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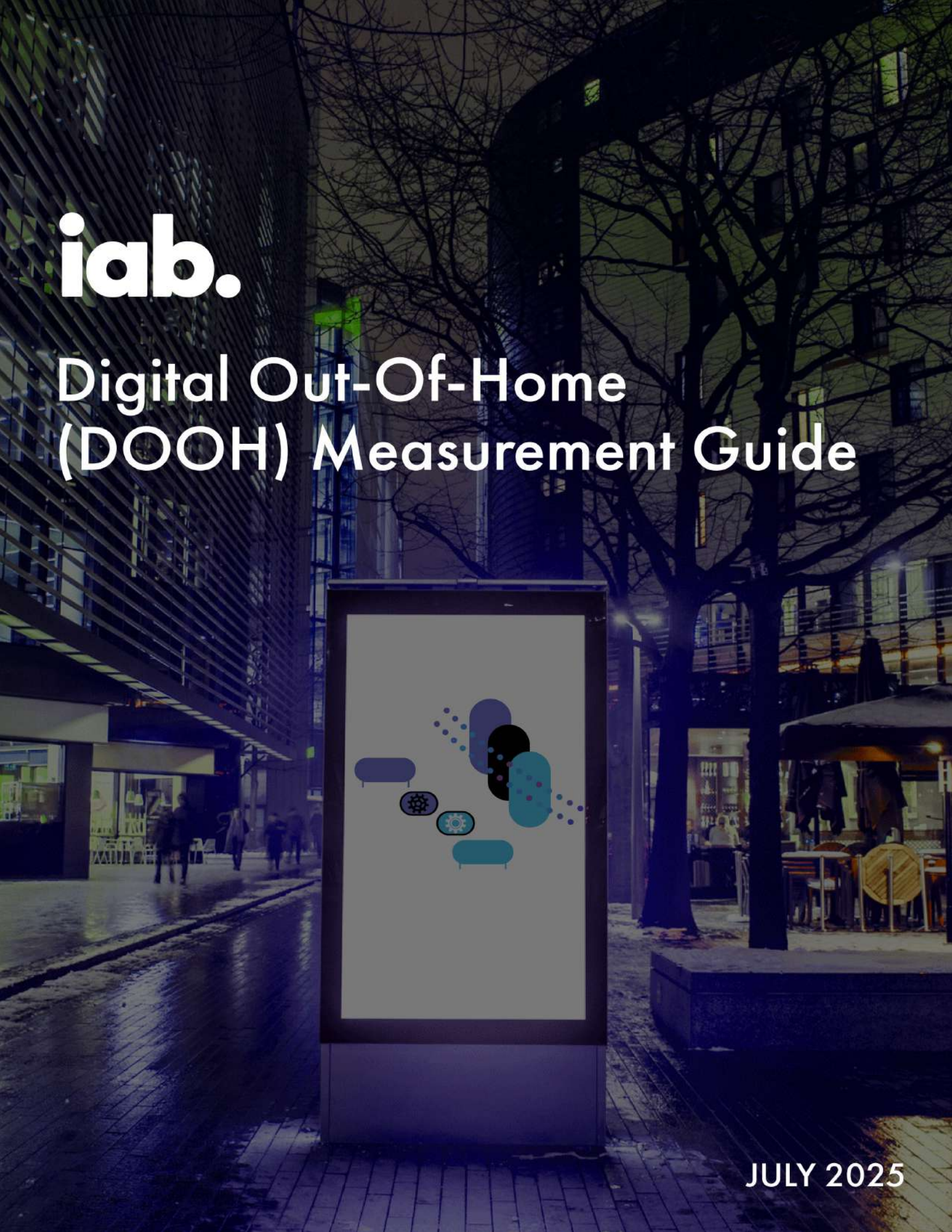
Digital Out-Of-Home (DOOH) Measurement Guide



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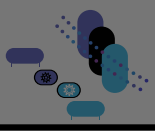


Table of Contents

Introduction ..... 3.

Data Collection, Processing, and Quality Control ..... 6.

Audience Measurement and Metrics ..... 9.

Ad Delivery and Viewability ..... 12.

Reporting, Transparency, and Privacy ..... 16.

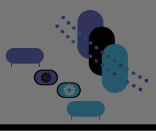
Measurement in Unique DOOH Environments (Venue Subcategories) ..... 19.

Attribution and Outcome Metrics ..... 22.

Best Practices for Incrementality Measurement ..... 23.

Best Practices for Cross-Channel Integration ..... 25.

Challenges and Opportunities in DOOH ..... 26.



Introduction

According to the OAAA, in 2025, Digital Out-of-Home (DOOH) is a $3 billion market in the U.S., growing at a steady rate of 7.5% year over year. eMarketer forecasts that programmatic DOOH is accelerating even faster, growing 34% in 2024 and projected to rise another 23% in 2025, reaching an estimated $1.25 billion, out of the total DOOH market, by 2026. As DOOH becomes a larger part of omnichannel strategies, the need for clear, consistent, and actionable measurement has intensified.

Why This Guide?

Despite DOOH's rapid growth and increasing integration into digital campaigns, measurement practices remain fragmented, inconsistent, and often misunderstood. This guide was created to bring clarity to the landscape, helping the industry align on common definitions, expectations, and standards for evaluating performance, audience engagement, and effectiveness in DOOH advertising.

Who Is This Guide For?

This guide is intended for advertisers, agencies, media owners, technology providers, and data partners involved in planning, buying, selling, or measuring DOOH media. This guide can serve as a starting point for those wishing to learn more about Digital Out-Of-Home. From someone new to the DOOH space to the most seasoned veteran, this guide gives an overview of measurement from collection of data to calculating impressions through attribution, incrementality, and cross-channel measurement. The guide describes concerns and issues facing the DOOH industry today. While the challenges can prove daunting, this guide provides some best practices on how some of the leading companies address these issues.

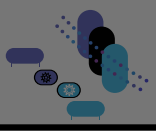
What's in This Guide?

This guide details the best practices and current methods for determining DOOH measurement. It also includes practical recommendations, use cases, and current industry practices to help buyers and sellers make more informed decisions. The guide offers a comprehensive overview of the key components of DOOH measurement from collecting and processing data to definitions and calculations to reporting and the different types of measurement.

More elaborate descriptions of Retail Media and Retail DOOH can be referenced in IAB's 2024 In-Store Retail Media: Definitions and Measurement Standards.

What's Not in This Guide?

This guide does not provide media planning tools, vendor endorsements, or technical implementation specifications. It also does not dictate proprietary methodologies or attempt to standardize creative formats, pricing models, or individual performance benchmarks. Instead, it focuses on establishing a shared foundation to support transparency, consistency, and growth in DOOH measurement practices.



Executive Summary

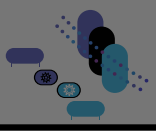
A standardized measurement framework is crucial to the Digital Out-of-Home (DOOH) industry for several reasons:

1. **Consistency Across the Ecosystem:** A common measurement approach ensures that advertisers, media owners, and agencies can compare DOOH performance uniformly, avoiding discrepancies in reporting.
2. **Credibility and Trust:** Standardized metrics increase confidence in DOOH advertising, helping advertisers trust the reported numbers and justify their investment.
3. **Cross-Channel Comparability:** DOOH is often part of an omnichannel strategy. A universal framework allows it to be measured alongside TV, digital, social, and mobile, improving integration and attribution.
4. **Better Audience Targeting & Attribution:** Unified measurement helps advertisers understand who saw their ads, where, and for how long—leading to improved targeting and ROI tracking.
5. **Programmatic & Automation Growth:** As programmatic DOOH grows, having a standardized way to measure impressions, engagement, and outcomes makes automated buying more efficient and scalable.
6. **Regulatory Compliance & Privacy:** A structured framework ensures adherence to privacy laws like GDPR and CCPA, balancing effective measurement with consumer data protection.
7. **Driving Industry Growth:** When buyers and sellers align on measurement standards, DOOH becomes more transparent, scalable, and attractive to larger ad budgets, accelerating industry adoption.

