



Digital Out of Home

A Primer | Section 5

Measuring Success: How do I know digital out of home is effective?

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Business Rules

Networks want to sell ads and advertisers want to buy ads, but the many diverse networks and the many diverse advertisers have presented a challenge for DOOH as a whole. How does the right advertiser find the right network and the right network find the right advertiser? This desire for cooperation between networks and advertisers, as well as the continued technology advancements, has presented an opportunity to identify and implement industry-wide policies to satisfy the needs of both buyers and sellers, simplify the buying process and enabling DOOH advertising to be more competitive with other media.

Complete assimilation of DOOH industry standards is only possible through compliance by the buyers and sellers operating within the DOOH industry and a high level of commitment.

Buyer Expectation Management

Buyers expect prompt responses to their inquiries and thorough information before, during, and after a DOOH campaign. Expectations will also vary depending on who the buyer is and how they are buying -- an advertiser (local or not) that wants to buy direct from a network, an agency buying ad space on behalf of an advertiser directly from a network or one of those two that is using programmatic ad buying to buy ad space either via RTB (real time bidding) or programmatic direct. Who provides the information above and when will also depend on how the ads are purchased. For example, if a network only sells ads programmatically via RTB, all the standardized audience data will be gathered and entered into their SSP (sales side platform) and updated on a regular basis, with ad sales going on continuously. If a network is selling to a local advertiser directly, they would provide the most recent data they had available at the time the advertiser requested a media kit or a proposal, and perhaps with audience demographics specifically requested by that advertiser.

Generally, buyers will expect to receive before they buy ads:

- Information on the network itself -- number of screens, location data, etc.
- Information on the audience, including size, location and other specific demographic information
- Pricing for an ad spend depending on their campaign details (unless being purchased via RTB)

After the ads play, the ad buyer will expect to receive:

- Proof of play (confirmed venue list with initial playback counts)
- Proof of performance (verified venue list with final playback that indicate fulfillment of contract terms)

Proof of Play

Advertising buyers require proof that an ad played back on a digital signage system, often referred to as PoP (proof of play). This is done with logs provided by digital signage software or ad scheduling platforms, though this typically measures scheduling of ads, not technically whether it actually showed up on the displays or not as planned. An ad could be scheduled and then not be shown as planned if for example, a display overheated and went dark, or a system lost power or a piece of software malfunctioned. Technical problems can and do happen, even to the best maintained systems.

Because of this, some advertisers will require additional metrics for proof of play, such as via third-party audits of play logs or external cameras that externally record what is played on a display. They may also require records that show that the display was on and functioning as intended. "Proof of display" or "proof of performance" data can take data from the hardware itself, verifying that the display is receiving power and is connected to the network and doing what it's supposed to be doing.

It is important that PoP be consistent across networks, so the following recommendations are made for PoP. Network owners should adapt these guidelines as needed, depending on requests from an ad buyer or if a platform requires something different.

A framework has been defined to standardize proof of play and how it work with other forms of validation. This is defined in our document "Technology & Infrastructure," visit this [link for the latest version](#).

KPI Measurement

BRAND LIFT

Brand lift is a measurement of an advertising campaign's effectiveness in driving a positive shift in customer awareness and perception of a brand. Simply put, did a brand see a lift in sales or other key metric immediately after running a campaign? If there are simultaneous campaigns, it can be difficult to sort out which campaign affected the metric, so it's important that if brand lift is a KPI that campaigns be done one at a time. Marketers sometimes also use Brand Health as a KPI, which is the way a brand is viewed by its customers and how the audience feels about the brand (also known as "brand equity.")

FOOT TRAFFIC

Foot traffic attribution is the measurement of a campaign's influence on physical visitation to a specified location. It can also be attributed to DOOH media exposure through mobile location data by analyzing the locations a device visited upon being exposed to a campaign. Anonymous device-level data from passive GPS sources or from mobile ad impression data can be used to attribute a store visit to mobile ad exposure, DOOH ad exposure or both,

based on a consistent device ID. Lift in foot traffic attributable to DOOH media can be benchmarked to traffic to that location.

