising to improve the effectiveness of TV advertising through the use of advanced TV audience data. Platforms do not need to support auction based sales or real-time bidding in order to qualify as PTV.⁴²

- Programmatic TV or Automated TV automates the workflow of advertising on linear TV such as campaign planning, requests for proposals, price negotiation, copy management, scheduling ad insertions, the actual insertion of copy, reporting, billing, etc.
- Programmatic TV or Automated TV uses a more data-driven approach beyond standard target demographics. It leverages set-top box data of millions of households, allowing more granular targeting.

7.8.2 Potential Benefits of TV Automation

With programmatic TV or Automated TV, marketers get better targeting, access to new inventory, and a unified interface integrating and simplifying the workflow. Programmatic TV or Automated TV helps sellers to improve sales:

- By overlaying advanced audience data, clients' targeting capabilities are vastly improved, thereby making inventory more valuable.
- Allows looking at inventory in smaller increments than in the traditional 30-minute-segment view, thereby unlocking undersold inventory.
- More inventory is exposed to more buyers through tapping into the automated ecosystem. Multichannel video programming distributors (MVPDs) can now sell local advertising to the national market.
- Programmatic TV or Automated TV reduces sellers' costs through automating the workflow, which today is in large parts still manual, and therefore slow, error-prone, and expensive.

7.8.3 The New TV Buying / Selling Landscape: Who Are the Participants? There are multiple categories of players making up the TV buying/selling landscape including:

1. The TV advertisers and media agencies who book campaigns.



- 2. The demand side platforms (DSPs) who act as automated buying platforms mainly fulfilling two functions: Marrying data from DMPs with the available inventory and then executing the buy in an automated way.
- 3. The sell or supply-side platforms (SSPs) who act as automated selling platforms. These platforms integrate into legacy TV systems for each network to make the automated buy technically possible.
- 4. The data management platforms (DMPs) such as Rentrak, who layer audience data, engagement metrics, purchase data or other sources on top of the TV program to allow smart buying decisions.
- 5. The publishers (national broadcasters, station groups, and cable TV networks) who supply the inventory.

DEEP DIVE

DEEP DIVE VIDEO AUTOMATION

7.9 Automated Guaranteed

Automated Guaranteed is an automated representation of the traditional Insertion Order (IO), and is comparable to traditional ad serving but through automated channels.

The buyer and seller agree on a deal ID (an identifier used to match buyers and sellers), which will represent the IO (with criteria such as minimum bid price, type of ad unit, site section, etc.) in each of the automated platforms—the DSP for the buyer and the SSP for the seller. When this deal ID appears in the bid request, each side understands that this is the previously agreed on (a priori) deal. The primary components of an automated guaranteed deal are a fixed CPM rate for that supply, a timeframe it should run, a revenue or impression goal for the campaign, and the specific supply criteria of the IO.

In an automated guaranteed relationship, the seller has committed to giving the buyer a certain amount of relevant inventory at the fixed rate, and is responsible for ensuring targeting is in place to satisfy the goals of the IO. The SSP is used to pace the automated deal, sending approved supply to the DSP for purchase, with the proper deal ID and CPM.

The buyer may use their own metrics to ensure the IO is satisfied, such as confirming geo-targeting via reporting, and making sure the campaign runs inside the proper time period. However, when the DSP is presented with an automated guaranteed deal ID they are required to fulfill their commitment by buying it at the given rate. They should expect that this inventory has been put aside for them and the publisher will not offer it for sale again if the buyer chooses not to buy.

Automated Guaranteed is ideal for publishers who have supplemental information they do not share in an open market. This includes first-party user data, content categorization, behavioral data, or premium positioning of the ad. This mechanism allows the publisher to target information in their SSP and get a good price for valuable supply without exposing this (often proprietary) information in a non-guaranteed environment.

Automated Guaranteed is great for advertisers who are looking to lock in supply and are willing to commit to a certain level of spend at a fixed rate. This commitment may reduce risk of unsold inventory on the publisher's side and encourage the deal ID to be prioritized, which often also increases the quality of the supply.

For occasions when the buyer wants to choose from pre-filtered supply, and have the option to buy a portion of it at a fixed rate, the better mechanism is an unreserved fixed rate deal. This works similarly to AG, but does not have the expectation that the buyer will purchase everything that is sent. In these cases, the publisher will share more supply for the buyer to sort through and the campaign will primarily be paced by the DSP. While it is still offered at a fixed rate, the amount of supply available is not guaranteed.



7.10 Header Bidding: Benefits & Challenges for Publishers and Advertisers

Benefits for Publishers

Eliminate Passbacks	With a header tag integration, you have a signal from the SSP in advance that they want the impression, and have transparency on how valuable that single impression is.
Flatten Demand Waterfall	Managing the order in which partners gain access to inventory is no longer necessary because demand partners declare how they value the impression up front.
Transparent Inventory Value	By combining inventory into a single server-side supply, publishers can sell inventory on a per-impression basis, giving them more transparency into how much their impressions are actually worth.
Increased Revenue	Publishers save the ad serving fees paid on passbacks, they monetize the inventory lost to discrepancies, and they earn the highest rate for their inventory irrespective of demand partner.
Better Yield Management	Tag-based integrations create inefficiency because they force an average rate to compete with the impression level bids of DSPs.

Drawbacks for Publishers

Added Latency	Header bidding introduces latency during a page load, which may slow down site speed enough to negatively affect user experience. Publishers are already loading their pages with third-party ad tags, which have slowed down Web pages and forced alienated readers to install ad blockers.
Technology Challenges	Header bidding is a more technically complex integration to manage than a waterfall setup. There are also many operational hurdles, such as trafficking line items.
Non Unified Reporting	Since there are no industry standards around reporting, it is difficult to compare performance across partners.

Benefits for Advertisers

Higher Quality Programmatic Inventory	Increased visibility into premium inventory, such as the home page or above-the-fold inventory, substantially increases viewability rates. By exposing more premium placements to all bidders, header bidding has led to more valuable eyeballs and increased opportunity for conversions.
Better Forecasting	More precise inventory insights allow for better forecasting capabilities to understand the true availability of a buyer's target audience.
Global Reach	Visibility and access into the entirety of a publisher's inventory means buyers can execute precision campaigns for niche audiences at a global scale.

Drawbacks for Advertisers

Increased Inventory Pricing	Because more demand partners are competing for individual impressions, the clearing price for a given impression typically rises.
Advertisers May Bid Against Themselves	Because header bidding broadcasts the same impression to multiple exchanges simultaneously, advertisers who bid on multiple buying platforms may bid against themselves.
Impacts Bidding Strategies	While advertisers enjoy better inventory access through header bidding, programmatic buyers are more likely to compete with direct- sold deals which will drive up pricing. As pricing increases, buyers must become more strategic about the ad frequency and bid values.

Header bidding has gained traction among publishers as it provides more control over how their traffic is monetized. It also improves the inefficient sequential auctions of the tag based waterfall. This process brings in real-time demand to compete in a publisher's ad-server.

After such a landslide of adoption of header bidding for display advertising, adoption of header bidding in video advertising has been relatively slow.

Obstacles for Adoption of Header Bidding in Video

- The marketplace of high-value video inventory is in need of process improvement, but faces unique challenges due to a highly-fragmented ad stack, for which it's been difficult to build the universal solutions necessary for creating a parallel auction.
- In header bidding for display, you deal directly with the ad server. Header bidding for video introduces additional complexity by having a video player intermediate the request with the ad server. With the multiple players and ad servers in the ever-changing video ecosystem, video header bidding solutions are constantly evolving to adapt.
- Video has long been plagued by latency issues, which many users assume is attributed to bandwidth and loading highweight content. The reality is that much of that latency stems from the long-trailing waterfall effect caused by trying to find an ad to fill the high-CPM ad slot and the resultant passbacks.
- With video header bidding, parallel requests are enabled, removing the need for passbacks which would improve latency. Many publishers manage latency by setting a time limit on bid responses from partners.

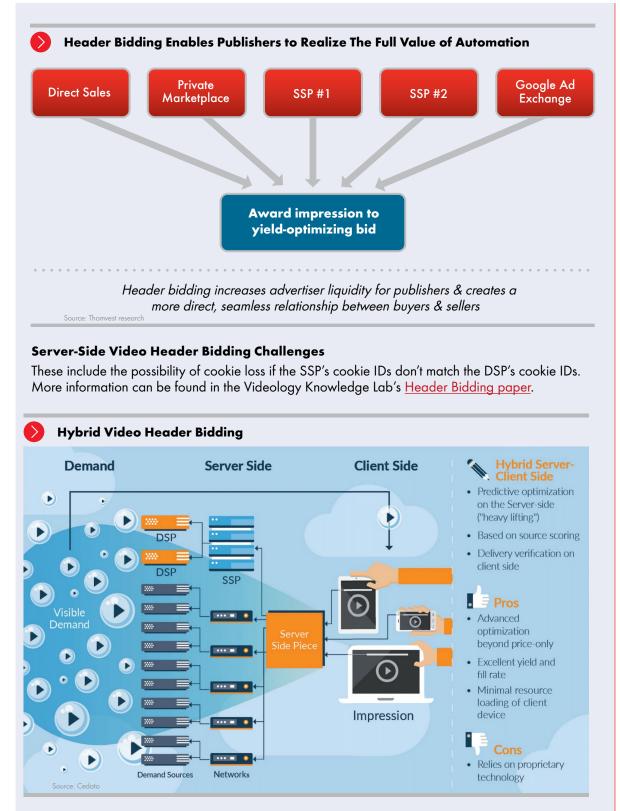


Header Bidding is pre-cached and can reduce inventory wastage and impression loss.

• Despite the barrier to entry, many publishers are seeing incredible returns from increased price competition for their video inventory. Video header bidding is a tool that will allow media companies to realize the true price of their video inventory through increased competition and transparency, and is a monetization strategy that every video content provider needs to understand.

Header bidding allows all demand sources to compete directly for every impression, enabling publishers to realize the full value of automation. Header bidding—whether implemented directly on a page, app, or via a wrapper—provides publishers with a convenient way to manage their own ad exchange, including auction pricing management, reporting and analytics, latency controls, and more. As wrappers get more sophisticated, these individual exchanges will also expand their capabilities.





For a view on Hybrid Video Header Bidding, please visit Cedato.com.



7.11 Why Turn to Automation? Decide for Automation?

For buyers, Automated TV or Programmatic TV (PTV) offers the promise of better targeting, access to new inventory, and a unified interface, which integrates and simplifies the workflow.

For sellers, Automated TV has the potential–for some forms of inventory–to increase revenues by selling inventory at higher prices, and by selling unsold or undersold inventory. This is accomplished by the application of advanced audience data. PTV integrates and automates the workflow for sellers as well, saving time and money. Local cable and broadcasters have the chance to unlock the national market through the use of PTV.

Streaming video, time-shifted viewing, video on demand, more cable channels and non-TV distractions such as mobile apps and games, eat away time consumers spend watching linear TV, as such media owners react with new tactics. MVPDs have launched TV Everywhere services, distributing their content online and on mobile devices based on subscriber user authentication.