Key Buy-side Takeaways

Purchasing Digital Out-of-Home (DOOH) media requires a strategic approach to ensure maximum impact, accurate measurement, and alignment with business objectives.

1. **Understanding DOOH Formats & Inventory:** DOOH offers a variety of formats that cater to different environments and audience behaviors. There are many formats to choose from and should be selected based on audience behavior, location, and campaign goals.
2. **Audience Targeting & Data-Driven Buying:** DOOH targeting is increasingly data-driven, leveraging various sources for precision. Combine location indexing with audience segmentation for maximum effectiveness.
3. **Measurement & Attribution:** Understanding how DOOH is measured ensures accurate performance tracking. Use independent verification, reporting and attribution sources, where available like Geopath, Vistar, or Veridooh for proof-of-performance validation.

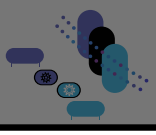


4. **Buying Models: Direct vs. Programmatic DOOH:** Buyers can acquire DOOH inventory through different channels. Programmatic DOOH allows for dynamic creative optimization and real-time adjustments based on audience data.
5. **Compliance & Privacy Considerations:** Must adhere to data protection regulations to ensure consumer trust.
6. **Cost Considerations & ROI Optimization:** Start with test campaigns to determine optimal spend before scaling.
7. **Innovations & Future Trends:** Stay updated with industry advancements to leverage new capabilities.

Key Sell-side Takeaways

Selling DOOH successfully requires a deep understanding of audience measurement, inventory management, programmatic capabilities, and advertiser expectations. Below are the key factors that DOOH sellers—media owners, network operators, and platforms—must focus on to attract buyers and maximize revenue.

1. **Maximizing Inventory Value & Demand:** Sellers need to optimize their inventory to appeal to advertisers. Implement dynamic pricing models based on demand, time of day, and audience density.
2. **Enhancing Measurement & Proof of Performance:** More advertisers are demanding transparency in ad delivery and impact measurement
3. **Expanding Programmatic & Automated Buying:** Programmatic integration can expand reach to advertisers looking for omnichannel solutions.
4. **Addressing Advertiser Concerns & Compliance**: To attract more buyers, sellers should ensure transparency and industry self-regulated compliance programs, where available. Being MRC-certified and following IAB best practices enhances credibility with advertisers.
5. **Optimizing Pricing Models & Revenue Growth:** Sellers must structure pricing to attract buyers while maximizing profitability. Provide customized packages for brands looking for integrated omnichannel strategies.
6. **Innovating with Technology & New Formats:** To stay ahead, DOOH sellers should embrace emerging trends. Advertisers prefer tech-driven, data-backed solutions that offer measurable ROI.
7. **Educating Buyers & Strengthening Sales Strategy:** Sellers should help advertisers understand the value and effectiveness of DOOH. Demonstrating DOOH's role in omnichannel marketing helps secure bigger ad budgets.



Chapter 1: Data Collection, Processing, and Quality Control

Digital Out-of-Home (DOOH) advertising has evolved into a data-rich, dynamic medium powered by an array of technologies that allow advertisers to measure and optimize campaigns with increasing precision. This chapter outlines how data is collected, processed, and validated in the DOOH ecosystem, while emphasizing the importance of privacy compliance and data integrity.

Sources of DOOH Data

Beyond traditional vehicular and pedestrian data, DOOH data is derived from a range of sources that collectively offer a multidimensional understanding of audience behavior and ad performance.

- Sensor Based Detection
- Mobile Data Integration
- Wi-Fi Signals
- Survey & Panel Data
- Interactive Data

Mobile Data Integration

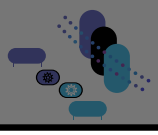
Aggregated, privacy-compliant mobile location data from smartphones and apps helps build a more granular view of behavioral patterns. Mobile Advertising IDs (MAIDs), app usage patterns, and device movement histories contribute to understanding where audiences go before and after encountering a DOOH screen, offering insights into attribution and pathing. Technologies like Bluetooth and Near Field Communication (NFC) further enrich proximity-based tracking and enable short-range engagement measurement.

Wi-Fi Signals

Public and private Wi-Fi networks provide another non-intrusive data source. Devices that probe for or connect to Wi-Fi networks emit signals that can be used to estimate dwell time, movement patterns, and repeat visits. When paired with login data—such as those from retail stores, transit hubs, or public areas—Wi-Fi analytics become a powerful tool for understanding audience density and engagement, especially in indoor environments.

Sensor Based Detection

AI-enabled cameras, motion sensors, and thermal imaging devices provide insights into foot traffic volume, dwell time, and inferred audience demographics without capturing any personal identifiers. These sensors can be embedded into screens or the surrounding environments and serve as the foundation for impression measurement. The growing deployment of Internet of Things (IoT) infrastructure in urban smart cities enhances these capabilities by adding layers of real-time environmental and transit data.



Survey and Panel Data

Surveys remain a vital source of qualitative data, capturing direct audience feedback related to ad recall, sentiment, and brand perception. When integrated with behavioral data, surveys offer critical context that helps validate assumptions and uncover the "why" behind observed trends. Some DOOH networks also incorporate opt-in mobile panel data to compare perceived versus actual engagement.

Interactive Data

Retail transactions, travel bookings, gym check-ins, healthcare appointments, and transit card swipes are all examples of first-party data that add behavioral depth to the datapool. These data sources, when anonymized and aggregated, help connect DOOH exposures to downstream actions, supporting attribution modeling and campaign ROI analysis. Partnerships with retailers, transportation authorities, and commercial data providers enhance the precision of these datasets by enabling linkages.

Data Handling for Physical Ad Placements

DOOH data processing is built on responsible and efficient methods that ensure relevance and consumer privacy.

- Anonymization
- Real-Time Processing
- Regulatory Compliance

Anonymization and aggregation are foundational, protecting individuals by stripping personally identifiable information before use.

In some cases, real-time processing enables immediate response to audience presence, facilitating adaptive ad placements. Contextual targeting aligns content with situational factors like weather or time of day, while predictive analytics uses AI to forecast audience behaviors, enhancing campaign planning and efficiency.

Regulatory compliance is essential in data management. Under the General Data Protection Regulation (GDPR), only essential data may be retained, and explicit consent is required for tracking. California Consumer Privacy Act (CCPA) gives consumers control over their data, mandating transparency and deletion rights. Secure storage and encryption are industry norms, and local regulations may further govern data residency or sector-specific usage, such as in healthcare. These practices ensure data is both useful and responsibly managed.

Data Quality Checks and Monitoring

The reliability of DOOH metrics hinges on data accuracy and consistency. To ensure quality, the industry should use automated validation tools, real-time monitoring, and machine learning for anomaly detection. Data can then be cross-checked with trusted third-party sources, such as Geopath, ComScore, and PlaceIQ to further ensure integrity. These measurement organizations need verification against Ground Truth sources. Ground Truth sources are the most accurate, empirical data available about a real-world event or condition, used as a benchmark to verify the accuracy of other data sets, models, or predictions.