ONLINE TRAFFIC

Online traffic is very measurable, with established standards and metrics that presents valuable information to marketers. This measurable traffic can be integrated into an OOH campaign using unique URLs, unique language and keywords that can be tracked via online searches, hashtags and website visits. Like brand lift, it would be easy to have confusion on attribution of online traffic if a campaign is running on multiple platforms. To successfully attribute online traffic to a specific DOOH ad, URLs, language or keywords would have to be unique to only that DOOH ad and not also included in other media or campaigns.

APP DOWNLOADS

App downloads are a particularly valuable goal for marketers -- apps can offer a wealth of additional data to a brand about the users, offer continued chances for brand exposure and communication about new products or promotions and the opportunity to interact with users on a more personal level. Using location data, marketers can make inferences about whether a user was exposed to a DOOH campaign before downloading a particular app.

SOCIAL MEDIA IMPACT

Social media offers an opportunity for marketers to interact with consumers on a more personal level. Now, with nearly everyone having a mobile device, social media interactions can be immediate and ongoing. DOOH campaigns can encourage consumers to interact with brands on social media using hashtags and keywords, follows or likes, the submission of user-generated content and more, all of which is trackable. Unique hashtags and location data from the social media apps themselves or mobile devices can help brands determine whether social interactions occurred after a consumer saw content on a DOOH display.

Audience Measurement Methods

A complex area of DOOH is the varied nature of measurement techniques used. Almost all networks depend on a combination of measurement techniques. Some rely on third-party sources of traffic data and other audience information, while others rely solely on third-party measurement organizations that may themselves depend on third-party sources for certain data. The following presents a summary of most of the techniques used. If a specific technique is not presented here, the network and measurement organization should use the concepts expressed herein to develop controls and disclosures for their technique.

Passive measurement methods are acceptable when feasible, and in many situations are preferred, though passive measurement is not a requirement. When seemingly passive

measurement technologies require involvement or action by a respondent or panelist, it is incumbent on the measurement service to employ sufficient techniques to ensure each individual complies with the assigned tasks, otherwise the potential benefit of passive measurement will be rendered less effective.

Note that not all of the methods are necessarily applicable to each of the component metrics (e.g. Venue Traffic, Screen Traffic etc.), and that each method, regardless of whether it be a technology-based solution or dependent on respondent recall has inherent limitations that should be studied and disclosed.

As it relates to counting techniques, whether census or sample, more passive observational techniques are preferred because of the likely minimization of non- response.

Venue and Screen Traffic

- Third-party Source Data
- Industry or Government Data
- Electronic counts from cameras, sensors, beacons, or similar devices
- Manual Counts - Census
- Projected Manual Counts - Sample (must be very rigorous and comprehensive in coverage)
- Respondent Recall; Surveys/Interviews
- On-Site Surveys/Interviews

Audience, Including View

Average Unit Audience

- Technology-Based Measurement Tools
- Manual Counts - Census
- Projected Manual Counts - Sample (must be very rigorous and comprehensive in coverage)
- Respondent Recall; Surveys/Interviews

Ad Units

- Respondent Recall; Surveys/Interviews of Specific Ad Awareness
- Technology-Based Measurement Tools focused on Ad Activity
- Projected Manual Counts - Generally Executed at the Time of Consumption and Generally Sample Based

Dwell Time

- Respondent Recall; Surveys/Interviews

- Manual Counts - Census with Time Stamps
- Projected Manual Counts - Sample, Generally Executed at the Time of Consumption
- Technology-Based Measurement Tools with Time-Stamps

Reach

- Respondent Recall; Surveys/Interviews
- Projected Manual Counts - Sample Based
- Technology-based measurement

Frequency

- Almost Exclusively Respondent Recall Based, Due To Difficulty in De-duplicating Activity
- Technology-based measurement

Computer Vision

Computer vision is artificial intelligence, in which computers can “see” things using cameras and make observations about what it sees. In the case of digital signage, computer vision can:

- Use heatmap technology to see where people migrate
- Use eye-tracking technology to see what people look at (such as displays) and for how long
- Anonymously analyze audiences and present observations about those people’s demographic data (age range, gender, ethnicity, etc.)
- Quantify vehicle and pedestrian traffic in real time across a variety of ad units (digital billboards, spectacular, bus shelter, etc.)