There are also factors that hold TV executives back from adopting Automated TV. One concern is that automation will commoditize and thus decrease the overall value of media owners' inventory. The fear of losing control over pricing and entrenched pricing models is real and in some cases well-founded. Legacy technology also presents challenges. Finally, there is also cultural inertia and vested business interests, which resist embracing new ways to do business.

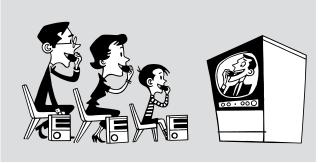
But there is also one major difference between the TV industry and the digital industry that may slow adoption. Digital advertising is a buyers' market: There is an essentially unlimited supply of inventory that far outstrips demand. This puts strong competitive pressure on digital publishers to please agencies and brands, prompting publishers to adopt automation.

TV advertising on the other hand is a sellers' market: There is a limited supply of inventory, which is outstripped by demand. This puts media owners in the driver's seat. As in the digital space TV buyers want automation, but there is less pressure on sellers to offer it. In the end, the market will decide automation's fate in the converging video and TV marketplaces.

8. The New TV



8.1 The State of the New TV Industry



Over the decades, the ways audiences have consumed television have seen continuous and dramatic shifts, leading pundits to proclaim "TV is dead" or "TV is dying." TV is not dying, but viewing habits are changing more quickly than ever.

The traditional notion of families across the country sitting down after dinner to watch a series of programs scheduled at 8, 9 and 10pm has fallen to the wayside. The TV universe– originally made up of a handful of networks

broadcasting over public airwaves on a one to many basis—has been evolving over the decades. The shift was initiated by the adoption of subscription cable from the mid-70s to the 80s, followed by the arrival of the internet, digital television, and the proliferation of mobile and connected devices to which we're all tethered.

Television content is now being consumed in more places than ever before. Under the umbrella term "Advanced TV" exists the digital off-springs of the broadcast era: Interactive TV (which may appear as digital overlays on top of linear TV commercials), Connected TV (CTV) / Over-the-Top (OTT) and Smart TVs, Linear Addressable TV–where ads targeted to specific households are inserted into live programming (i.e. DirecTV, Dish, Cablevision)–and Video-on-Demand Addressable–where dynamic ads are inserted into cable programs through the cable provider's set-top box (ex: Comcast's VOD).

Welcome to the new world of data-driven, addressable, accountable, and increasingly automated television where audience is as important as content and context.

The digital habits of millennials are influencing the industry like never before, which is responding by creating more individualized experiences that reflect the consumer's expectation for a personalized on demand viewing.

With the leading streaming services (Amazon, Hulu, Netflix, etc.) now creating their own original shows, *differentiated programming/content* is becoming a *critical competitive advantage*. HBO's *Game of Thrones* and *House of Cards* from Netflix are wildly popular among consumers and critics alike. In response to these new entrants, linear TV networks have begun to use over-the-top (OTT) distribution channels for their own content: *This Is Us*, an NBC show, is now streamed on Hulu, and *Narcos*, a Netflix original, now streams on Univision. Traditional TV has before it a great opportunity to continue its longstanding relevance and reinvent itself by capitalizing on the use of first and third party consumer and viewer data.



"Data will prove to be the connective tissue and winning ingredient to ensure the success of the new entertainment experience. There's a lot of talk about the marketplace becoming increasingly 'fragmented', however a more accurate description might be that it's becoming increasingly "interconnected", with consumers seamlessly accessing content across more screens than ever before. The lines between desktop, mobile, TV, and film are beginning to blur as the various platforms are often more distinguished by differences in use case than by the underlying technology." –Anne Schelle⁴³, Managing Director, Pearl TV

⁴³ Lotame Bridge the TV ad gap & <u>PWC Media forecast 2015, agency reports, front row advisory analysis</u>



Josh Chasin, Chief Research Officer at comScore, offered an analogy for why he believes the silos in traditional and emerging media are temporal and the dichotomies between digital video and TV are breaking down:



"My nephew is now 24, but I remember trying to explain to him the difference between broadcast and cable when he was five. When I was a kid, I watched a static-filled channel 2 until one day we got cable, and it was revelatory how it changed the experience. I realized that my nephew, born in 1993, had never been in a home without cable, so explaining the difference between an ESPN or Disney versus CBS was meaningless to him. It's not about whether it's TV or video, broadcast vs cable—it's about the experience."

The way that consumers watch video content is in a constant state of flux. The era of marketers collectively reaching customers on their couches during prime time is disappearing, as many viewers prefer to watch their shows at a time and place of their choosing. Some consumers no longer own a TV (cord cutters) and others never have (cord nevers).

TV habits are not only shifting more towards other screens but other times as well. Consumers, particularly the coveted millennial demographic, are watching content at their preferred time, replacing live and scheduled-linear TV with more time-shifted TV on-demand experiences exemplified by SVOD (subscription video on demand).

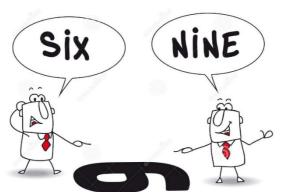
Audiences across the board are sending a clear message that they want and expect to control their own viewing activities. And while Traditional TV remains a big part of advertiser's media spend, the growth in digital / mobile viewing combined with audience data and automated buying and selling is changing the TV video industry.

8.2 OTT (Over-the-Top) / Streaming Services Defined

Before we jump into the OTT ecosystem, it's important to discuss what the term OTT means.

- One camp sees the OTT streaming video experience as being within the confines of a TV screen (enabled through various technologies from streaming sticks and boxes (Apple TV / Roku / Chromecast), to video game consoles and Smart / Connected TVs).
- Another camp includes streaming video content beyond TV screens to include delivery to smartphones and tablets.

The IAB definition is focused on the *big screen*, and describes OTT as a "device that can connect



to a TV (or functionality within the TV itself) to facilitate the delivery of internet-based video content (i.e. streaming boxes, media streaming devices, smart TVs, and gaming consoles).

The MRC also defines OTT in the context of the TV screen, and includes both IP set top boxes that receive signals from digital video ad servers (and widgets on them) as well as USB and HDMI multimedia devices. IAB and MRC agree that the TV-screen centric definition makes sense at this time.

The media measurement community is also in agreement, as comScore, Nielsen and MOAT also measure OTT within a TV screen audience context. As OTT continues to evolve, IAB and its committees will continue to revisit the definition.



8.3 The OTT / Connected TV Opportunity

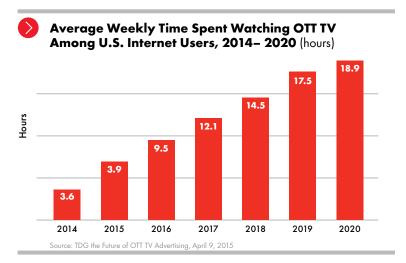
OTT ad revenues are projected to hit \$31.5 billion in 2018, up 275 percent from \$8.4 billion in 2015.⁴⁴

The growing popularity of OTT is bringing interactivity, data, and targeting long associated with digital media to the television ecosystem. It's also opening up a new level of choice in content and pricing models for consumers who can choose from an endless array of options.

U.S. connected TV users and households increased by over 20 percent in 2016 and are on track to continue growing through 2020. The trend is led primarily by the popularity of smart TVs and streaming devices from Roku, Amazon, Google and Apple. OTT video viewership is also increasing, particularly on services such as YouTube, Netflix, Amazon and Hulu⁴⁵.

Over-the-top (OTT) device penetration is quickly expanding. Indeed, based on the IAB 2017 Changing TV Experience <u>report</u>, the "big screen" video experience is changing rapidly as 56% of consumers TV's are now IP-connected and as 54% of those viewers are now spending more time watching non-linear content, including digital video.

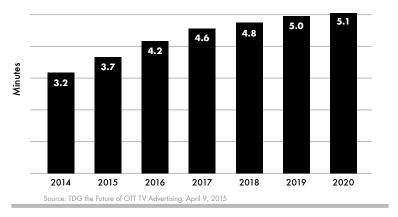
OTT TV programming will grab an increasing amount of internet users' television time in the coming years as viewers turn to streaming devices for more long-form, live content⁴⁶.



Using Q4 2014 research, <u>The</u> <u>Diffusion Group (TDG)</u> estimated that the average weekly time U.S. internet users spent watching OTT TV would rise 425 percent between 2014 and 2020, from 3.6 hours to 18.9 hours.

As time spent on OTT grows, ads served during programs will get longer as well. <u>TDG</u> <u>research</u> forecast that the average ad length per 30-minute U.S. OTT TV episode would increase nearly 60 percent between 2014 and 2020, from 3.2 minutes to 5.1 minutes.

Average Ad Block Length per US Over-the-Top(OTT) TV Episode,* 2014-2020 (minutes)



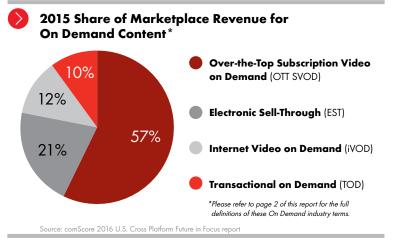
44 eMarketer More OTT Time Means More Ad Time

⁴⁵ eMarketer's Connected TV and Over-the-Top Video: The Living Room's Place in the U.S. Digital Video Ecosystem report.

⁴⁶ Frank N. Magid Associates study.



OTT has undoubtedly driven the growth and future of broadcast content. In fact, the majority of on-demand content revenue comes from OTT subscription services such as Netflix, Amazon Prime and Hulu Plus.⁴⁷



According to <u>comScore</u> 2016 U.S. Cross Platform Future in Focus report OTT SVOD accounted for 57 percent of the 2015 share of marketplace revenue for ondemand content.

The conversation around shifts toward OTT viewing on Netflix, Amazon and the like has traditionally been coupled with discussion of cord-cutting. However, more broadcast and cable networks—such as HBO, CBS, Disney, and others—are

making their content available over-the-top via apps, creating a renewed opportunity to reach non-pay TV audiences who couldn't otherwise be reached.

8.4 The OTT Ecosystem

For marketers, OTT / Connected TV advertising brings with it the opportunity to create dynamic, interactive, even "shoppable" ad experiences that can drive increased engagement and brand recall, bringing consumers further down the purchase funnel.

OTT Advertising Options include:

- TV length video ads (:15s, :30s, :60s, etc.)
- Interactive options that can increase recall and engagement with the ad
- Addressable / precision targeting at the household level
- Dynamic ad insertion
- Programmatic ad buying
- Custom sponsorships
- Branded content

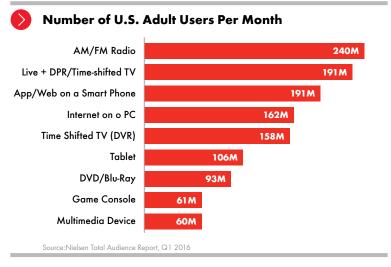
Benefits of OTT Video Ads

- Full-screen TV experience on a large living-room device with co-viewing
- Benefits of digital including: advanced targeting, dynamic ad insertion, enhanced survey, and audience analysis capabilities
- IAB standards and digital measurement
- Reach cord-cutters/shavers/nevers
- Reduced risk of fraud because OTT, as of today, is typically a closed, controlled ecosystem
- OTT video ads tend to be 100% in-view because there is no player to minimize in this full-screen experience. However, there is currently no established viewability standard specifically for OTT
- Support for third-party ad serving and measurement

⁴⁷ comScore 2016 U.S. Cross Platform Future in Focus report.