Compliance with Media Rating Council (MRC) standards: *MRC Out-of-Home Measurement Standards Phase 1* and the use of independent auditors bolster trust across the ecosystem. Fraud detection and error prevention mechanisms are embedded in these systems, underscoring the industry's commitment to transparency and accountability.

(Note: MRC OOH Measurement Standards Phase 2 to be released in 2025 and should be included with Phase 1.)

Measurement Providers, Audit Firms, and Accreditation

Measurement providers generate and supply the actual performance data—such as impressions, reach, dwell time, screen uptime, and audience demographics—for DOOH campaigns. Collect data using sensors, mobile device IDs, cameras, geolocation, or panel-based inputs. They model audience data using algorithms and extrapolations and provide advertisers and media buyers with performance reports.

- **Quividi:** Uses camera analytics to measure actual viewers and dwell time.
- **Geopath:** Provides audience measurement across OOH formats, using mobility and demographic data.
- **PlaceIQ, Vistar Media, Broadsign, AdMobilize:** Use mobile/location data and contextual signals for DOOH campaign analytics.

Auditing is the process of independently reviewing and verifying that a DOOH media owner or measurement vendor's data and systems accurately report performance metrics like impressions, screen uptime, ad play duration, etc. Audits are conducted by third-party firms (i.e., Alliance for Audited Media, Deloitte). They typically focus on data integrity, transparency, and compliance with stated industry guidelines, methodologies, systems and processes. Can be one-time or periodic (e.g., quarterly or annually). Ensures things like: Ads actually played when claimed, the measurement system captures correct data (e.g., impression counts), and that hardware and software functioned properly.

Accreditation is a formal certification process in which (e.g., Media Rating Council (MRC)) evaluates and approves the methodology and procedures of a measurement provider as meeting established industry guidelines and standards. Involves ongoing scrutiny, including: methodology review, system architecture assessment, data processing techniques, and privacy compliance. Accreditation requires transparent documentation and be routinely updated to maintain status. Accreditation is voluntary but highly respected.

Preventing Invalid Traffic and Validating Proof of Performance

Data integrity is further protected through techniques that identify and eliminate invalid traffic. Bot detection filters non-human activity, while systems for signal deduplication and anomaly detection guard against inflated metrics.

Verification partners such as IAS and DoubleVerify provide independent validation of campaign data, ensuring alignment between reported impressions and actual delivery. Major SSPs now support real-time proof-of-performance reporting, assuring advertisers that campaigns are running as intended and measured accurately.

Together, these systems create a robust, transparent framework that ensures DOOH advertising remains trustworthy, measurable, and effective in a data-driven media environment.

Chapter 2: Audience Measurement and Metrics

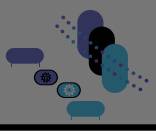
Digital Out-of-Home (DOOH) Measurement Definitions

To evaluate campaign effectiveness in DOOH advertising, brands rely on several core metrics that help quantify exposure, engagement, and audience behavior.

- **Impressions - OTS, LTS, and Audience:** Detailed in Chapter 3: Impression Multipliers
- **Viewability**
- **Presence of Person:** Detailed in Chapter 4
- **Transparent Methodology:** Mentioned in Chapters 1 & 9
- **Fraud Filtration**

At the heart of these is **Impressions**, which indicate the potential number of times an ad could be seen. The industry distinguishes between different types of impressions based on how exposure is estimated. At the top of the funnel is the **Gross Impression** that requires Ad Play, Functional Display, and presence in the Exposure Zone

Opportunity to See (OTS) Impressions add in viewability requirements. OTS impressions count everyone who passes within the Exposures Zone of a screen, representing potential exposure without confirming actual viewership. **Likelihood to See (LTS) Impressions** go further, requiring that individuals be in the display's Exposure Zone when the screen is active and viewable—often supported by sensors or tracking mechanisms that can identify demographics but don't capture Personally Identifiable Information (PII). **Audience Impressions** are a refined subset of LTS, incorporating additional criteria to better reflect actual viewing.These criteria, to be finalized under Phase 2 of the MRC's OOH Standards in 2025. Once these standards are established, LTS data will need to be adjusted to represent the portion of viewers who most likely consumed the content. This adjustment can be through algorithms, models, projections or through deterministic measurement.



Unique reach reflects the total number of distinct individuals exposed to an ad over a period, removing duplicate impressions through spatial and temporal analysis, time decay rules, and cross screen mapping. This provides a truer picture of a campaign's breadth. Reporting reach and frequency in alignment with other media standards enables direct comparison and supports cross-channel evaluation. While **frequency** is defined as the average number of times an individual is exposed to an advertisement.

Dwell Time is the length of time spent by an individual or the audience in the "Display Exposure Zone".

Engagement includes both active and passive interactions—such as scanning a QR code or being detected via gaze tracking—and post-exposure behaviors like visiting a store or engaging online.

Together, these metrics form a multi-dimensional framework for assessing DOOH performance, guiding advertisers in refining creative strategies and placement for greater effectiveness.

Attention Metrics

IAB and MRC's Attention Measurement Guidelines, offer a standardized framework for evaluating attention in advertising. Companies measuring attention in DOOH environments should carefully review these guidelines and select the metrics and dimensions most relevant to their measurement capabilities. In addition to camera or sensor-based detection (such as dwell time, gaze duration, and interaction rates), the guidelines outline that user behavior and interactions can also be measured via data signal methods. Examples include impression-level data such as time-in-view, interaction-based triggers, and other passive signals that indicate engagement with DOOH displays.

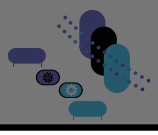
Survey and panel-based approaches are also recognized, providing valuable insights such as ad recall, brand recognition, and self-reported engagement. As the guidelines continue to evolve, DOOH measurement providers are encouraged to align with these standards to ensure clarity, consistency, and trust in reported attention metrics.

Each attention provider may have varying approaches for measuring attention for OOH. For example, companies such as Adelaide and The People Platform approach DOOH attention tracking through different lenses.

Adelaide uses an omnichannel metric called the Attention Unit (AU), which predicts the likelihood of capturing viewer attention based on machine learning that evaluates variables like ad size, duration in view, and visual clutter. This metric is designed for consistency across media platforms, including DOOH.

The People Platform, on the other hand, focuses exclusively on DOOH and aligns its metrics with video impression standards. It provides insights such as notice rates and dwell time to gauge attention and viewer engagement.

Both platforms emphasize data-driven insights into attention, but Adelaide takes a broader, cross-channel approach, while The People Platform offers DOOH-specific depth tied to video metrics.



Types of Audience Segmentation

Effective DOOH measurement depends on integrating different types of audience data: demographic, geographic, and behavioral. Demographic data enables broad but less timely segmentation, typically drawn from age, gender, and income. Geographic data leverages location intelligence like geofencing and foot traffic patterns for highly contextual targeting. Behavioral data offers predictive value by analyzing habits, purchase history, and app usage, though it poses privacy and accuracy challenges.

Demographic Data Integration

This method aligns well with traditional media, allowing consistent benchmarking across channels. It draws from third-party providers to enrich audience profiles. However, demographic attributes don't always reflect real-time intent and are increasingly constrained by privacy laws like GDPR and CCPA.

Geographic Data Integration

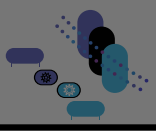
Using mobile location data and traffic patterns, geographic data helps advertisers optimize ad placements in contextually relevant environments. It supports real-time visibility into audience movement but is dependent on the accuracy of data sources and compliance with privacy regulations.