Using this method is a way of gathering impressions and understanding engaged audiences.

Some technology companies claim to be able to not just count the number of impressions, but also provide information on audience interaction and emotion. There will be rapid development in technologies such as these with regards to facial detection and other audience awareness technology, but network operators should be aware of qualities that enable an effective solution and evaluate if it will be useful for their business.

Camera technology is a system to count the number of impressions. While some camera technology companies only claim to be able to count the number of impressions, others claim to be able to provide you with the ability to know if an impression actually interacted/ looked at your advertisement and how the person felt. While the ability to track eye movement with heat maps is well established, there are some studies on the challenges being addressed that are inherent in the tracking of human emotions. In short, the National

Institutes of Health reports that, “Despite recent progress, studies on human emotions have been hindered by the lack of consensus on an emotion theory suited to examining the dynamic aspects of emotion and its expression.” Success in using emotion and expression analysis with computer vision can be seen in many interactive campaigns. A simple example might be “smile for a [insert consumer product here].”

Technologies such as facial recognition and emotion measurement and analysis are still developing, and network owners should expect to see frequent advancements and changes in terms of what can be measured accurately and what is acceptable to advertisers and agencies for inclusion in data.

Computer vision technology can be found integrated directly into existing digital signage software products, or in some cases can be added to a network using a separate product.

Industry Currencies

Established in 1933 by the OAAA and the ANA, Geopath is a not-for-profit organization governed by a tripartite board composed of advertisers, agencies and media companies. Geopath was established for the purposes of: providing audience measurement for out of home media; to create standard practices for the measurement of audiences for out of home; for the collection, recording, authentication and verification of traffic and other data related to the measurement of audiences for out of home media; and to efficiently and effectively expand and enhance the audience measurement system. They leverage state-of-the-art technology, mobile data and media research methodologies to measure and analyze audience location and how consumers engage with out of home advertising. The Geopath audience metrics serve as the “currency” for defining the media value of Geopath audited out of home locations.

Mobile

The measurement of DOOH media is improving with new methodologies for attributing both exposure and ad effectiveness, made possible through mobile device location data. Mobile location data can be utilized to verify anonymous devices’ precise location and verify presence by looking at whether or not consumers’ devices were in proximity to a screen at the time an ad played. Through location intelligence, advertisers and media companies can measure the offline ROI of DOOH campaigns to understand if and how well DOOH campaigns are driving in-store visits. They can also gain consumer intelligence by analyzing offline insights from exposed users to learn where users spend time in the physical world. These kinds of insights can prove extremely helpful for retargeting and planning. Finally, since the ROI of DOOH is measurable, advertisers can easily validate their spend on the channel. Being able to guarantee results from DOOH means that they can confidently allocate dollars to this channel when developing strategies and media plans.

Location data is a powerful tool to help planning and measuring DOOH campaigns, however, to ensure accurate and actionable results, the quality of the data used is crucial. This is why how the data is actually collected matters.

There are several sources of mobile location data, collected using different methodologies, namely: panel-based data (data collected by a single mobile app); bidstream data (data collected via ad exchanges); SDK data (data collected via SDK integrated in mobile apps); network-based location data (carrier location data); and aggregated data (data collected via a mix of the above methodologies and aggregated in one database).