8.4.1 Streaming TV / Connected TV Devices



From Connected TV's (CTV), smartphones, computers, tablets, to internet streaming players, DVRs, DVDs, gaming consoles, etc., consumers have streaming options at their fingertips, and are spending more time on these newer technologies.

Although the time spent using traditional devices like television has remained more or less constant or declined only slightly, consumer attention continues to expand. Daily usage of tablets and

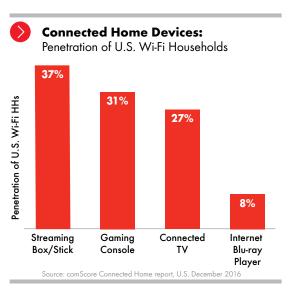
smartphones alone has increased 63 and 60 percent, respectively, among adults between 2015 and 2016: tablet usage is up 12 minutes, and smartphone usage increased 37 minutes.⁴⁸ With more consumer choices, it's becoming increasingly pertinent for marketers and advertisers to understand audience behavior via these devices and services.

According to <u>comScore Connected Home report</u>, <u>U.S. December 2016</u>, a variety of connected devices are now being used to watch OTT content, with streaming boxes and sticks being the most popular.

8.4.2 Streaming Services

Content providers offer streaming services based on their business models and type of service.

OTT aggregators: Offer a range of content from multiple providers delivered over the internet (i.e. Netflix/Hulu/Amazon prime video) without the involvement of a multi-system operator (MSO, i.e. Cox Communications/Comcast/Charter Communications). You can access this type of content without having a cable subscription.

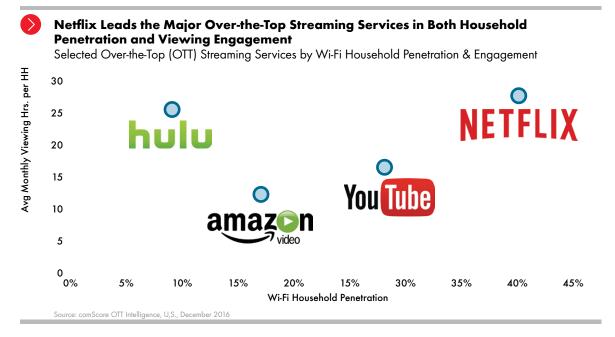




According to <u>comScore's OTT Intelligence Report December 2016</u>, Netflix leads the major over-the-top streaming services in both household penetration and viewing engagement.

⁴⁸ <u>Nielsen's first-quarter 2016 Total Audience Report.</u>





OTT standalone services: Offers content delivered from one provider directly to the consumer over the internet without the involvement of an MSO (i.e. HBO NOW).



<u>HBO NOW</u>[®] is only accessible in the U.S. and certain U.S. territories where a high-speed broadband connection is available. Minimum 3G connection is required for viewing on mobile devices. HBO NOW[®] is available through participating partners.

According to findings presented in <u>Nielsen's first-quarter</u> <u>2016 Total Audience Report</u>, SVOD services have reached

a milestone. For the first time, penetration of these services in the U.S. has caught up to DVR penetration. In fact, half of all homes in the U.S. have access to SVOD services, such as Netflix or Hulu–matching U.S. DVR penetration.

To find out more about the heaviest users by device type, visit this <u>article</u>. Nielsen also published their <u>Global Video-on-Demand Survey</u> where they polled 30,000 online respondents in 61 countries to gauge worldwide sentiment about VOD viewing and advertising methods. They examined who is watching VOD, how they are watching and why. They also explored how online-service providers are affecting traditional TV landscape.

TV Everywhere (TVE). With TV Everywhere, content can be accessed through any internet-enabled device or mobile app with users signing in to TVE service using their subscription log in details (i.e. Watch ESPN, Fox Now). TVE benefits for consumers and operations include:

- More TV content accessed easily across more platforms
- MVPD subscribers can watch programming from their favorite TV networks on multiple screens for no additional charge
- Subscribers can access this content using any broadband connection
- The sign-in process provides a basis for data-driven ad targeting capabilities
- Mobile is the primary source to access content, but connected TV apps are gaining popularity⁴⁹
- TVE provides value as it preserves retention, increases consumer loyalty, provides flexibility as the viewing experience is personalized
- ⁴⁹ Adobe U.S. Digital Video Benchmark 2Q15; Adobe Primetime; TV connected devices=Apple TV, Roku, gaming console, Amazon Fire TV, Smart TV, other

Examples of TV everywhere apps include the following:



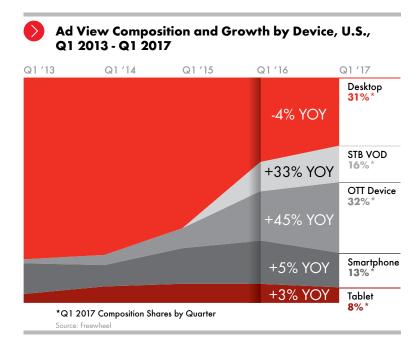
While On Demand viewing is growing with more content being made available behind the paywall, live events have proven to be a significant driver of TVE usage. The Rio Olympics in August 2016 and the 2014 World Cup were great examples of how TVE gave more control to the viewer, enabling them to curate their own experiences on the screen of their choice. Authentication levels through TVE have often seen steep changes of adoption with large sporting events as consumers familiarize themselves with the technology (and their login information) in order to access essential viewing.

Time will tell whether this is TVE's peak or whether authenticated viewing will continue to grow, but acceptance should become even greater as "sign on" authentication is simplified. While authentication levels have increased throughout the years, awareness is still an issue.

VSP or vMVPD: Virtual Multichannel Video Programming Distributor is a new form of digital-only cable alternative which provides access to on-demand and live content delivered over the internet without the traditional network infrastructure (i.e. Sling TV, Direct TV Now, Sony PlayStation Vue).

8.5 OTT Challenges and Opportunities

Despite the rapid growth of OTT audiences–estimated by <u>eMarketer</u> at 187MM this year and growing to 200MM by 2019–advertisers are still challenged with issues of scale (relative to the size of traditional linear TV audiences) and a lack of uniform targeting, measurement, and attribution.



Despite these challenges, ad share for OTT continues to grow. According to FreeWheel's most recent Video Monetization report, the majority of growth in streaming video ad is coming from OTT which bodes well for a future where the differences between TV and Video eventually fall away.

8.6 Ad Targeting in OTT

Because OTT content is delivered over the Internet, brands and local advertisers alike can serve ads and connect with consumers at a household level, in a full-screen TV experience while benefiting from the targeting precision of digital video. In its first iteration, brands can buy directly from OTT content providers, using viewing information and the program environment as a proxy for product interest, with the campaigns executed programmatically through automated channels/mediums/tools.

In its next iteration, ad targeting can continue to be informed by viewing information and, via device matching, by the research that indicates what viewers do online in terms of purchasing goods and services. Audiences can be built on open and private exchanges using targeting tactics currently in use for digital video. Brands will extract maximum value from their ad campaigns when they are tailored to the expressed intent of viewers, and viewers will benefit from seeing advertising that matches their most current commercial interests.

Smart TVs enabling smarter advertising

You have probably used <u>Shazam</u> to look up a song while you were at the bar or gym, the technology behind Shazam is called Automatic Content Recognition (ACR) and it's the technology that captures and identifies content across internetconnected devices, such as Smart TVs, phones, laptops, and tablets.



Using ACR, smart TV manufacturers are able to create personalized viewing experiences by

providing viewers with content recommendations based on the current program they are watching, receive episode bios, etc.

Advertisers can benefit by tapping the wealth of viewership data that outlines exactly which ad, channel, and program a viewer is watching, when, and for how long. Targeting to OTT devices is done at the household level (as opposed to individual level, which is more common in digital advertising). Two methods are available to link data to the viewing household:

- 1. **High Index Modeling:** Using viewership data to purchase air time during programs with the highest likelihood to be viewed by the desired audience.
- 2. **Cross Device Graph:** Using data collected by other devices in the household to target viewers based on a shared identifier. Similar to digital advertising, this involves purchasing ads on an impression by impressions basis when the TV viewer has been identified as belonging to the stated audience.

These household level connections can be made via three methods: probabilistic, deterministic or based on modelling.

- Probabilistic methods link devices based on assigning a probability that two devices belong to the same household, which is achieved by analyzing thousands of different anonymous data points such as device type, location data, and time of day. While this method is commonly used, it is important to understand the accuracy of the data being used for every link between devices. Most probabilistic methods have been benchmarked vs. a set of actual users and can provide an accuracy rating. Advanced targeting platforms can choose the level of accuracy and show tradeoffs between accuracy and scale.
- 2. Deterministic methods utilize data collected when a consumer logs in to the same application or website across devices or provides some sort of personally identifiable information (PII) like an email address, to link individual logins to digital identifiers like cookies or device IDs. Deterministic data is preferred when available for highest accuracy, but the scale is potentially limiting because not all data collected digitally has deterministic identifiers associated with it.
- 3. **Modelling methods** are based on sample data sets, similar to the process described above, and is the way Nielsen has been calculating GRPs for the longest time.



Most companies/vendors use a combination of all of these methods as they need more than six months' worth of census-level viewing data from a smart TV provider to make that data set valuable.

One aspect that needs to be considered while collecting data is privacy. If a vendor or manufacturers will be collecting data from its users, it needs to inform them of such with an opt-in option.

8.7 Viewability for OTT / Connected TV

Viewability is still a new and vaguely defined concept in the OTT / Connected TV space. Given the reality that ads on OTT/Connected TV screens are inherently visible, in focus and without the ability to skip, many are questioning whether measuring viewability in Connected TVs makes sense.

Lack of VPAID support and limited technical capabilities to execute 3rd party verification logic code on TV devices is further bringing up into question how much advertisers should trust any viewability measurement taken in such context.

Yet, despite these concerns there has been a steady interest from both sides of the market around measuring and reporting viewability for video ads across platforms (including CTV) in order to check the box for all inventory types. Driven by the need to find some measurement common grounds for cross-channel video campaigns, viewability is seen as the first and most attainable video metric for such campaigns at this time. It is also the first step in helping advertisers with cross-channel media planning, buying, and understanding ROIs.

There is currently no official definition of CTV viewability and as a result, the industry has unofficially adopted the existing MRC definition for video ads on the web.

At this time CTV technology offers limited support for industry-wide video ad tech standards. Currently, most CTV video players offer limited support for VAST, and no VPAID support at all. As a result, verification vendors rely on a combination of VAST-pixel event tracking and assume 100%-pixel visibility for ads playing on a TV screen. The increasing adoption of server-side ad insertion (SSAI) by major media companies is further complicating the task of taking authentic client-side viewability measurement. The recently introduced IAB VAST 4 specifications aim at addressing this new reality of cross-channel video distribution, and provide new ways to reliably measure viewability, including CTV.