Behavioral Data Integration

Behavioral targeting relies on inferred interests and intent, enabling personalization and omnichannel retargeting. It enhances attribution models but is heavily dependent on data partnerships and subject to consent regulations. The data is also often inferred rather than observed, limiting its real-time reliability.

Cross-Device and Cross-Channel Audience Overlap

To measure how DOOH exposure relates to other digital touchpoints, advertisers use several methods. **Mobile location data matching** tracks post-exposure behavior by connecting mobile signals to ad interactions. **Device graphs and identity resolution** link multiple devices to a single user, using deterministic (logins) or probabilistic (behavioral patterns) matching. **Automatic Content Recognition (ACR)** and **CTV data matching** use smart TVs to track ad viewership and link it back to DOOH exposure, offering insights into multi-screen journeys.



Panel-based surveys and **brand lift studies** offer qualitative feedback on recall and sentiment, though they rely on self-reported data. **Attribution models** and **multi-touch tracking** use timestamped exposure data to trace the impact of DOOH within the broader digital conversion path.

Pros and Cons: Audience & Behavioral Data vs. Location Indexing

Audience and behavioral data offer deep targeting and post-exposure insights, ideal for driving intent-based messaging. However, they are heavily regulated and may lack precision due to reliance on inferred data.

Location indexing, by contrast, provides real-time, context-aware targeting with fewer privacy risks. Location indexing still requires a variable by which it is indexed. In almost all situations that is behavioral, demographic or psychographic data. Yet, it doesn't offer insight into intent or guarantee that an ad was viewed.

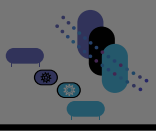
Most advertisers find that combining both approaches—using location indexing for placement and behavioral data for targeting and measurement—yields the best results.

The future of DOOH measurement lies in combining these diverse methods and metrics, integrating accurate exposure data, attention insights, and cross-channel connections which is incumbent on the buyer, client or agency, to request. As standards evolve and privacy considerations shape data usage, advertisers must strategically balance precision, scale, and compliance to fully leverage the power of DOOH advertising.

Chapter 3: Ad Delivery and Viewability

Guidelines for Calculating Valid Impressions Across DOOH Formats

Calculating impressions in Digital Out-of-Home (DOOH) advertising varies significantly by format, static, digital, and interactive, with each requiring specific methodologies. Static formats rely on traffic or pedestrian counts, adjusted by visibility factors (i.e.; size of the display, angle of the display and distance from the display). Digital formats go further, dividing that exposure by an ad's share of time within a loop and refining results through viewability adjustments. For digital static and video, dwell time is factored into the calculation. Interactive formats combine baseline impression estimates with verified engagements such as QR scans, screen touches, or AR triggers. Adherence to industry standards, such as those from the Media Rating Council (MRC), and reported by Geopath, PerView, and supply-side platforms (SSPs) or other measurement entities.



Guidelines for Calculating Valid Impressions – Static DOOH

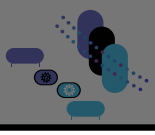
The primary required metric for static DOOH is based solely on the visual component, specifically, the area where exposure to the display can be determined, known as the Visual Exposure Zone. This means impressions should be counted only when there is a reasonable opportunity for the display to be seen, regardless of whether audio is present.

METRIC TYPE	DESCRIPTION
Location Traffic	Counts the presence of people at or near the display location.
Gross Impressions (Rendered)	The # of ad exposures where presence in the defined Display exposure zone exists while the display is functional. Impressions are duplicative and do not represent a unique count.
Viewable Impressions (OTS)	"Opportunity to See" impressions—when a person is present in the exposure zone, the display is functional, and a viewability condition exists.
Likelihood-to-See Impressions (LTS)	Further refinement of OTS by providing evidence that the content or ads were noticed or seen.

Impression Multiplier:

In static DOOH, impressions are not simply a count of ad plays. Instead, an **impression multiplier** is applied to account for the average number of people present in the display's viewing range during each play. The multiplier is derived from real-world audience data, such as foot traffic, dwell time, and presence within the exposure zone.

STEP	REQUIREMENT/GUIDELINE
Visual Exposure	Only count impressions where the display is viewable in the exposure zone
Presence	Human presence in the exposure zone must be established (via data or sensors)
Impression Multiplier	Apply a multiplier based on validated exposure data (traffic, dwell time, etc.)
Reporting	Report visual-only impressions as the required metric; other metrics are optional



Valid impressions for static DOOH under the MRC guidelines are calculated by multiplying the number of ad spots by a respective data-driven impression multiplier, reflecting the number of people present in the visual exposure zone during each display. Only visual exposure is required for reporting, and all calculations must be based on validated, privacy-compliant exposure data. The MRC guidelines reference IAB measurement principles, which require that impressions meet minimum exposure thresholds (e.g., 50% of pixels in view for at least 1 second for display ads), but these are more directly applicable to digital/web environments and are adapted for DOOH contexts which make them more comparable to other digital impressions.

Guidelines for Calculating Valid Impressions – Digital DOOH

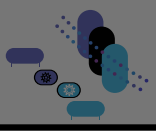
Digital DOOH formats, such as rotating digital billboards and programmatic screens, start with similar impressions but incorporate ad slot share to reflect the portion of time a specific ad is in view. A 60-second loop with six ads, for instance, allocates each ad one-sixth of total exposure. Additional adjustments come from viewability metrics and LTS factors informed by empirical data including eye-tracking studies and historical engagement patterns.

Programmatic DOOH systems use real-time bidding and audience verification logs from platforms like Vistar or Broadsign to further refine delivery accuracy. Methodologies should ensure that these impressions are auditable and transparent. It is important to know the method by which ads or content are displayed, and the time at which they appear, so that proper accounting can occur when measuring and reporting on content, ad content, or individual ad units.

The use of a Loop is not required and is not relevant in a pure ad serving environment where ads are served dynamically, with varying times and content associated with them. Average Ad Segment Impressions requires measurement of the respondent's Dwell Time during exposure to the Display, which then needs to be considered in context of the advertising within the Loop, and the Loop frequency. In order to be reported as Ad Impressions, Dwell Time estimates must be restricted to those periods during which ad content is viewable, otherwise reporting is restricted to general impressions.

Guidelines for Calculating Valid Impressions – Interactive DOOH

Interactive DOOH, encompassing touchscreens, QR codes, and motion-triggered displays, begins with the standard impression count used in digital formats but includes an engagement layer. Verified actions—touches, scans, motion triggers—are treated as Action Impressions and enhance the value of exposure. Technologies such as eye-tracking, sensor-based tracking, and app-based engagement provide measurement granularity, while surveys fill gaps where direct tracking is not feasible. These interactions offer a more nuanced picture of ad effectiveness, particularly in high-dwell environments like kiosks or retail spaces.



Unique Challenges in Counting DOOH Impressions & Solutions

DOOH operates in complex, real-world environments where direct measurement is often not possible. Challenges range from weather interference and lighting conditions to physical obstructions and inconsistent mobile data. Environmental issues like glare or fog reduce ad visibility, requiring adaptive technologies such as screen brightness controls and weather-adjusted models. Structural challenges—including obstructions or fast-moving audiences—necessitate tools like AI-based visibility modeling, camera-based dwell time analysis, and 3D simulations. Data-related issues, like unreliable GPS signals or indoor tracking limitations, are addressed using triangulation, heat mapping, and probabilistic modeling.