Each data collection methodology has its pros and cons. What is important to consider when evaluating a partner is the combined presence of four key factors: accuracy, vast scale, high-data density and privacy compliance. The combination of these four elements is crucial to ensure that the final output is actually an accurate representation of offline consumer trends. Below is a brief explanation of why these factors matter so much when it comes to location data:

1. Scale is important because it allows granularity in the analysis without losing statistical relevance, such as analyzing patterns at the DMA or store level.
2. Accuracy goes hand-in-hand with scale to ensure that the data is accurately identifying the anonymous users' location. There is very limited value in having vast scale if the data is not accurate, just as there is limited value in an accurate panel with little scale.
3. Data density adds a third dimension to this picture by allowing you to understand if and how much time anonymous users actually spend at a location. The data could be highly accurate but if you can't tell apart a user who spent 20 minutes in store vs. one who was just driving by, you are not able to understand how consumers are actually behaving in the offline world.
4. Last, but definitely not least, is privacy. It is paramount that the end user is informed of the data being collected, has the ability to opt-in and can easily opt-out.

There are a few additional considerations with regard to using location intelligence derived from anonymous mobile data for campaign planning and audience measurement purposes: the ability to identify users actually exposed to an ad and privacy compliance.

Mobile location data may be used to determine presence, which is the most basic qualification for display audience exposure and a way of knowing whether a person is in a particular area. It is not the same as an impression, in which case a person would have to actually look at a display. However, when leveraging location data players that have the ability to collect and analyze accurate and persistent location data at scale, the determination of

whether a consumer was exposed to a display can be considered a very good proxy for impression delivery. In fact, a sound DOOH exposure methodology based on location data allows you to narrow down the exposed consumers not simply because they were in the area where a board is, but rather based on the following strict principles:

1. Determine viewing distance: such determination can be done by identifying the cone of exposure, using standard viewing distances and angles to confirm the area of exposure is in the correct facing direction of the ad. Any consumer falling out of the cone of exposure should not be considered.
2. As a following step, only select consumers who are moving in the direction facing the board: Persistent location data allows you to identify users' travel path and only consider using those who are progressing in the correct viewing position.
3. Finally, only select consumers who are in the area of exposure: Persistent location data allows you to identify users' travel path to confirm that their roadway of travel puts them directly in the area of exposure.

With regard to privacy, it is paramount to carefully choose your location partner also based on its privacy compliance. Privacy is a key area to which governments and courts are paying very close attention. GDPR, which went into effect in 2018, is legislation in the European Union that adds strict guidelines to data privacy and data consent for all EU citizens, and it applies to all companies that process or control personal data, regardless of where the data is located, including the cloud. Non-compliance can result in large fines for companies with any EU operations. The main objective of the regulation is to give end users greater control over their data. While consumers are often prepared to allow companies to access their data in order to improve their user experience, they expect their data to remain private and secure. Some consumers may not want to share their data at all. The GDPR provides a comprehensive set of data collection rules that require companies to obtain user consent and exhibit transparent processes when collecting data from users.

Many companies, even those that are not based in the EU, are adopting GDPR data privacy standards, because it's simpler to operate within the strictest standards available when data exchanges between companies all over the world are so common, and because it is entirely possible that similarly strict data privacy laws will come into play in the United States and elsewhere in the world. When evaluating location data partners you'll want to ensure that they can provide a solid privacy framework and that they can show a strong commitment to privacy at the foundation of all of their efforts. The OAAA Guiding Principles for the OOH Industry Regarding Privacy and Use of Consumer Data can be used to provide a clear evaluation framework around consent, transparency, control and accountability.

Mobile integration will be critical for cross-platform campaigns and related measurement methods such as website visits, social media use and app downloads, all of which can be done via a mobile device after having viewed an OOH ad, and can help with both amplifying OOH effectiveness and measuring its impact within the media mix.

Geofencing

Geofencing is creating a virtual geographic boundary around an area by means of GPS or RFID technology, enabling software to trigger a response when a mobile device enters or leaves the area. The consumer location can be determined based on GPS, a cellular network or a Wi-Fi signal. Location-based information allows advertisers to more efficiently target consumers and measure performance.