8.8 Buying and Selling / Transactional Models

The amount of TV advertising inventory that is available is limited—as is premium video inventory—and buyers' demand outstrips supply; on the other hand, the volume of display advertising inventory is unlimited. For this reason, most of TV ad inventory is being bought by agencies and brands "**upfront**," meaning at the beginning of a new TV season, ahead of the time when campaigns are actually going to use that inventory. About 70 percent of inventory is sold that way, and only about 30 percent is sold as "**scatter**" during a season (i.e., on a more short-term basis). But even scatter is being sold with significant lead time, sometimes months, because it still needs to be "**reserved**" or "**guaranteed**," just as is the case for upfront purchases.

All TV advertising sales are future contracts: Buyers always pay media owners for inventory that the latter delivers later.

8.8.1 Linear Addressable TV

TV advertising today focuses around trying to reach your target demographic based on TV panel data of a few thousand households. The ad currency for that is the <u>gross rating point</u> (GRP) – a maximum GRP at a given budget being the aim for a TV campaign. TV planners identify the shows with the highest GRP for a set target demographic based on historical viewing data and then book the shows with the best price/cost ratio, maximizing the GRP for the planned campaign.

8.8.2 GRP/On-Target Delivery

Nielsen's Gross Rating Points (GRPs) methodology has been around since the 1950s and is considered the currency for legacy/linear TV.



The first federally regulated television ad was aired on July 1st, 1941 on then WNBT (now WNBC), during a baseball game between the Brooklyn Dodgers and Philadelphia Phillies. The 10-second spot for <u>Bulova Watches</u> showed a static image and reportedly cost \$9–a small price to pay for such a historic event.

The 1950s saw the dawn of sponsored programming,

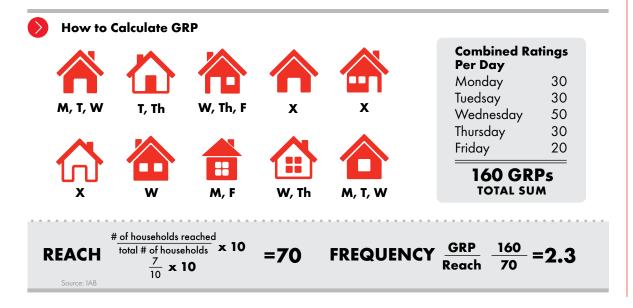
regularly scheduled advertisements, and viewership ratings. <u>Arthur Nielsen</u>who had helped pioneer radio market analysis twenty years earlierdeveloped a ratings system by which a sample audience's viewership could be measured accurately. Nielsen's Gross Rating Points (GRPs) represents a combination of reach and frequency, measured according to the households reached by an advertisement versus the total targeted population.

The GRP methodology has been the gold standard in TV measurement ever since. GRP values continue to be used by media buyers to compare the advertising strength of various media vehicles.

In review, the Nielsen TV measurement landscape in the U.S. is as follows:

- Nielsen measures and reports national and local TV Audiences. There are 210 local TV markets, known as Designated Market Areas (DMA).
- National audiences are measured using people meters (NPM = National People Meter Sample). A
 sample of 20,000 homes across the USA is recruited and all TV sets in these homes are electronically
 monitored. Individuals' viewing is measured through people's registration using a specially designed
 handset.

Recommended resources: "<u>Nielsen Begins Modeling National Ratings</u>, <u>Will Remain Accredited Until</u> <u>'Reevaluated' In Early 2016</u>" – <u>MediaPost</u>, "<u>Nielsen's Panel Expansion and National Ratings Modeling</u>: <u>What's Happening</u>?" – clypd.





- In this example shown above, each household shows which days the set was in use during the time a commercial or spot aired. Since each home represents 10 percent of the world (10 homes), each represents a 10 rating every time the spot airs. By adding these ratings, we arrive at the total of 160 Gross Rating Points.
- In this example, reach is the number of different or unduplicated households or persons that are exposed to a television program or commercial at least once during the average week for a reported time period. During the course of the schedule, seven different households were exposed to the commercial at least once. Since each home represents 10 percent of the universe, this makes the reach of 70 percent.
- Frequency represents the average number of times a household or a person viewed a given television program, station or commercial during a specific time period. In our example, the Gross Rating Points achieved (160) is divided by the percent of homes reach (70) to determine the frequency of 2.285.
- Another way of calculating the GRP is simply to multiply the frequency times the reach. For example,

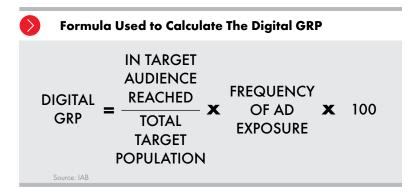
REACH × FREQUENCY = GRP

an advertisement that is aired/served 5 times reaching 50% of the target audience each time it is aired would have a GRP of 250 ($5 \times 50\%$).

8.8.3 Digital GRP

A Digital GRP is a unit of measurement that represents the percentage of online viewers reached within a total targeted audience population (e.g. females 18-34 in the San Francisco DMA) multiplied by the number of times they were reached. The digital GRP has the potential to serve as an organizing principle combining traditional with digital into the same playing field.

Formula used to calculate the Digital GRP:



Digital GRPs would provide a way for advertisers to evaluate their digital media and assess which audiences they are reaching using traditional TV metrics (GRPs & Target Rating Points, TRPs). It would also potentially allow advertisers to rollup ratings across TV and online, allowing for better planning and means for comparison.

The most widely-used digital ratings verification systems for digital are Nielsen's Digital Ad Ratings (DAR) and ComScore Validated Campaign Essentials (VCE).

However, the Digital GRP isn't perfect, as outlined in the IAB <u>Video Landscape Report</u>. There are still challenges in measuring TV and video with a common metric.

<u>MRC</u> is currently engaged in iterating through the final phases of <u>3MS</u> including drafting digital audience-based measurement and cross-platform measurement standards. Within these standards, digital GRPs intended for cross-media comparisons or combinations will likely include some form of duration weighting to account for differential exposure and to normalize for creatives of varying lengths.

8.9 Landscape: Linear TV Inventory Sources

The most-watched⁵⁰ **broadcast networks** in the U.S. CBS, NBC, ABC, FOX, Univision, The CW, and Telemundo. Their inventory is unique (it is broadcast to viewers, which makes it attractive to advertisers) and at the same time limited in volume (anywhere from 24 minutes to around 160 minutes of national inventory in a 24-hour period). While some networks only have two hours in primetime, others have three hours in primetime as well as daytime, late night and overnight programming. Demand will probably always far outstrip supply.

The most-watched⁵¹ **national cable networks** are Fox News Channel, ESPN, USA Network, TBS, HGTV, TNT, Discovery Channel, History, Disney Channel, and CNN. Cable networks have a lot of inventory at their disposal (around 360 minutes of national inventory in a 24-hour period). Most of these embrace automation and several of them announced during the upfronts that they would make additional audience data available to buyers through partnerships with companies such as Rentrak.

TV stations broadcast to viewers at a local level, making it less appealing to advertisers. Their inventory isn't as limited (around 240 to 300 minutes of local inventory in a 24-hour period) but the ecosystem is quite complex. Automation would make this type of inventory more valuable.

Diginets (also known as digital broadcast, digital subchannel, multicast or dot-two networks) are broadcast networks that are carried on digital subchannels at TV stations (the .2, .3, .4, etc. channels).







The top diginets are MeTV, Antenna TV, Laff TV, Escape, This TV, Bounce TV, Create TV, getTV, Comet, and World.⁵² With the transition from analog to digital TV, stations were able to add multiple digital subchannels in addition to their primary channel and that created an opportunity for diginets. Diginets split the ad inventory with the TV stations (around 144 to 168 minutes of national inventory in a 24-hour period).

The fundamentals of the multicasting business are to convert low-cost, but well-known movies and TV shows, into modest, but steady, revenue streams and profits for the diginets and their affiliates. An example of this is what Antenna TV, Tribune Broadcasting did with antenna TV Classics, specializing in the older-skewing shows, while the original Antenna TV would then be free to recalibrate its lineup with shows to attract younger viewers.

8.10 Multichannel Video Programming Distributors (MVPDs)

<u>Multichannel Video Programming Distributors (MVPDs)</u> are cable, satellite and telco providers such as AT&T DIRECTV, DISH, AT&T U-verse, Charter Spectrum, Comcast Xfinity, FiOS, and Verizon. These distributors insert ads for **two minutes out of every hour** of programming.

For MVPDs, the automation that is characteristic of advanced TV is a dream come true:

- They have inventory available on lower-tier networks and automation/data generally helps sales. Today, sales are hampered by the fact that it is so difficult to buy local advertising because between MVPDs and local broadcasters, there are so many different players and programming schedules.
- MVPD inventory has traditionally been considered local inventory, as it has largely only been sold to local advertisers. With automation, it can now be aggregated so that national advertisers can buy it, allowing MVPDs to directly compete with the big networks.

⁵⁰ Based on 2016 total viewers Broadcast - Source: Nielsen. Prime time total viewers, Live+7; Broadcast data: 12/28/15-12/4/16

⁵¹ Based on 2016 total viewers Cable - Source: Nielsen; Live+SD numbers from 12/28/2015-12/18/2016

⁵² Based on 2016 TV household coverage. Networks supplied coverage percentages, except for Create TV, which came from <u>Across</u> <u>Platforms consultancy</u>.

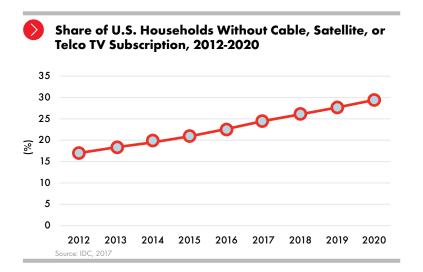


MVPDs also own a lot of data on their customers. MVPD distribution is based on set-top boxes, which
means they can—at least potentially, if they don't already—target advertising at the household level.

Nationally syndicated shows are distributed to TV stations and regional cable networks and have anywhere from four to eight minutes of national ad inventory per hour.

8.11 Cord Cutters, Cord Nevers, and Broadband-Only Homes

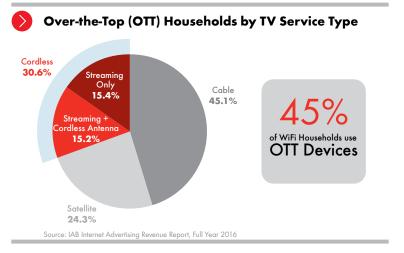
The way consumers in the United States are viewing video content has begun to change in profound ways. They are branching out from traditional TV to incorporate digital channels into their viewing habits, and within digital, they are rapidly embracing mobile video.



Data confirms this viewing shift. IDC's latest pay TV subscriber estimates show that in 2016, 23% of all households in the United States did not subscribe to pay TV (cable, satellite, telco TV). IDC expects that number to climb to 29% by 2020⁵³.

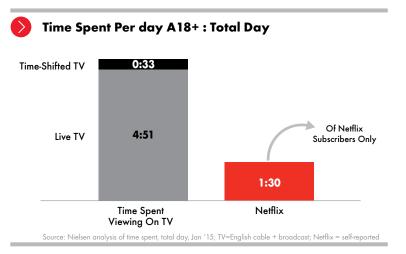
These numbers are echoed by comScore's Total Home Custom <u>Reporting, U.S., December</u> <u>2016</u> nearly one-third of the OTT audience is cordless and doesn't subscribe to pay TV, with half of those being streaming-only households.