Although DOOH is generally less susceptible to typical digital ad fraud like bots and ad stacking, because ads are physically displayed in real-world locations subject to physical blockage, fraud can still occur, particularly in programmatic DOOH, where transactions are automated and inventory is bought via digital platforms. Some DOOH inventory suppliers may report invalid traffic or fake impressions, though such cases are rarer than in other digital channels. Inflated or spoofed location signals can misrepresent where ads are displayed, misleading advertisers about campaign reach and effectiveness.

Ensuring Accurate Ad Visibility Measurement in DOOH

The MRC plays a central role in standardizing what counts as a valid, viewable impression. Key criteria include minimum on-screen duration, full ad rendering, and contextual variables like lighting or obstructions. Visibility metrics must be calibrated to reflect real-world conditions, ensuring that impression counts truly represent audience exposure. Physical positioning, dwell time, and viewer sightlines are integral to this process.

Enhancing DOOH Measurement with AI & Sensors

Emerging technologies like AI and environmental sensors are advancing DOOH measurement capabilities. Gaze detection, motion sensing, Bluetooth beacons, and facial detection (with privacy compliance) help determine exposure duration and user proximity. These tools enable dynamic adjustments to impression models based on lighting, foot traffic, and audience behavior. Calibration processes ensure accuracy by reconciling digital sensor data with environmental factors. MRC standards require such methodologies to be auditable and privacy-compliant, enabling advertisers to derive meaningful, responsible insights from these innovations.

Validating DOOH Metrics with Audience Surveys

Audience surveys remain a foundational tool for verifying ad visibility and recall. These can be conducted on-location or post-exposure through online panels, helping contextualize impression data with human insight. By measuring both awareness and memory, surveys validate whether the ad had real-world impact. To meet MRC standards, survey samples must be randomized and statistically representative, and findings should complement digital tracking for a cohesive measurement framework. This integration helps bridge the gap between estimated reach and actual audience engagement, creating a more reliable basis for campaign performance evaluation.

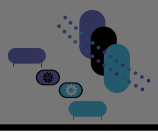
Chapter 4: Reporting, Transparency, and Privacy

Reporting Standards

Digital Out-of-Home (DOOH) advertising relies on a robust framework of metrics to evaluate campaign performance, assess audience impact, and inform optimization strategies. These metrics are guided by standards from the Media Rating Council (MRC) to ensure consistency and reliability across the industry. At the heart of the MRC's DOOH standards is a set of precise measurement definitions that establish the basis for consistent and comparable reporting. These definitions delineate the various types of exposure zones, impression counts, and engagement metrics that underpin DOOH campaign evaluation and are referenced in Chapter 2 of this document.

The MRC standards mandate the reporting of certain core metrics while allowing for the inclusion of optional, clearly labeled supplemental metrics. The required reporting metric for display OOH is the measure associated with the visual component only, ensuring consistency and comparability across different media types and environments

A central tenet of the MRC standards is the accurate counting and validation of impressions—the fundamental unit of measurement in DOOH advertising. The standards require that impression counts be based on validated methodologies that account for the location, orientation, and characteristics of the display inventory, as well as the activity and movement patterns of the surrounding audience. Validation extends to the external data sources used in impression estimation, with periodic internal and external audits mandated to ensure ongoing accuracy and reliability.



Operational, Disclosure, and Quality Assurance Requirements

Beyond the technical definitions and metrics, the MRC standards impose rigorous operational, disclosure, and quality assurance requirements on measurement organizations and media suppliers. These requirements are designed to promote transparency, accountability, and continuous improvement in measurement practice.

Other Measurements: Demographic, Behavioral & Engagement

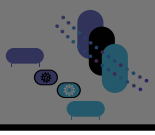
Beyond impressions and exposure, advertisers increasingly rely on demographic and behavioral data to tailor campaigns. Tools such as mobile tracking, AI-powered facial detection, and platforms like Geopath or Quividi provide aggregated insights into viewer age, gender, income, and interests. Engagement metrics assess how viewers interact with DOOH content, including gestures, touch interactions, QR code scans, and digital follow-up actions such as app downloads or retargeted ad responses. Conversion metrics go further by linking exposure to business outcomes, including store visits (footfall attribution), online behaviors, or increases in sales performance. Another critical indicator is Share of Voice (SOV), calculated by dividing a brand's ad duration by the total available ad time, providing a clear measure of a brand's presence within a DOOH network.

Data Privacy and Transparency

In DOOH, maintaining privacy and fostering public trust are just as essential as campaign performance. As these ads operate in public and semi-public spaces, adherence to privacy regulations like GDPR, CCPA, and CPRA should be non-negotiable. Advertisers should blend legal compliance with transparent and ethical data practices.

Limit Personal Information Collection

DOOH campaigns must carefully account for privacy requirements in the jurisdictions where they operate. It's important to assess whether any personal information—such as names or device identifiers—is collected with the legally required notice and consent. In some jurisdictions, collecting sensitive personal information (SPI) requires affirmative opt-in consent, which can create challenges when inferring SPI from seemingly non-sensitive data. Additionally, certain technologies like facial detection or recognition may trigger heightened legal obligations, even if they don't identify individuals directly. Finally, precise geolocation data is often subject to stricter legal requirements, so the collection and use of movement data should be carefully evaluated for compliance.



Obtain Consent Where Required or When Possible

Whenever DOOH screens interact with devices via Bluetooth, Wi-Fi, or QR codes, opt-in consent should be secured. Clear signage near DOOH installations must disclose what data is collected and why, while also providing users with easy opt-out mechanisms, such as web portals or mobile app settings.

Use Aggregated & Anonymized Data for Audience Measurement

All data used for audience measurement should be aggregated and non-identifiable. When leveraging mobile location data, advertisers must ensure that it is fully de-identified. Working with partners who comply with privacy standards set by bodies like IAB and Network Advertising Initiative (NAI) is key.

Comply with Local & Global Privacy Laws

Global and regional regulations provide clear mandates: GDPR requires explicit consent for personal data use and grants opt-out rights, while CCPA and CPRA extend similar rights to California residents. DOOH advertisers must stay current with local regulations to ensure cross-jurisdictional compliance.

Implement Data Retention & Security Policies

DOOH data should only be retained for necessary periods—typically 30 to 90 days—and must be encrypted both in storage and transit. Access should be restricted to authorized personnel, with audit logs in place to monitor access history.

Use Privacy-Friendly Technologies to Minimize Risks

Advertisers should adopt technologies that enhance privacy. Edge computing allows data to be processed locally rather than sent to centralized servers. AI-driven anonymization techniques can mask or blur identifiable features. Contextual targeting—based on time, weather, or location - is a privacy compliant method to deliver more relevant messaging to resonate with consumers.

Ensure Third-Party Vendors Follow Privacy Standards

When using third-party technology providers, advertisers must ensure that these vendors adhere to privacy laws and maintain high compliance standards. Vendors should offer documented audit trails and industry certifications such as ISO 27001 or SOC 2 to demonstrate their data protection protocols.

Educate Consumers & Provide Transparency

Building trust requires clear communication. Advertisers should publish privacy policies on or near DOOH screens or offer them through QR codes. A dedicated web portal can help users understand how their data is used and how to exercise their rights. Regular privacy audits should also be conducted to remain aligned with evolving regulations.