Impression Data

A number of organizations have been instrumental in leading the charge to standardize measurement for place-based and outdoor media. These efforts have focused on aligning the way out of home is measured and transacted with television, print, online and mobile media in order to remove barriers to investment in this channel.

Geopath reports weekly impressions and ratings for DOOH advertising across more than 200 demographics. Geopath reports each ad unit or spot separately within each digital structure. Using speed data from Inrix and inputs from its viewability model (Visibility Adjustment Indices, or VAIs), Geopath calculates a dwell time and contact zone that is unique for each location, then calculates how many people see each spot on each structure. This process is applied to all street-side, street furniture and transit digital advertising. Variables include traffic speed and congestion, maximum noting distance, road type, digital noticing rate and ad length.

Nielsen's On Location studies measure similar metrics for venue-based DOOH networks. Their studies showcase metrics with average spot impressions, gross impressions and audience distributions across various demographic breakdowns for specific place-based networks. Traffic data is modeled using a variety of transactional inputs, syndicated data sets and on-site counts, while demographic data is collected through a combination of on-site counts, in-person intercepts and online surveys.

Geopath, OAAA and other organizations have also worked with the Media Ratings Council (MRC) to develop standards for audience and ad measurement across all types of OOH media. The MRC is a government entity established by Congress that has the mission "to secure for the media industry and related users audience measurement services that are valid, reliable and effective; to evolve and determine minimum disclosure and ethical criteria for media audience measurement services; and 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.”

Surveys & In-person Intercepts

Although used often as a tool by the impression data collection organizations mentioned above, audience surveys/interviews may also be used by a network owner to provide additional information to ad buyers about a network, a location or a campaign itself. These types of metrics are often collected via exit intercept surveys in test and control locations or post-exposure telephone or online interviews with test and control groups.

When you want specific feedback about a DOOH campaign, it can be challenging to do surveys later via telephone or online survey -- you have to figure out a way to know specifics about who was in a location, including a way to contact that person. Respondent recall can also be spotty. This can be, of course, helpful information in and of itself (how much time can pass post-exposure and a person still remember a campaign or brand). But when it comes to feedback on the content and how it affects the audience’s perception of a brand, in-person intercepts, which are surveys done on-site in person, can be the most useful type of survey. You’ll be able to know for certain a person was in a certain place or at a certain event, with potential exposure to a campaign. The campaign content will also be fresh in a person’s mind, so valuable additional details may be available.

Even when audience exposures are counted in the best possible way, the metrics obtained are silent on the value of the exposures they count. The relative value of each network’s impressions can be gauged by how well the advertising placed on these networks performs. Potential metrics include:

Recall

- Brand (unaided)
- Brand (aided)
- Ad (unaided)
- Ad (aided)
- Number of ads/brand recalled out of total

Branding

- Brand favorability
- Brand loyalty
- Brand attribute lift

Persuasion

- Purchase intent
- Brand buy next
- Consideration set

Behavior

- Usage lift
- Traffic lift
- Sales lift
- Number of website visits
- Tell a friend
- Net promoter score

These methods are time-consuming. Network owners should weigh the costs of obtaining these additional metrics against their relative value to potential ad buyers and how much it might improve the value of their network. If performed on behalf of an ad buyer to gain campaign metrics, plan this before a campaign is launched and include it as part of your agreement with the ad buyer.

Multi-touch Attribution

Attribution is when brands give credit to an ad or campaign for causing a consumer to take a desired action -- buying a product, visiting a website, entering contact information, thereby becoming a qualified lead. Single-touch attribution gives all of that credit to a specific ad or touchpoint. Touchpoint can be broadly defined as when a brand "touches" a consumer in some way. Touchpoints are not purely brand-driven messaging -- it can be word-of-mouth communications from peers, publicity from press outlets or social media. The touchpoints that come more directly from brands are also wide-ranging, including print ads, television ads, online ads, mobile brand messaging, as well as customer service interactions, product packaging and of course DOOH.