Studies by IDC also reflect that cord cutting is about cost, not content. The majority of the cord cutters are either young, or low income and they do so to save money. The above referenced study indicated



that when they do cut the cord, the vast majority (78 percent) of what they stream is TV content licensed from networks. People with both MVPD and OTT subscriptions watch more TV than non-streamers. The study also revealed that streaming is a complement, not a replacement. Consumers want to access the best content is the cheapest and most efficient way. So, it's not about the content, but about the format.





Netflix is generally a complement to multi-channel subscriptions as evidence by the fraction of time adults spend with the service compared to TV.

In the end, viewers follow the content.

<u>TiVo's Q4 2016 Video Trends</u> <u>Report</u> shows the results of a survey conducted since 2012 to 3K people in the U.S. and Canada. The goal of this report was to understand why

respondents cut pay TV service, which can provide valuable feedback in many areas, including product developments, customer service improvements, and marketing efforts focused on subscriber acquisition. They also delve into the consumer preference for a la carte packages and what the ideal price for the top 20 channels should be.

8.12 Types of Advanced TV

As defined by IAB, <u>Advanced TV</u> is an umbrella term that refers to any television content that has evolved beyond traditional, linear television delivery models and includes Addressable TV, Linear Addressable, VOD Addressable, and the aforementioned OTT / Connected TV universe.

8.12.1 Advanced Linear Addressable TV Types

Audience-Targeted Linear

The greater integration of data within advertising is driving fundamental shifts in how the broadcast industry conducts business. More network groups including Discovery have joined Viacom and Turner in prioritizing a data-driven approach to cross-platform advertising, with guarantees that go beyond traditional age and gender demographics. The recent wave of MVPD mergers also promises to create new opportunities for leveraging data within targeted and advanced addressable advertising and demonstrating ROI on ad spend.

Household Addressable (Live, VOD)

Addressability is the ability to show a specific ad only to certain specific households (i.e. you see a different ad than your neighbor does). While it is true that the new advanced audience data are more granular than Nielsen ratings, they do not allow targeting single households, but only audiences with certain characteristics (audience buying), i.e. sets of households within certain characteristics and in certain geographical areas.



CURRENT STATUS OF LINEAR ADDRESSABLE TV		
CABLEVISION	2.8MM Addressable TV HHs, :30s/60s, 56 networks	
	12MM Addressable TV HHs, :30s/60s, launching :15s shortly, data aggregated from over 5MM boxes, over 50 networks	
dish	8MM Addressable TV HHs, :30s/60s, over 78 networks	
COMCAST	19MM Addressable VOD HHs, Estimated 4MM Addressable HHs with 10MM by End of 2015	
Warner Cable*	Video On Demand, DAI	

Source: 4A's data-driven video report

However, some households are already directly addressable. Technologically, for traditional linear TV, where the signal is broadcast via cable or satellite to many viewers, these set to boxes (STB) come with a hard drive that caches the ads locally, and the STBs then insert the ads into the video stream. This approach combines the broadcast environment of linear TV with the unicast requirements of addressable advertising.

Addressable TV can target about 25-30% of U.S. households per the 4As data driven video report.

Interactive TV–defined within the Advanced TV umbrella–is catch-all term for adding a viewer engagement piece to television, including both interactive content and advertising, delivered through the first and second screen.

8.12.2 Linear Addressable TV Data & Targeting

The ability to reach specific audiences today through linear, addressable TV is still fairly rudimentary. Typically, TV ad slots are bought based on Nielsen Ratings data, which for each TV program only provides basic demographic audience information: age, sex, race, economic class, and region.

<u>Addressable TV</u> advertising, delivered on a home by home basis, leverages advanced audience dataprovided via satellite and cable boxes—on top of Nielsen data to enable a much more granular view of TV audiences. Instead of buying rough-hewn audiences, advertisers can now target more specific subsets, for instance, households with college-educated women with more than two kids and an annual household income of more than \$150,000 who are also in the market for a new car.

There is also syndicated, third- and first-party data that the new Advanced TV uses such as panel-based set-top box (STB) data from Rentrak, Kantar, and TiVo Research and Analytics (TRA), data from third-party data management platforms (DMPs), and even census data.

Two more sources are particularly valuable: data that media owners have on their audiences, and data that advertisers have on their own customers. Attribution companies provide performance data, i.e. insights into whether viewers who saw a specific commercial actually purchased something after the fact. These data can be used to optimize ongoing campaigns or plan the next one.

Advanced Linear TV Planning and Targeting Strategies

There's a lot of talk about audience-based buying, selling, and targeting. Advertisers are looking for the right audiences, and audiences are considerably more complex than merely accounting for demographics and age. Audiences are comprised of people with specific interests and passions, behaviors and preferences. To target these more specific attributes, enhanced audience data such as MRI Fusion data, Nielsen Catalina data, are used as well as other data types (including client first-party CRM data).

While there's no perfect dataset that can be used to identify and target audiences, everyone wants to move beyond age and gender in media buying. The missing piece becomes: can you activate the advanced datasets, build a campaign, and have a financial guarantee around them between the buyer and the seller? The top challenge defining advanced targeting is that the buyer has their own view about the ideal target.

Index-Based Targeting

The traditional approach of audience buying has limitations as it relies heavily on Nielsen's TV panel made up of a couple of thousand households informed in part by antiquated technology, such as physical TV viewing diaries.

New set-top boxes allow to capture the viewing habits of millions of households in granular detail. Combining this massive set of viewer data with other available data sources allows to build detailed viewer profiles at a very granular level, going way beyond the traditional gender & age demographics. Household income, family status, hobbies, food preferences, etc. can be used to better define and reach the desired target audience. Instead of ranking the TV program based on the gross rating point, the new index-based buying approach ranks the TV program based on the chosen targeting metrics for each individual campaign. So while a show might have a low "traditional" rating, it might have a high index value and therefore be bought based on the new targeting metric. One caveat remains: If the network agrees to a guaranteed index-based audience, it will require both advertisers and networks to agree on a standard for the used targeting data.

Reach-Optimized Targeting

This is a type of targeting that takes into account the relationship between TV, general internet use and online video usage, so you can optimize your cross-media ad spend. To do this, you must deeply understand your total unduplicated audience along with the reach and frequency of that audience, across platforms. For an example of a reach optimized campaign, visit the <u>Nielsen Data Fusion report</u>.

Cross-Device Targeting

Integrated media campaigns are becoming increasingly more important components of advertising strategies, making it essential to plan cross platform campaigns that deliver on your communication planning goals and more effectively reach your target consumers whether they are watching TV, streaming online video, or surfing the internet.

The rise of the "always on" culture has led to almost all viewers watching TV and using their smartphone or tablet as a second screen in parallel. This change in viewing habits results in many viewers engaging with TV ads immediately following the airing, blurring the traditional boundaries between brand and direct-response TV advertising. More and more TV advertisers are starting to measure the impact of their TV advertising on their online channels. These impact metrics can be used to rank the TV program based on people who are highly interested and most likely to engage.

DEEP DIVE INTO THE NEW TV

8.13 Dynamic Ad Insertion (DAI)

DEEP Dive

Dynamic Ad Insertion (DAI) enables advertising sales to present relevant, demographically targeted ads within on-demand content over existing cable infrastructure, expanding advanced advertising opportunities into non-linear viewing. DAI is the financial engine of free VOD.

Previously, VOD content might have included ads baked into the video stream that were no longer relevant, or out of date. Manually re-editing and adding fresh advertisements was a costly exercise and most VOD revenue to date could only be generated during the standard C3 window.

DAI allows content owners and MVPDs to:

- Dynamically insert ads into live, linear, and VOD content across desktop, mobile devices, gaming consoles, and IP enabled set-top boxes. VOD DAI creates more value for advertisers, content owners, and cable operators
- Refresh targeted advertising campaigns and optimize monetization value for any episode of any show
- Pitch the asset once and sell relevant advertising campaigns against the content throughout its lifetime and expanded viewing window
- Update inventory for holidays, cross-promotion, and other events up to the entire 35 days or more of the content lifecycle
- · Create content fully compatible with existing cable infrastructure as new hardware isn't required
- Measure results with Nielsen

The ads, which can be 15, 30 or 60 seconds, can be inserted into the VOD asset in pre-roll, midroll and post-roll formats. VOD DAI enables relevant, up-to-date ads, while also providing analytics and measurement tools that gauge the effectiveness of the ads for all of the parties involved in a campaign. The use of DAI technology illustrates its expanding role in enabling advertisers to insert their marketing campaigns into media placements available via archived VOD content.

Rentrak reported 66% of broadcast primetime program viewing occurs after the third day of its original airing. The ability to insert timely ads across all episodes of a TV show represents "the opportunity to generate untold millions in additional advertising dollars for VOD." Advertisers are using DAI to place ads on linear television as well as VOD content.

Interactive television and VOD dynamic ad insertion are available to help networks enhance services to their advertising clients, thanks to standards and specifications such as SCTE 130 and CableLabs' Stewardship and Fulfillment Interfaces (SaFI).

These standards enable networks to seamlessly interoperate with a variety of cable operator systems and offer advanced television products and services with speed, flexibility, and normalized performance reporting.

<u>SCTE 130</u> is the foundation for building a unified platform for advanced TV. It is an XML-based tool that works in traditional cable advertising deployments. The SCTE 130 standard is a multi-part specification that defines how an advertising placement server (ad decision system, or ADS) communicates with advertising delivery equipment (ad managers, or ADM). It supports a unified platform for insertion of interactive capabilities in advertising and programming and dynamic ad insertion into linear or on-demand content. It enables the merging of inventory metadata (placement opportunity information service, or POIS), content metadata (Content Integration Suite, CIS) and subscriber information service (SIS), and providing inventory and placement definitions for the accurate execution of iTV and DAI campaigns.



<u>CableLabs' SaFI specifications</u> allow cable companies to provide more innovative types of advanced ads, including interactive advertising and advertising within video-on-demand. SaFI's components help deliver ads in a standardized and consistent manner across a national footprint. The SaFI specs were developed and are maintained by a CableLabs working group composed of MSOs and CableLabs technical leads.

8.14 Cord Cutters, Cord Nevers, and Broadband Only Homes

In broadcast television, **cord-cutting** refers to the pattern of viewers cancelling their subscriptions to multichannel subscription television services available over cable, dropping pay television channels, or reducing the number of hours of subscription TV viewed in response to competition from streaming services like Amazon, Hulu, Netflix, and YouTube. As a market trend, a growing number of "cord cutters" do not pay for subscription television in favor of some combination of broadband internet and IPTV, DVRs, digital terrestrial TV, or free-to-air satellite television.

Cord nevers are young people who grew up accustomed to watching shows online and thus would be less likely to subscribe to pay television services, they are not used to an appointment type experience.



Broadband-only homes: In an effort to entice cord cutters and cord nevers, some MVPDs have begun offering internet-only streaming services. Cablevision began to offer "Cord Cutter" packages that include a free digital access to its Optimum Wi-Fi network, as well as the option to add HBO Now to the service.

8.15 <u>Automation (or Programmatic) vs Addressable for Dummies</u>

Advanced TV: Any television content that has evolved beyond traditional, linear television delivery models. This umbrella term is inclusive of Interactive TV (iTV), Connected TV (CTV), Smart TV, and Linear Addressable & VOD Addressable.