Chapter 5: Measurement in Unique DOOH Environments (Venue Subcategories)

Challenges in Capturing Metrics

Measuring audience engagement in Digital Out-of-Home (DOOH) advertising environments is complex due to challenges such as privacy regulations and the unique environmental conditions where these ads appear. DOOH operates in public spaces with dynamic movement patterns, unlike online channels where metrics are captured in controlled ecosystems. Effective measurement requires an integrated approach combining mobile location data, and audience modeling—all while respecting privacy frameworks like GDPR and CCPA.

Outdoor Screens: High Traffic Areas

High-traffic zones such as city centers, transit hubs, and commercial districts pose unique challenges to calculating exposures to DOOH. Understanding DOOH exposure and viewability requires understanding how audiences move through the real-world with consideration of their speed, viewing angles, dwell times, distractions and obstructions. Measuring these dynamic variables can be accounted for with the use of curated viewsheds and visibility adjustment methods like eye-tracking or computer vision.

Outdoor Screens: Attention & Metrics Challenges

Attention measurement in DOOH factors in dwell time (based on the environment of the consumer, e.g., on foot or in a vehicle), the type of digital execution (e.g. leveraging full motion video or digital arrays), the size of the display/screens, impactful creative and messaging, and the use of QR codes or other interactivity such as AR. Engagement can be further enhanced through frequency which offers repeat exposures and engagement opportunities. DOOH uses anonymized mobile location signals and advanced audience modeling to estimate reach and frequency more reliably due to its lack of persistent identifiers like cookies.

Attribution in Outdoor DOOH

The ability to correlate DOOH exposure with changes in awareness or changes in behavior has positively impacted DOOH attribution allowing advertisers to understand a variety of brand health and lower funnel metrics (such as footfall, web visitation and app download). Attribution measurement companies are encouraged to follow the OAAA's DOOH Exposure Guidelines which provide a standardized exposure framework for DOOH measurement (i.e., geofences around DOOH locations). Through this process attribution measurement companies can collect MAIDs, verify exposure to the DOOH ads and correlate that exposure with changes in awareness or behavior.

Privacy in Outdoor DOOH

Most DOOH measurement leverages aggregated and anonymized mobile location data to determine standard metrics such as Impressions, Reach, Frequency, GRPs and TRPs. Audience metrics are collected separately and are correlated to the mobile location data at the home block group level ensuring that no PII data is exposed or shared.

Attribution companies such as MFour, who primarily focus on brand lift studies, are able to stay compliant with privacy laws because they use their national opt-in panel, and only panelists who allow their locations to be tracked can participate in DOOH attribution studies.

For Behavioral outcomes such as footfall or website visitation, companies such as Reveal Mobile, collect MAIDs which are not tied to any personal information as a way to track and verify DOOH exposure.

Environmental and Technical Limitations

Beyond audience behavior, the physical environment poses real-world obstacles. Weather conditions, lighting, obstructions, and screen malfunctions can all degrade visibility and disrupt measurement tools, especially those relying on camera-based analytics. The best mitigation strategy is redundancy—combining multiple measurement methods (such as mobile and sensor-based analytics) to fill in data gaps and adjust for variable conditions.

Moving DOOH: Metrics and Challenges

Measurement becomes even more complex when DOOH moves—such as ads displayed on taxis, buses, and rideshare vehicles. These formats can be split into exterior and interior categories, each with its own set of metrics and use cases.

Exterior moving DOOH (e.g., bus wraps, truck-side ads) is designed for broad reach and high impact, but can struggle with short dwell times and inconsistent viewability. Metrics like impressions are modeled using traffic data, GPS-based movement, and mobile location analysis. However, exposure is highly variable depending on vehicle speed, obstructions, and route patterns.

Interior moving DOOH (e.g., screens in taxis or public transit) can provide longer dwell time and better opportunities for interaction. These formats benefit from a more captive audience and can measure engagement through QR code scans, touchscreen interactions, or app integrations. Attribution is easier in this case, particularly when integrated with ride-hailing platforms or loyalty programs.

Static vs. Moving DOOH

Static DOOH benefits from fixed placements and includes screens in malls, transit shelters, or along highways. They allow for predictable traffic modeling and more accurate impression measurement. They're also more compatible with geofencing and camera-based tools. Conversely, moving DOOH, buses, trains, taxis brings an opportunity to reach more widely in a market which increases visibility for an advertiser. Companies such as StreetMetrics and Reveal Media specialize in this type measurement.

Retail and Venue-Based DOOH

Retail stores, stadiums, and airports present distinct engagement opportunities but require hybrid measurement strategies. These venues blend passive data collection—such as heatmaps, gaze tracking, and crowd analytics—with active interactions through touchscreens, QR codes, and mobile integrations. In retail environments, exposure can be linked to real-world conversions via POS systems or loyalty programs. In stadiums and arenas, DOOH ads often support sponsorship activations, measured through fan app interactions, proximity data, or participation in AR games and promotions.

Airports offer perhaps a rich venue for dynamic DOOH, given their high dwell times and captive audiences. Measurement here combines flight data, location tracking, and interactive screen engagement, with ads often tailored to traveler profiles and departure destinations.

Linking DOOH to Point-of-Sale (POS)

One of the most impactful developments in DOOH measurement is the integration with POS data. This approach connects ad exposure to actual sales, whether in a retail store, stadium, or airport. The process begins with audience detection—using mobile geolocation, Wi-Fi tracking, or AI-powered sensors—and ends with transaction data from checkout systems. Companies such as Cardlytics, Addtribution and Circana can provide attribution through anonymized device IDs, loyalty card usage, promo code redemptions, or hashed credit card data.

This method provides actionable metrics such as sales lift, conversion rates, basket size, and coupon redemptions. Mobile geofencing is particularly useful for identifying store visits after exposure, while loyalty and CRM integration helps track repeat purchases. Promo codes offer direct, time-bound links to campaign performance, and payment processor partnerships allow for aggregated, privacy-compliant sales analysis.

Overcoming Attribution Challenges

While effective, DOOH-to-POS attribution faces hurdles like data fragmentation, delayed conversions, and compliance with privacy laws. These can be addressed by adopting hashed identifiers, using multi-touch attribution models, and building integrated ecosystems between DOOH networks and retail systems. As DOOH continues to evolve alongside digital advertising, this convergence of exposure data and conversion tracking is key to proving its value as a performance-driving channel.

Chapter 6: Attribution and Outcome Metrics

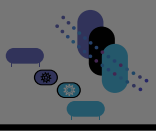
This chapter is a practical guide and tailored for media practitioners and advertisers using DOOH who need guidance on how to apply attribution in real-world campaigns without necessarily diving deep into the underlying modeling math. It outlines the methodologies for measuring the effectiveness of Digital Out-of-Home (DOOH) advertising through attribution and outcome metrics. It emphasizes the importance of aligning measurement strategies with campaign goals—whether those are store visits, online or offline purchases, or brand awareness—before launch, to ensure proper data collection and analysis. NOTE: If the underlying math is of interest, the MRC's *Outcomes and Data Quality Standards* (September 2022) or the IAB's *The Essential Guide to Marketing Mix Modeling and Multi-Touch Attribution* (November 2019) are good places to start.

Attribution Models

Attribution models for DOOH campaigns vary depending on the desired Key Performance Indicators (KPIs), such as store visits, purchases, or online conversions. Techniques like website conversion pixels can be used to track users who both viewed a DOOH ad and completed an online purchase. This approach requires integrating exposure records and user IDs in a privacy-compliant way. Offline sales may also be available by connecting mobile location data to POS systems. For offline impact, such as store visits, geo-fencing and mobile location data are used to connect ad exposure to in-store activity. Third-party providers can define store perimeters and match visit logs to exposure records. When the objective is brand awareness, pre- and post-campaign brand lift studies or match market methodologies—sometimes with vendors like Nielsen—are used to assess impact.