In actuality, consumers are often touched by brand messaging many times before taking action. The consumer decision journey may entail, for example, a person seeing a brand mentioned on social media, then viewing a DOOH ad, being served a digital banner ad that they click to go to the brand website, joining a newsletter from the website and then finally making a purchase after opening and reading something in the newsletter. The sale shouldn't be 100 percent attributed to the newsletter, when the consumer encountered multiple touchpoints prior that led to the final sale.

Salesforce says a consumer needs to be touched by messaging six to eight times before becoming a viable sales lead. Others say it can take even more than that, and of course, it can vary between industries.

Multi-touch attribution uses data modeling to allocate credit for a sale or other desired consumer action across multiple channels, touchpoints, campaigns and messages. Weighted touchpoint modeling divides up the credit into percentages and potential touchpoints. How that's done will depend on the type of multi-touch attribution model that a brand chooses to use.

Measuring Success: How can the reach and impact of a DOOH campaign be extended?

Mobile

Mobile display advertising amplifies DOOH media with the ability to deliver contextual mobile content and advertisements to users on their mobile devices through mobile apps and web apps, based on various targeting parameters. Targeting methods include location-based tactics such as geofencing, geo-conquesting and geo-behavioral-based tactics such as audience segmentation, visitation history, app usage and retargeting.

As with any technology that accesses consumer data, privacy concerns are of the utmost importance. Marketers should ensure they have permission to send content to consumers and the ability to opt out must be clear and simple to execute. Tying touchpoints into social media can be an easy workaround, as a number of sites including Facebook and Twitter have location-based functions their users have already opted into.

Social

The extent of social or mobile engagement possible for advertising campaigns will depend on whether the formats have the option of a feedback loop (two-way programs) and if they require real-time or near-time display.

A one-way program sends information directly to the consumer's device or instructs them on where to find or send content online. One-way programs can show social media on DOOH displays, but do not have feedback sent to the user. An example would be a program posting Twitter messages to a screen without a confirmation message being sent to the user.

A two-way program both receives content from the user and can communicate back to the consumer. The message can be a simple confirmation or can provide additional pathways for

interaction. An example would be a display that takes a photograph of a user and emails the picture back to the consumer or posts it to a social media channel of the user's choice.

In both the two-way and one-way path, real time experiences may take place. Pragmatically, "real-time" means updating content on a display or sending a response back to a user within 15 seconds to 15 minutes. Networks and technologies that can only update periodically for economic or infrastructural reasons (e.g., a nightly satellite link) are classified as one-way or two-way non-real-time communications.