Connected TV (CTV): A television set that is connected to the Internet via OTT devices, Blu-ray players, streaming box or stick, and gaming consoles, or has built-in internet capabilities (i.e., a Smart TV) and is able to access a variety of long-form and short-form web-based content.

Linear Addressable: The addressable ad inserted into live programming. For example, DirecTV, Dish, and Cablevision's inventory is all linear addressable.

VOD Addressable: The addressable ad is inserted into cable programs within the VOD content accessible through a cable provider set top box. For example, Comcast's addressable inventory is VOD addressable.

Video on Demand (VOD): Video content that is controlled, enabled, and consumed whenever a viewer wants after its official release date or original air date and time. VOD content can be found on set top boxes, OTT devices, mobile web, mobile apps, and video streaming services.

Over-the-Top Video (OTT) Content: Video content transported over an internet connection via a connected device (such as a connected TV, Smart TV, etc.) from a video provider to a connected device.

9 Challenges in the Digital Video Space (and Efforts Underway to Solve Them)



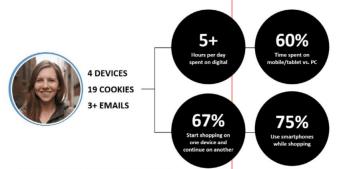
"While opportunities to reach viewers have increased, we see challenges across traditional TV and digital video platforms due to consumers' behavior shifts and new technologies. Key challenges that the industry needs to watch out for and address as a whole include audience fragmentation, advertising experience, ad avoidance/blocking, ad fraud, and measurement"⁵⁴

This section of the guide will explore these challenges in detail as well as highlight work that is being done at an industry level to address key issues.

9.1 Fragmentation

Indeed, according to <u>Forrester</u>, the average U.S. adult juggles more than four connected devices.

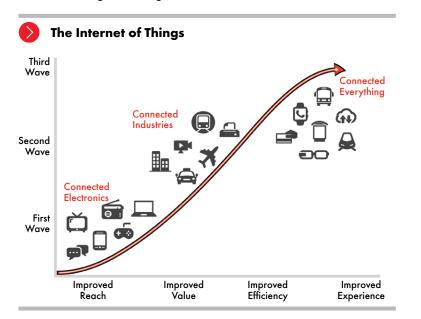
Three-quarters use a smartphone and more than half use a tablet. As the connected devices we use proliferate, so does our consumption of media, with a growing expectation for seamless ad and content experiences between our smartphones, tablets, laptop and desktop computers, connected TVs and the various web and app experiences we traverse.



Sources: Conversant, Forrester, IPSOS, ComScore

9.1.1 Device Proliferation and Disparate Bandwidth

From walls, to desks, to pockets—screens are everywhere. This explosion of new platforms and devices represents an ever-expanding long-tail of connected devices with the ability to send and receive data via IP, including marketing media.

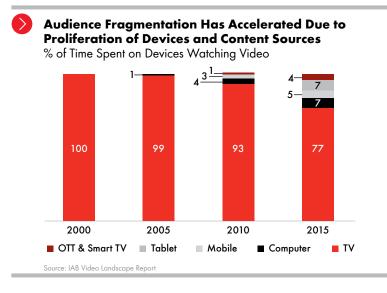


This explosion of connectivity across a vast landscape of interfaces is known as the "internet of things."

While more connected devices represent exciting progress from the perspective of consumer choice, this proliferation poses challenges to the advertising industry, including matching ad and media functionality to a wide array of devices that have different network capabilities (i.e. 3G vs 4G) and widely differing bandwidth capacities.

⁵⁴ IAB Video Landscape report

9.1.2 Audience fragmentation



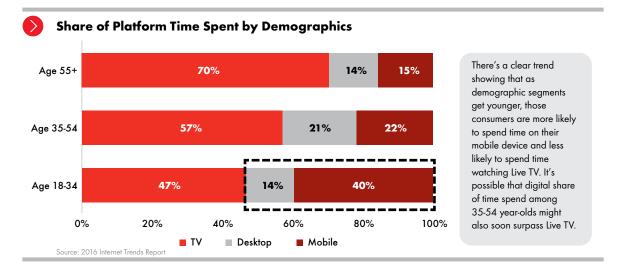
In a world of seemingly endless content choices coupled with the proliferation of devices, media companies are facing a complex ecosystem. The need to address this shift has never been more apparent. Advertisers and content creators need to adapt quickly to new technologies and tailor their messages accordingly in order to achieve success.

As seen in this graph, time spent has shifted in the last five years to include more devices while TV time spend has decreased at the expense

of other digital devices.⁵⁵ Only 10 years ago, television dominated video content consumption. Today, we see that the percentage of time spent consuming content on television has been shrinking each year as new technologies and devices have emerged. As computers, mobile devices, tablets, OTT and Smart TVs increase, the challenge for marketers becomes one of complexity. It's no longer as easy as it used to be to develop campaigns with significant reach using one or two media vehicles.

Not only are there multiple devices and formats on which to view content, but particular formats can be more desirable depending on the demographic of the target audience. For example, younger generations are more likely to consume video content via mobile devices vs. television. In fact, comScore predicts that this trend seen among younger generations (18-34) will soon be the same among 35-54 year olds.⁵⁶

As noted in analyst Mary Meeker's <u>2016 Internet Trends Report</u>, an integral part of this shift can be attributed to the different core values and expectations each generation has adopted throughout their lifetime.



Millennials are engaging with technology in every aspect of their lives. Older generations are also shifting their consumption behaviors to connected devices, though at a slower rate.

⁵⁵ IAB TV 20/20 Webinar, 2016. Videology % estimates from Nielsen, eMarketer trend data; Time spent data calculated by Videology from Nielsen and KPCB data. Highest rated programs based on Nielsen A18-49 Live+7 data.

⁵⁶ "2016 U.S. Cross-Platform Future in Focus," comScore.

9.1.3 Proliferation of Content

As the worlds of television and digital video continue to converge, new platforms and devices for viewing video are emerging, as well as additional choices in content and genres. Consumers in turn have had to adapt to new ways of finding what they want to view.

The proliferation of content across digital channels has intensified the fragmentation challenge for brands seeking to reach audiences with their ad dollars. Budgets are being spread across wider swaths of partners and inventory than ever before, in an effort to drive the same business outcomes that used to require only a handful of marketing channels.

This proliferation of content urgently poses new questions to marketers:

- How are people finding the programs they want to watch?
- How do consumers discover new content amidst a seemingly endless array of options?
- What's the equivalent of *TV Guide* for future generations of consumers? Will tools that enable search and discovery offer marketers new opportunities to connect with consumers across a portfolio of options?
- What do content creators and advertisers need to know to reach audiences as they move from one screen to the next?

To help answer these questions, IAB commissioned the <u>Video Content Discovery Study</u>. The study examined three distinct video storytelling formats: traditional TV, subscription series, and original digital video. The study found that the ways consumers become aware of content, what influences their decision to watch, and how they decide to ultimately engage with the content, are all format-specific. Key takeaways from the study include:

- Video and social go hand in hand. Cross-platform video content promotion should tap and amplify word of mouth and social strategies.
- Word of mouth is the top source of discovery for subscription service original shows, though the service's own interfaces and recommendation engines are also very important.
- Ads have a big influence on what most viewers watch.
- The path of discovery for original digital videos is more varied (social media and YouTube are big contributors).

Nearly half of streaming service viewers use TV's on-screen menu to find videos to watch.

Unlike the early days of television when choice was limited to few broadcast networks, today's consumer is faced with a seemingly endless array of options, driven by technologies that both add to and reduce complexity to various degrees.

9.2 Measurement

With content and device proliferation, the industry is also seeing an increase in the number of measurement technologies and metrics. More devices and content require reporting on a multitude of data, across an increasing number of screens.

"Lack of standardization in measurement causes market inefficiency and confusion." 57

In the <u>2017 IAB Video Ad Spend Study</u>, independent measurement audit is cited as the biggest challenge to digital video buying among ad buyers. Other areas of concern include:

- Laser focus on quality content and environnent
- The variances in digital measurement results and the lack of standards have created friction and inefficiencies in selling and buying digital video.
- Fuzzy definitions of a "view" and the lack of agreement on viewability and which engagement metrics matter contribute to these inefficiencies.
- Lack of comparable metrics between linear TV and digital video causes confusion in cross-platform buying and planning.



Without comparable metrics, it's hard for media buyers and planners to assess the relevant value of cross-platform ad inventories.

While specifications have enabled interoperability between different participants in the ecosystem, significant friction still exists around accurate measurement.

For example, a video player may make a single VPAID video ad request to an ad network, which will likely spider web many requests from one ad network to another. For each of these requests, networks may or may not trust the validity of data passed along to them such as player dimensions, domain name/placement URL, audio state, and viewability measurement. Most networks will attempt to measure these items for themselves, however this duplication tends to introduce latency, slowing down the video player response and consuming additional bandwidth in the process. It can also result in report discrepancies between the participants.

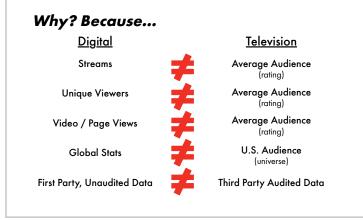
Another example where there's lack of standardization is in measuring video on linear TV and online.

- When it comes to measurement standards in the big screen, Nielsen has been measuring reach, average ratings (GRPs), average frequency and average minutes for decades.
- Digital platform's main advantage is the utilization of data at the impression level.
- The industry has yet to create a standardized cross-media, cross-platform audience currency to measure cross-screen video in totality, presenting barriers to significant investment decisions.

⁵⁷ IAB Digital Video Landscape report



There's A Need To Reconcile Digital Metrics With TV Measurement And Speak One Common Language To Level The Playing Field



"This disparity in measuring TV vs. video leaves buyers and sellers hamstrung by these two very different measurement methods. This is why each platform is typically analyzed separately, even if the same brands are running ads in both screens." ⁵⁸

As traditional TV is reinventing itself, so must the measurement methods if we want this industry to grow.

Incorrect measurements can lead to:

- Whitelisting issues and no ad fill
- · Poor classification of video player size resulting in improper inventory selection
- Blacklisting of legitimate sites
- Manipulation of bids and in some cases, actual fraud
- Unwarranted negative perception of ad quality
- Improper revenue attribution

IAB is working on a GRP+ project to capture the convergence of TV & video so that the same ad that runs on a TV screen and other digital screens can have a common and comparable currency to transact on. IAB members interested in joining this working group may contact <u>techlab@iabtechlab.com</u>.

58 Any Given Minute Comparable Metrics Report, VAB 2016

9.3 Latency

Latency is Unavoidable

Latency, simply put, is time. While the internet is notable for its fairly instantaneous response to consumer's demand for their content of choice, every transaction takes some time (some, more than others, especially on mobile devices). Considering the impact of latency on the consumer experience, it's a fair question to ask: "How much latency is acceptable?"

Latency is a Problem for Everyone

<u>Studies</u> have clearly demonstrated that the longer a user has to wait for content the higher the abandonment rates. Latency leads to a bad user experience, which can impact publishers' visitor retention rates, as well as result in poor campaign performance for advertisers.