Time Decay Models and Attribution Windows

Attribution windows vary widely by category, depending on how long it typically takes a consumer to make a purchase decision. For instance, impulse decisions like fast food purchases require a shorter attribution window than longer-consideration items like electronics. It is recommended to start with attribution windows similar to those used in other media channels and refine them based on data, particularly if there is notable drop-off in conversions over time that is specific to DOO.



Outcome Metrics

Effective measurement of DOOH outcomes includes combining various data sources and establishing control groups to isolate the campaign's true impact. Outcome metrics cover actions taken, foot traffic, and sales, and can be further enriched by integrating DOOH data with other media channels to understand cross-channel effectiveness.

Outcome Metrics: Actions Taken

Actions taken can take many forms when it comes to DOOH. Some typical actions for DOOH include Website visits, Conversions, Coupon redemption, App installs or QR scans just to name a few.

Outcome Metrics: Foot Traffic Lift

Foot traffic measurement relies on mobile location data to track whether devices exposed to DOOH ads later visited physical locations. Control groups and A/B testing with geo holdouts provide baselines for comparison. Additional methods include WiFi signal and beacon data to observe opted-in users' in-store behavior.

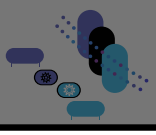
Outcome Metrics: Sales Lift

Sales attribution uses several strategies including analyzing point-of-sale data in exposed versus unexposed regions, tracking coupon or QR code redemptions, and linking CRM or loyalty program data to DOOH exposure. Advanced attribution services from vendors like Foursquare and Circana from Retail Media Networks further enhance the ability to tie exposure to real-world purchases with greater accuracy.

Overall, this chapter underscores the complexity and potential of DOOH attribution and outcomes, highlighting the need for thoughtful planning and the use of varied, robust data sources.

Chapter 7: Best Practices for Incrementality Measurement

This chapter addresses the best practices for measuring the incremental impact of Digital Out-of-Home (DOOH) campaigns, focusing on the importance of transparency and methodological rigor. Because not all exposed individuals are identifiable in DOOH exposure records, models must account for potential overlap between test and control groups, particularly when using lookalike modeling or control groups based on observed behaviors. Unintended inclusion of exposed individuals in control groups can reduce accuracy in determining true lift.



Methodologies

Two primary methodologies are recommended for incrementality measurement: Synthetic Control and Matched Market / Store testing.

Methodologies: Synthetic Control Tests

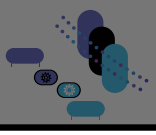
Synthetic control tests use modeling to construct a control group of individuals who closely resemble those exposed to DOOH campaigns but have not been identified in exposure records. The goal is to build a proxy control group with similar demographic or behavioral traits, while ensuring those included have not actually been exposed. Since exposure records may be incomplete, blending synthetic models with geo-based holdouts can help reduce contamination of the control group and increase accuracy.

Methodologies: Matched Market Tests

Matched Market testing involves dividing markets into test and control groups based on shared traits. DOOH campaigns are deployed in the test markets, while control markets remain unexposed. This method is used to isolate the DOOH impact from broader media activity or market trends. Careful selection of markets is essential, and traits should be prioritized based on campaign goals. For example, if testing Spanish-language DOOH creative, demographic traits like language and ethnicity should outweigh general metrics like median age. When markets are matched appropriately, the resulting comparison offers a more accurate view of how DOOH contributes to overall campaign performance.

Methodologies: Matched Store Tests: A Sub-Set Of Matched Market Testing

Matched Store testing evaluates sales lift by comparing matched sets of stores—those with DOOH exposure (test) and those without (control). Transaction data from retailers or third-party aggregators is used to assess differences in product sales between the two groups. This methodology is especially effective for CPG campaigns, where in-store DOOH can directly influence purchase behavior. Store match provides a closed-loop, scalable way to attribute in-store sales impact to DOOH exposure.



Data Types: Cross-Referencing DOOH With Online and Offline Campaign Results

DOOH impact can be validated through both direct and indirect means. Direct validation compares exposed versus unexposed individuals' transaction data, using techniques such as tagging, conversion tracking, or purchase frequency analysis. If exposed users are transacting more or more frequently than baseline, this indicates a genuine sales lift attributable to DOOH.

For offline impact, store visitation data from location analytics can demonstrate increased foot traffic following DOOH exposure. However, it's important to distinguish between visits to branded stores and broader retail locations, as not all visitation equates to sales. Indirect validation methods include comparing brand or store-level sales during the DOOH campaign against historical data or performance in control markets. These comparisons can help identify lift while accounting for seasonality or external factors.

Overall, incrementality measurement in DOOH requires a disciplined approach, combining thoughtful test design with robust data analysis. When executed carefully, it allows advertisers to isolate the true impact of their DOOH investments.

Chapter 8: Best Practices for Cross-Channel Integration in DOOH Campaigns

Cross-channel integration is essential for maximizing the impact of Digital Out-of-Home (DOOH) advertising within a broader media strategy. DOOH works best when aligned with other digital platforms like mobile, online display, and connected TV (CTV), helping brands build consistent messaging and enhance reach throughout the consumer journey. To achieve this harmonization, marketers must incorporate DOOH data into omnichannel planning to ensure messaging is not only cohesive but also optimized in real time based on where and how audiences are reached. NOTE: For further information about the technical standards around cross-channel measurement, MRC's Cross-Media Audience Measurement Standards (Phase I Video) is recommended.

Harmonization Across Channels

DOOH can act as a key upper-funnel channel, supporting awareness and engagement when synchronized with other digital media. When exposure data from DOOH is integrated with other audience signals, marketers can create a more unified and effective campaign experience. This approach enables them to track and engage consumers across multiple touchpoints, reinforcing brand messaging and increasing personalization.

Leveraging DOOH Exposure Data

Exposure data from DOOH campaigns can be used in Demand Side Platforms (DSPs) to retarget audiences across digital environments such as mobile, display, and CTV. Because identifiers across these environments often differ, especially in the case of CTV, advertisers may need to use cross-device graphs or ID mapping solutions to bridge gaps and maintain privacy compliance. Not all DSPs can natively ingest DOOH exposure data, so marketers should ensure their chosen platforms support these capabilities and that all data sources meet industry transparency and compliance standards.

Managing Reach and Frequency Across Channels

While DOOH lacks the one-to-one addressability of digital channels, exposure data still plays a critical role in managing reach and frequency across the broader campaign. By integrating DOOH records into DSPs, advertisers can better track how often a consumer has been exposed to a message and tailor subsequent impressions in other channels accordingly. Although frequency capping in DOOH is limited due to its public and broadcast nature, these insights help inform decisions across more controllable environments like mobile or CTV.

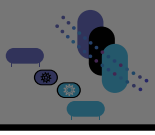
To successfully integrate DOOH into a cross-channel strategy, advertisers must align messaging, validate exposure data, and implement cross-device identity solutions. This approach ensures that DOOH operates not as an isolated medium but as a dynamic and measurable part of an omnichannel campaign, enhancing overall performance and audience engagement.

Chapter 9: Challenges and Opportunities in DOOH

As Digital Out-of-Home (DOOH) advertising expands, it faces numerous challenges, ranging from measurement and attribution issues to privacy concerns, fragmented programmatic adoption, and technical barriers. However, these challenges present opportunities for innovation and growth, allowing the industry to become more sophisticated, accountable, and integrated into broader digital advertising ecosystems.