THE SOCIAL OOH MESSAGE PATH

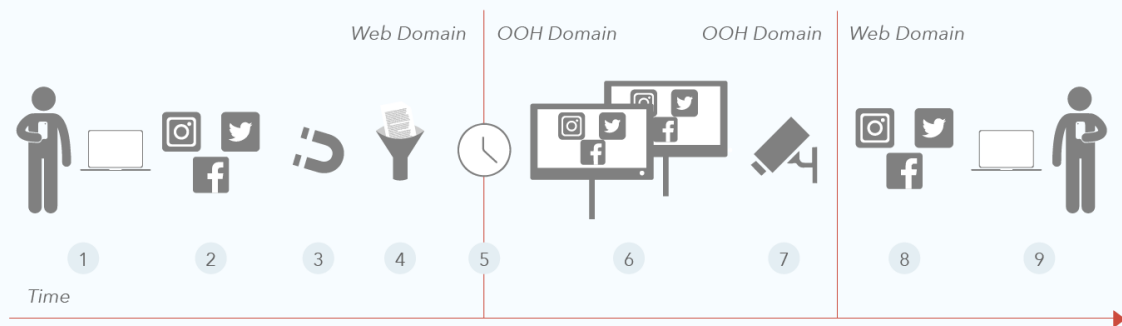


FIG.2 The Social OOH Message Path

1. User sends a message/photograph to a social network.
2. Social network posts message/photograph, which can be viewed/accessed publicly and/or by authorized users.
3. Media system pulls messages/photographs based on various criteria such as, but not limited to, hashtags, keywords, account names, usernames, locations, trending topics and more.
4. Media system filters and/or enables moderation of messages/photographs according to moderation guidelines set by campaign/brand/venue.
5. Filtered and moderated message platforms are now available for DOOH systems. For real-time campaigns, the platform pushes messages/photographs to a DOOH system, which then updates content as soon as it runs. Alternatively, for non-real-time campaigns, a DOOH system pulls the platform when it is able to connect to the Internet.
6. DOOH system displays the social content media. Note: At this stage the only difference between two-way and one-way campaigns is determined by the ability to display the message/photograph in real-time. Non-real-time campaigns and/or

networks will display the message/photographs at a time determined by system capabilities and/or by the campaign design.

7. For two-way campaigns only, a feedback loop is created with the user. This can be done in a number of ways such as capturing the user's message/photograph on a display via a webcam and feeding the webcam image back to the user. Other feedback strategies include, but are not limited to, enabling an online version of the content for end-users or sending a confirmation text, tweet, post or email.
8. The feedback is sent to a website, social network or user's email.
9. The user is able to spread the user experience around their social geography (e.g., their friends, family, fans, and followers) using social options available based on a specific social platform (e.g., like, share, tweet, email, etc.).

Another advantage of integrating social into a DOOH campaign is that social media measurement tools can track lots of data around users, more accurately than measurement of digital signage metric gathering. Social media listening tools can also gather information how a brand or campaign is received and by whom.

Successful integration of DOOH and social media, particularly when it comes to tracking and listening tools, will require specific expertise and software so you're encouraged to partner with social media management companies that have knowledge in these areas.

Cross Device

Measurement organizations should consider and strive to develop systems that are comparable with other competitive media types to help facilitate the integration of DOOH with data on other media. Accordingly the following measurement attributes are encouraged:

- Use of measurement techniques that are similar to best practices in other media
- Development of a gross rating point type measurement for advertising audiences to facilitate metric comparability
- Consider a method to produce unique audience when combining estimates with other media
- Adopting a frequency of measurement that is relevant across media types, which may entail increasing the frequency of measurement in DOOH
- Segregating content from advertising measurement -- a technique that is emerging in other media
- Measurement and reporting of demographic and geographic characteristics comparable to those available for other media

Measuring Success: How can DOOH extend the reach of a multi-channel campaign?

Integrating mobile with OOH extends the conversation beyond the physical location of the OOH media. By interacting with an OOH campaign through a mobile device, consumers can continue to engage with a brand as they move past the physical media. For example, print OOH can be used to promote an artist's upcoming concert, while a mobile component that allows the consumer to digitally interact with that media point, will let a user buy tickets in that moment, as they continue walking. DOOH formats make the pairing even more compelling, displaying a picture of a brand's newest Facebook fan and thanking them for "liking" the brand on Facebook, for example.

When combined with other advertising in an integrated media plan, OOH is proven to extend reach and drive consumers to engage with brands online and in-store. A 2012 Media Behavior Institute study showed OOH has the potential to increase the reach of a mobile campaign by up to 316 percent.

Benefit of Scale Using Existing Assets

The digitalization of DOOH, the spreading use of programmatic advertising and the availability of data in DOOH is opening up previously unavailable marketing dollars to the industry. Ad agencies and brands are now able to potentially use existing creative for DOOH and integrate DOOH programmatically into a marketing plan the same way they do other types of media. OOH advertising has always been appealing to ad buyers, and now these tools are removing hurdles to easily incorporating it into large ad buys.

Quick to Post, Quick to Market

The digitalization of OOH has offered significant opportunities to everyone in market. Digital displays can have multiple ads during a specific time frame, instead of just one. The time between an ad sale and the time it appears on screen is significantly shorter -- sometimes just minutes. Content, including ads, can be posted very quickly and scheduled to play on a display using software, without anyone going to the display location at all. With common resolutions and specs, creative doesn't always have to be custom designed, allowing reuse from other campaigns. Programmatic ad sales streamlines the process of matching ad buyers with available inventory, shortening the sales process.