Almost all technologies applied to automated executions add additional communication requirements for a user's browser. These requirements can increase page load times and pose data security problems that have the potential to detract from overall user experience and efficacy of paid media. Advertisers and publishers should work with their technology partners to thoroughly review latency and security implications of their services.⁵⁹

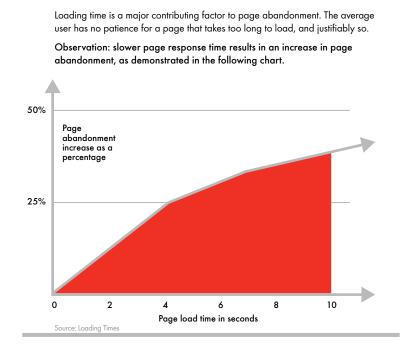
Page Latency: Ghostery estimates that, on average, each additional technology layer (and associated tracking pixels) adds ~500ms to a user's page load time.⁶⁰ As advertisers and publishers evaluate ad technology solutions—especially those beyond core technologies—they should weigh the value of the service relative to its impact on the ultimate user experience with the web content.

Causal factors contributing to latency include:

- 1. **Distance:** The farther away two servers are from each other, the more time it takes for them to communicate. This is also true of the distance between the user's device and the ad server or content delivery network (CDN).
- 2. **Connection Bandwidth:** Slow data transfer rates and internet access speeds can also contribute to latency.

Every Second Counts

- 3. Processing Speed: Once communication is established, if one server's data processing hardware is slower than the other, the slow server will increase the latency of the transaction. Note: the user's device can also introduce latency.
- 4. **Complexity:** A single ad serving transaction (ad to page) can be a simple "one hop" request for an image file from a CDN, or it can be a complex series of "hops" between multiple servers of different players including exchanges, ad networks and services vendors (geo-lookup, fraud detection, user data, etc.).



⁵⁹ IAB: The Programmatic Supply Chain: Deconstructing the Anatomy of a Programmatic CPM)

⁶⁰ Ghostery, Inc. Interview with Ghostery CEO Scott Meyer. IAB Annual Leadership Conference. January 26, 2016.

5. Security: Publisher pages increasingly require secure http browsing, which prevents third parties from eavesdropping on the information being sent between a user and publisher via http. If the ad technology applied to an ad creative has tracking that's not secure, the user's browser can prompt consumers with what's known as a mixed content security warning, which often dissuades users from loading the webpage containing the advertiser's content. Additionally, on the publisher's side, SEO and SEM rankings can suffer if high levels of non-secure content are allowed on secure pages. As such, both buyers and sellers should have checks in place to ensure that the ad technology tracking applied to automated buys is SSL-compliant.

Tools to Reduce Latency

Distance Co-Location

The internet's infrastructure and routing algorithms have been optimized for speed. Little can be done, however, to shorten the distance between two physical locations if a company chooses to do business in the U.K. and serve ads from the U.S. Having servers as close to users as possible can reduce latency. When the ad serving transaction is complex, co-locating servers (exchange, ad network, vendor, etc.) can also greatly reduce latency. Co-location in the same data center is ideal.

Connection Bandwidth & Processing Speed: Device Pairing

The easiest way to ensure that no link in the chain is slowing down data transfer is to select servers that are the same on both ends of the transaction. This, of course, is not possible in the case of server-to-client transactions (server-to-device). However, in the case of server-to-server transactions, "device pairing" (two of the same type, brand, etc.) servers should remove any latency from "mismatched" servers with different bandwidth and speed performance.

Complexity: Integrated Platforms vs. Patchworks

Online advertising is inherently transactional (ad request, ad response, impression pixel fired, etc.) The simplest transactions result in the lowest latency. When the transactions become more complex (multiple requests and responses to complete the ad delivery), latency increases. There can be many partners working together to deliver an ad, including exchanges, DSPs, data providers, third-party verification vendors, and others. Each server hop required increases the time to complete the ad transaction. Working with integrated platforms offering all services in-house rather than multiple discrete partners in a patchwork approach can reduce transactional complexity.

• Flash Migration to HTML5



Over the past months, almost all major browsers have announced plans to restrict the use of Flash and to replace it with HTML5 as the default media playback option. Some of the changes announced have a direct impact on video ads and require the video advertising community to transition from Flash to HTML5.

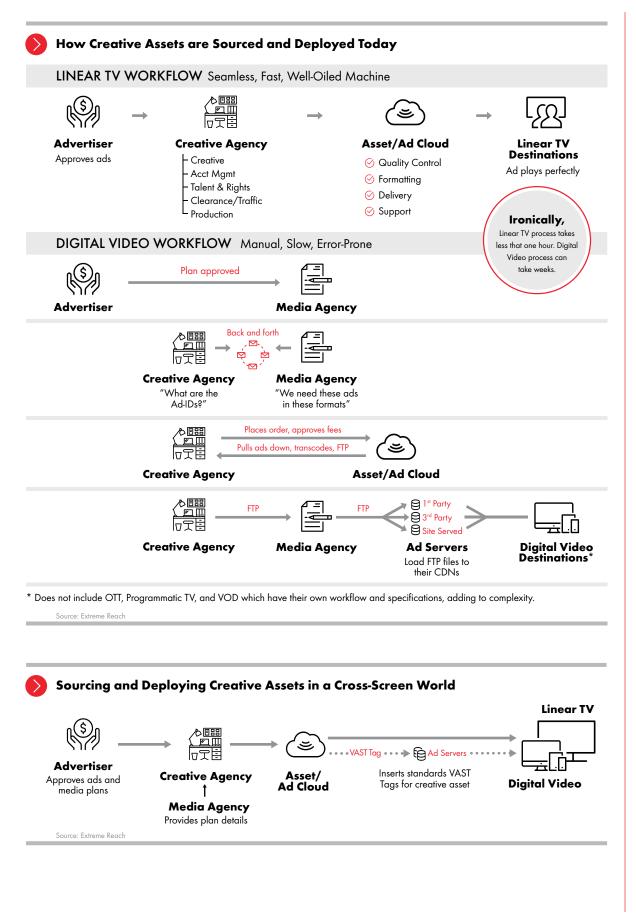
IAB Tech Lab has been working with the Digital Video Technical Working Group to provide guidance to publishers and agencies in order to complete this transition and eliminate all Flash video ads by July 2017. Please refer to the "Transitioning Video Ads from Flash to HTML5/JS" and two IAB checklists—for <u>publishers</u> and for <u>agencies</u>—for further guidance on the technical and operational details of this transition.



9.4 Video Creative Workflow: Matching Video Ad Creative to Target Devices

Digital video-based media is increasingly being transacted based on data and can occur in milliseconds using techniques, such as real-time bidding. However, securing and executing the right creative asset to serve on the right device is still an extraordinarily manual process that contradicts the entire premise of technology-driven digital advertising. Ironically, the world of linear TV is far more efficient in the handling of video creative than that of digital. For years, TV has used purpose-built platforms to provide efficient management and distribution of video creative assets, while digital video is typically handled with manual email chains, phone calls, FTP file transfers, and manual transcodes. Metadata related efforts like Ad-ID (see section 4.3.1) is helping streamline some of the workflow issues by enabling data associated with specific assets to flow across the various buyer / seller systems (enabling better tracking and reporting). However, another part of the workflow is related to the actual creative files, which today are often housed locally on various publisher and agency systems, creating redundancies. A simpler approach leverages the concept of centralized "ad clouds" whereby creative assets are accessed via the ad tag and then streamed to the device in the same way that content is streamed to end users. A key aspect of this cloud based approach requires broad adoption of the aforementioned standard ad identification schemes, Ad-ID, along with use of the underlying technology standards, such as VAST and VPAID, which together will allow for more efficient, automated access to and distribution of video creatives.

An illustration of the video creative assets and workflow as it is now and the cloud based approach can be found below.



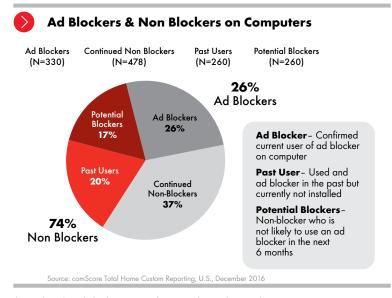


9.5 Ad Blocking

Released in July 2016, the IAB "Ad Blocking: Who Blocks Ads, Why, and How to Win Them Back" brakes down current ad blocking adoption and identifies more than one quarter of U.S. adults as ad block users. Although the ad avoiding or skipping behavior is not completely new to video, technology has granted more power and control to audiences to enable ad blocking. Ad Blocking is a type of software that can remove or alter advertising content from a webpage, website, or a mobile app. First seen in 2009, ad blocking software has emerged as a significant challenge for the advertising industry.

Top Five Reasons Consumers Block Ads

- Ad may interrupt the user's content consumption experience and seem intrusive.
- Privacy protection: as user tracking has become ubiquitous, consumers believe ad blocking can help reduce privacy vulnerabilities.
- Protection against computer malware and viruses: exposure to potential viruses is increased through malware-laden advertising.



 Increased page load times: consumers expect web pages to load quickly (two s

pages to load quickly (two seconds or less), while heavy ads can slow down that process.

 Ad clutter and saturation: digital advertising's saturation within digital media has resulted in users feeling overwhelmed by ad clutter.

Suggested Solutions to Ad Blocking

- Deliver ad experiences that are relevant and add value to the user.
- Create ads that are user-initiated. When an ad is user-initiated, the control is in the hands of the audience, reducing concerns of annoyance. These ads empower the user to choose whether or not they want to engage with a brand.
- Try native ad formats. One advantage of native ads over traditional digital formats is that native ads tend not to get caught by ad blocking software due to the way they are served to users (from within the site itself as opposed to a third-party ad server).

Additional smart ways to win back the trust of consumers and help prevent future ad blocking, include:

- Giving users control of their browsing experiences with options to skip ads immediately or after a period of time, and offering ad ratings options (thumbs up/thumbs down).
- Providing a streamlined browsing experience, removing ads that get in the way of the consumer's content consumption and ensuring that ads do not slow down the browsing experience. This balanced, lean advertising approach provides consumers with a secure space to consume content, while allowing publishers to maintain ad revenue and a positive user experience.

9.6 Fraud, Piracy, and Malware

Advertising fraud in digital video is a major challenge. Video ads are more susceptible than display to bad actors performing and capitalizing on fraudulent activity. To understand ad fraud, we must first understand the opportunities and the market conditions that support it.

Supply and Demand

Since the rise of digital advertising, marketers have embraced the promise of delivering their brand message using the ultimate storytelling format: video.

For marketers, the opportunity to leverage existing TV campaign creative—re-purposed for digital in standard 15 and 30 second ad slots—has provided a cost-effective formula. High quality premium publishers who specialize in video content have created experiences that support TV-like brand advertising. For publishers whose core strength is not video, the challenge has been one of scaling available inventory to support video. To enter the higher CPM video space many publishers have developed site sections or dedicated properties that showcase a limited amount of video content. Despite these efforts, high quality video inventory remains in short supply.