Measurement and Attribution Challenges

A key obstacle in DOOH is the lack of standardized metrics, making it difficult to compare performance across different platforms. Unlike television or digital media, which have established measurement frameworks, DOOH, like Digital Video and Mobile, remains fragmented, hindering consistency and cross-channel evaluation. Attribution is particularly complex due to DOOH's one-to-many delivery model, which makes it difficult to link exposure to direct consumer actions like website visits or in-store purchases. While programmatic capabilities are advancing, cross-channel integration between DOOH and other media channels is still not seamless.



Privacy and Data Regulation Challenges

As DOOH increasingly relies on audience data, particularly mobile location insights, the industry faces heightened regulatory scrutiny. Laws such as the GDPR in Europe and the CCPA in California impose strict restrictions on data collection, particularly around location tracking and behavioral analytics. Anonymizing sensitive data, such as geolocation or facial recognition data, presents a challenge, as DOOH operators and advertisers must balance compliance with the need for precise targeting without sacrificing campaign effectiveness.

Programmatic Adoption and Inventory Management

Programmatic DOOH has made significant strides but still lags behind other digital advertising formats. The fragmented supply ecosystem, where many networks operate on different platforms with varying technological capabilities, is a major barrier to scaling programmatic efforts. Unlike online display advertising, where real-time bidding (RTB) is common, many DOOH platforms still rely on fixed scheduling. This limits the potential for dynamic, data-driven ad placements. Additionally, the fragmented inventory across networks complicates campaign planning and scaling for advertisers.

Creative and Contextual Limitations

Creative execution in DOOH is constrained by fixed screen dimensions and environmental factors, which reduce flexibility compared to online or mobile advertising. Though advancements in AI and data-driven insights are improving contextual targeting, DOOH still struggles to deliver personalized content at scale. The shared-screen nature of the medium makes it difficult to tailor ads to individual viewers, and advertisers also face challenges in controlling ad frequency—something that is easier to manage in digital channels.

Technical and Infrastructure Barriers

Some DOOH locations, particularly in rural areas face connectivity issues that prevent real-time content updates. Additionally, maintaining the technical infrastructure—such as high-quality digital displays and backend systems—can be both costly and operationally demanding for operators. These technical hurdles slow down the adoption of more dynamic, real-time DOOH content delivery.

Fraud and Transparency Concerns

While DOOH is generally less susceptible to fraud than digital media, issues still exist around the verification of actual ad views. Unlike digital ads, where clicks and impressions can be tracked, DOOH lacks definitive methods for confirming that ads were seen by the intended audience. There are also risks of fraudulent practices, such as inflating impression counts or serving ads in locations not agreed upon in the campaign. These issues underscore the need for improved transparency and accountability across the DOOH ecosystem.

ROI and Advertiser Education Challenges

Proving the return on investment (ROI) for DOOH remains a significant challenge, as advertisers often perceive the medium as less results-driven compared to digital channels. The limited performance metrics available for DOOH campaigns exacerbate this issue. Additionally, there is a notable knowledge gap in the industry, with some marketers and media buyers lacking a thorough understanding of DOOH's potential, which can lead to underutilization or missed opportunities within the channel.

Opportunities to Overcome Challenges

Despite these challenges, the future of DOOH looks promising. Advancements in AI and machine learning are improving data analytics, campaign attribution, and optimization, making DOOH more measurable and results-oriented. The increase in availability of POS data through Retail Media Networks is also increasing the ability to measure ROI based on exposures. As programmatic capabilities expand, DOOH will become more accessible and comparable to other digital channels. Industry bodies, such as the IAB and OAAA, are working to establish standardized measurement frameworks and cross-channel integration, helping to unify the ecosystem and build trust with advertisers. Privacy-first innovations, such as contextual targeting and aggregated data models, are helping the industry navigate regulatory constraints while still delivering effective, targeted messaging.

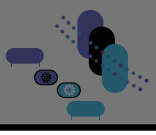
Innovations: The Future of DOOH

Emerging technologies, including AI, geolocation and computer vision are transforming DOOH into a smarter, more targeted, and measurable advertising channel. AI-powered creative optimization allows for real-time content adaptation based on factors like audience demographics, traffic patterns, weather, and nearby events. This capability enables more personalized and contextually relevant ads, improving engagement and campaign performance.

Geolocation technology is enhancing DOOH's targeting capabilities, allowing for hyperlocal ad placements based on GPS data and consumer behaviors. The integration of mobile and purchase data enables highly refined audience segmentation, and foot traffic attribution tools help measure ROI by tracking whether DOOH exposure led to in-store visits.

Computer vision and emotion recognition are adding new layers of insight to DOOH campaigns. AI-powered cameras can anonymously analyze viewer characteristics like age, gender, and attention levels, adjusting ad delivery accordingly. Emotion detection technology further refines this by interpreting facial expressions to tailor content based on viewer reactions. AI sensors also improve viewability measurement, providing more accurate data on ad views and engagement.

These innovations are propelling DOOH into a new era, making it a more data-driven, precise, and measurable advertising channel that is increasingly integrated into omnichannel strategies. The continued evolution of these technologies will cement DOOH's role as a key component of the digital advertising landscape.



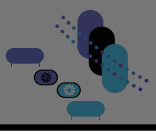
Conclusion

As Digital Out-of-Home (DOOH) continues to evolve, a standardized and transparent approach to measurement is essential for driving growth, credibility, and integration within the broader media ecosystem. This guide has outlined key principles and best practices that ensure advertisers, media owners, and agencies can effectively evaluate DOOH's impact.

A standardized measurement framework provides consistency, making it easier to compare performance across campaigns and channels. Audience measurement and attribution enable brands to understand who is seeing their ads and how those exposures contribute to business outcomes. Viewability and exposure metrics ensure advertisers have accurate insights into ad effectiveness, while programmatic and automation are transforming DOOH into a more scalable and data-driven medium.

To maximize DOOH's role in an omnichannel strategy, cross-channel integration is critical, allowing advertisers to measure it alongside TV, digital, and social media. At the same time, privacy and compliance must remain a priority, ensuring adherence to regulations while leveraging data responsibly. Finally, emerging trends and innovations, including AI, blockchain, and 5G, are shaping the future of DOOH, making measurement more precise and impactful.

By embracing these principles, the industry can unlock DOOH's full potential, providing advertisers with measurable, accountable, and scalable opportunities to engage audiences in the physical world with the precision of digital.



Thank You

This Measurement Guide was developed with the IAB Digital Out-Of-Home Committee and would not have been possible without their help, input and support. These industry leaders lent their time, effort and expertise to create this robust and helpful document.

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USIM

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Vistar Media

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Microsoft Advertising

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Publicis Media

Serena Corrigan
Ahold Delhaize USA

Alexandra Crispino
AARP

Jurjen de Wal
Adform

Jason Dennie
CheckedUp

Jacob Eiseman
Paramount

Brian Elles
Rockbot

Ben Elliott
StackAdapt

Rose Ferraro
Rockbot Inc

Amanda Flugs-tad-Clarke
Vistar Media

Jonathan Franco
Broadsign

Jonathan Frangakis
Reveal Mobile

Kym Frank
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Eric Gaines
Mobian

Chris Grettler
Stingray Advertising

Dallas Griffin
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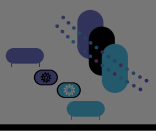

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