A Proven Medium

Nielsen: Ads Driving Online Activity

Nielsen: Out of Home Advertising Study

Nielsen: Digital Billboard Study 2015

ABOUT THE DOOH PRIMER

This project was compiled using a combination of original writing and sections taken from over 400 pages of documents owned and originally produced by the five industry associations that came together to produce the project. All sources were used with permission from the five associations.

ABOUT THE DIGITAL SIGNAGE FEDERATION (DSF)

DSF's Mission is to support and promote the common business interests of the world-wide digital signage, interactive technologies and the digital out of home network industries. The DSF is a not-for-profit independent voice of the digital signage industry reflecting the diversity of its membership. It promotes professional recognition through certifications, continuing education, conferences, publications, and presentations offered by the DSF and affiliate groups. It provides advocacy by leveraging the collective strength of members and represent their interests at the higher levels of government and the community. The DSF provides leadership and networking opportunities focused on building a strong foundation for the advancement of the digital signage industry.

For more information, please visit digitalsignagefederation.org.

ABOUT THE DIGITAL PLACE BASED ADVERTISING ASSOCIATION (DP-AA)

The Digital Place Based Advertising Association (DPAA) leads the Digital Out of Home (DOOH) industry as marketing to consumers *outside* the home is experiencing aggressive growth versus advertising *inside* the home, which is continuing its fragmented decline.

DPAA fosters collaboration between advertisers, agencies, ad-tech, mobile companies, location data, software, hardware and others while providing guidelines, standards, best practices and industry-wide research all promoting the effectiveness of digital place based advertising.

For more information, please visit dp-aa.org.

ABOUT GEOPATH

Founded in 1933, Geopath is the industry standard that powers a smarter OOH marketplace through state-of-the-art audience location measurement, deep insights and innovative market research. The organization is headquartered in New York and governed by a tripartite board composed of advertisers, agencies and media companies spanning the entire United States.

For more information, please visit geopath.org.

ABOUT THE INTERACTIVE ADVERTISING BUREAU (IAB)

The Interactive Advertising Bureau (IAB) empowers the media and marketing industries to thrive in the digital economy. Its membership is comprised of more than 650 leading media and technology companies that are responsible for selling, delivering, and optimizing digital advertising or marketing

campaigns. The trade group fields critical research on interactive advertising, while also educating brands, agencies, and the wider business community on the importance of digital marketing. In affiliation with the IAB Tech Lab, it develops technical standards and best practices. IAB and the IAB Education Foundation are committed to professional development and elevating the knowledge, skills, expertise, and diversity of the workforce across the industry.

For more information, please visit iab.com.

ABOUT THE OUT OF HOME ADVERTISING ASSOCIATION OF AMERICA (OAAA)

The Out of Home Advertising Association of America (OAAA) is the national trade association for the \$7.8 billion US out of home (OOH) advertising industry, which includes digital out of home (DOOH), and is comprised of billboards, street furniture, transit advertising, and place-based media.

Comprised of 800+ member media companies, advertisers, agencies, ad-tech providers, and suppliers that represent over 90 percent of the industry, OAAA is a unified voice, an authoritative thought leader, and a passionate advocate that protects, unites, and advances OOH advertising in the United States.

For more information, please visit oaaa.org.

ABOUT THE RAVE AGENCY

Founded in 1998, THE rAve Agency, co-owned by Gary Kayye and Sara Abrons, is a creative agency focused on B2B technology markets, particularly the audiovisual and digital signage industries. It offers consulting and creative services such as marketing strategy, market research, speaking, social media marketing and more. Gary Kayye has been an assistant professor at the UNC School of Media and Journalism, focused on advertising and new media, since 2009.

For more information, please visit THErAveAgency.com.