Due to this scarcity in premium video, buyers must find additional sources of inventory to meet their impression goals. This can include extended networks, resellers, and now indirect channels. Unfortunately, such secondary supply sources offer less transparency regarding ad placement, practices, ad formats, and setup. All these factors create a perfect incubator for ad fraud. One of the most common forms of video ad fraud is unauthorized resale of a publisher's display inventory, which are abundant (such as botnets and domain fraudsters)—could be delivered on well-established domains to real people. In this form of ad fraud, the buyer purchases linear video impressions (pre, mid, post roll) and a seller either knowingly or unknowingly delivers the video to a display ad placement which may be automatically played with audio on.

The misrepresented sale of impressions hurts brands in two ways: the KPIs used to evaluate the campaign are skewed as display placement do not return the same ROI as properly targeted video placements and the brand unintendedly delivers a misplaced message (wrong ad to the wrong user), which may cause a negative brand sentiment in the viewer.

Other forms of ad fraud take the form of automated, non-human traffic, typically generated by a bot or a session emulator (in mobile environments). Fraudsters then drive fake traffic to a property on which the ads are displayed. In some cases, the publisher who operates the site is unaware of the non-human activity as it is hidden with inventory purchases made to augment the property's organic inventory.

Measurement and Validation of Ad Environments

To help limit the impact of fraud, some marketers implement performance based video view KPIs, such as quartile views or completed video views, to help determine the authenticity of the ad impressions. Others utilize common measurement metrics such as viewability or more specific Invalid Traffic (IVT) reports. The challenge is that the tactics of fraudsters are typically a few steps ahead of validation solutions.

Fraudulent practices are often engineered specifically to spoof performance metrics. This is the case in auto-play video ads which are located at the top of the page (and therefore typically measured as viewable). Additionally, fraudsters may try to avoid the measurement "hurdle" altogether by implementing ads with no support for third-party verification vendors. Typically, impressions that do not support VPAID are less measureable for viewability, yet top verification technology providers do not require VPAID for fraud detection.

Financial impact of Ad Fraud

To provide financial context to the issue of fraud, the estimated cost of criminal activity in digital advertising is \$8.2 billion⁶¹ which is broken up as follows:

- Invalid traffic/fraud: \$4.6B
- Internet Piracy: \$2.5B
- Malware: \$1.1B

In the case of emerging forms of inventory, such as OTT and mobile apps, some publishers employ server-side ad requests, side-stepping the exchanges and the third- and fourth party ecosystem that is inherently less transparent and therefore more open to fraud.

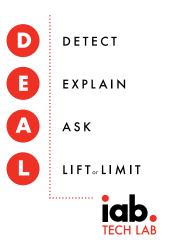
It is up to all the industry stakeholders to work together to enable and enforce a transparent and trustworthy ecosystem and to share best practices for reducing fraud. Groups and organizations focused on reducing fraud include IAB, TAG (Trustworthy Accountability Group), MRC, and others.

9.7 **Organizations Creating Best Practices/ Standards**

9.7.1 **IAB DEAL & LEAN Principles**

The growth of ad blocking usage has been acknowledged as a signal of user dissatisfaction with their overall advertising experience on the internet.

IAB DEAL (Detect, Engage, Ask, Lift or Limit) primer offers guidance for publishers on tactics for engaging audiences in a conversation about the advertising value exchange, and presents a set of alternatives that can be offered to the consumer. It is recognized that each tactic has tradeoffs and that some tactics may be more appropriate for certain audiences.



Initiating a conversation opens the doors to additional feedback from users about the specific advertising experience. As such, the LEAN (Lightweight, Encrypted, Ad Choices, Non-Invasive) principles offer consistent



decisions that have a positive impact on user experience. Publishers especially will want to explore "How LEAN Can You Get? A Scale and a Score LIGHT • ENCRYPTED • AD CHOICE SUPPORTED • NON-INVASIVE ADS Will Tell You."

guidance on advertising design and technology

The LEAN Principles are part of the IAB <u>New Ad Portfolio</u> and influenced the design for <u>Dynamic Ad</u> Components. These specs primarily cover non-video contexts, but provide a solid baseline of behaviors that align to the principles. The portfolio's ad units integrate aspect ratio-based flexible ad sizes, and also incorporate the LEAN Principles of lightweight, encrypted, AdChoices supported, and non-invasive advertising within all of its mobile, display, and native ad formats. This ad portfolio is based on HTML5 technology and also includes guidelines for such new digital content experiences as augmented reality (AR), virtual reality (VR), social media, mobile video, emoji ad messaging, and 360-degree video ads.

⁶¹ IAB/EY Study released on Dec-15. Estimates are for the U.S. Market only. Industry-wide collaboration under the auspices of TAG is needed in order to forestall these criminal activities.

9.7.2 Trustworthy Accountability Group (TAG)

In order to combat malware, fight ad-supported Internet piracy, and promote brand safety through greater transparency, IAB-together with the American Association of Advertising Agencies (4A's) and the Association of National Advertisers (ANA)-created the <u>Trustworthy</u> <u>Accountability Group (TAG)</u>, a first-of-its-kind cross-industry accountability program to fight criminal activity in the digital supply chain. TAG is organized around four core areas:



- Eliminating fraudulent digital advertising traffic
- Combating malware
- Fighting ad-supported internet piracy to promote brand integrity
- Promoting brand safety through greater transparency

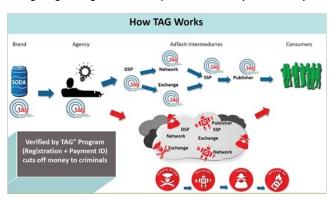
TAG has created voluntary certification programs, tools, and protocols to equip companies in the digital advertising supply chain to effectively and collaboratively fight crime.

- TAG Certified Against Fraud Program
- TAG Certified Against Malware Program
- TAG Certified Against Piracy Program
- TAG IQG Certified Program (Inventory Quality Guidelines)

Through its working groups, TAG and its contributors develop, modernize, and improve these programs, tools and protocols for the industry. Building more transparency around inventory transactions is key to eliminating ad-supported fraud, piracy, and malware. Legitimate companies need a way to identify responsible, trusted players across the entire digital advertising ecosystem. The TAG model is designed to separate criminals from the legitimate players so that the whole value chain is more transparent and legitimate as good players can identify one another and would only want to transact with other verified players. In order to accomplish this, TAG requires that—prior to achieving its certifications—companies must first participate in the "Verified by TAG" Program, which makes it possible for companies to employ a two-factor authentication system for the digital ad supply chain: the TAG Registry and the Payment ID Protocol.

The TAG Registry is a Who's Who of trusted partners for any company involved in digital advertising, enabling companies to ensure that they are working with legitimate parties at every step of their digital ad campaigns. "TAG Registered" companies receive unique TAG-IDs to identify their ad inventory to supply chain partners.

TAG's Payment ID System enables companies to ensure that payments made in the digital ad ecosystem are going to legitimate companies. The Payment ID System creates transparency by linking identifiers

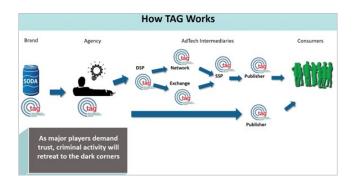


for the partners from whom a company buys ad inventory and those buying from that company to that inventory, effectively "following the money" across the entire digital advertising supply chain in order to prevent criminals from receiving ad spend.

TAG has also built a corps of TAG Compliance Officers representing all TAG member companies. TAG Compliance Officers not only benefit from regular training, they also operate as a network

of contacts to facilitate rapid information sharing across the digital advertising ecosystem, as they did when the Methbot threat was first announced.





To find out more about TAG programs, please email <u>info@tagtoday.net</u> or visit <u>tagtoday.net</u>.

9.7.3 IAB Tech Lab Ads.txt - Authorized Digital Sellers

As part of a broader effort to eliminate the ability to profit from counterfeit inventory in the open digital advertising ecosystem, IAB Tech Lab has been working in partnership with the digital advertising industry to create a mechanism to enable content owners to declare who is authorized to sell their inventory. The project's name is **ads.txt**.

The mission of the ads.txt project is simple: Increase transparency in the programmatic advertising ecosystem. Ads.txt stands for Authorized Digital Sellers and is a simple, flexible, and secure method that publishers and distributors can use to publicly declare the companies they authorize to sell their digital inventory.

By creating a public record of Authorized Digital Sellers, ads.txt will create greater transparency in the inventory supply chain, and give publishers control over their inventory in the market, making it harder for bad actors to profit from selling counterfeit inventory across the ecosystem. As publishers adopt ads. txt, buyers will be able to more easily identify the Authorized Digital Sellers for a participating publisher, allowing brands to have confidence they are buying authentic publisher inventory. The final Ads.txt Version 1.0 Specification can be found <u>here</u>.

9.7.4 The Digital Advertising Alliance

The <u>Digital Advertising Alliance</u> (DAA) establishes and enforces responsible privacy practices across industry for relevant digital advertising, providing consumers with enhanced transparency and control through multifaceted <u>principles</u> that apply to multi-site data and cross-app data gathered in either desktop or mobile environments. The DAA is an independent non-profit organization led by <u>leading</u> <u>advertising and marketing trade associations</u>.

9.7.5 Media Rating Council (MRC) Standards

The Media Rating Council (MRC) is a non-profit industry association established in 1963 as a result of Congressional hearings and is comprised of leading television, radio, print, and digital media companies, as well as advertisers, advertising agencies, and trade associations. Media Rating Council (MRC) <u>audit activity</u> spans all media types including internet, out-of-home, print, radio, and television, as well as cross-platform measurement. MRC's mission is to secure for the media industry and related users audience measurement services that are valid, reliable, and effective.

MRC Objectives:

- To evolve and determine minimum disclosure and ethical criteria for media audience measurement services.
- To provide and administer an audit system designed to inform users as to whether such audience measurements are conducted in conformance with the criteria and procedures developed.



MRC fulfills its mission by setting standards and conducting audits of compliance against them using independent Certified Public Accountants (CPAs). In addition to the <u>MRC's Minimum Standards</u> (applied to every audit MRC conducts), the MRC has authored several other standards and guidelines over the past decade including:

- IAB measurement guidelines, which includes coverage of topics such as display and video impressions, mobile web and in-app, clicks, ad verification, and audience reach. MRC has been working with the IAB Modernizing Measurement Task Force (<u>MMTF</u>) to update and modernize these measurement guidelines in executing the mission of Making Measurement Make Sense (3MS), a cross-industry initiative founded by the American Association of Advertising Agencies (4As), Association of National Advertisers (ANA), and IAB.
- MRC's efforts related to the 3MS principles has produced <u>Desktop Viewability Guidelines</u>, <u>Mobile Viewability Guidelines</u> (with <u>Viewability Data Analysis Addendum</u>), <u>Invalid Traffic (IVT) Detection and Filtration Guidelines</u>, <u>Social Media Measurement Guidelines</u>, as well as the public comment draft of <u>Location-Based Measurement Guidelines</u>.
- MRC is currently engaged in iterating through the final phases of 3MS including drafting digital audience-based measurement and cross-platform measurement standards as well as work in engagement and ad effectiveness.
- MRC's effort along with the MMTF to update the existing <u>IAB Video Ad Impression Measurement</u> <u>Guidelines</u> is currently under review.

Additional information about MRC can be found at mediaratingcouncil.org.