

The Road to Programmatic Out-of-Home Advertising



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Executive summary

The landscape of marketing is ever-changing and we're all along for the ride. One area in particular that is receiving a great deal of attention is Out of Home Advertising. Why? Well, for one, it works. And, more importantly, it has the potential to work even better. A perfect compliment to other advertising activities, out-of-home marketing (OOH) has proven to be the traditional media marketing form that delivers maximum impact with high efficiency and ROI. Hard to believe? We'll prove it to you.

For a bit of background, out-of-home advertising is a mature and trusted vehicle that has been employed by people and organizations for many years...some might even say millennia. In truth, outdoor signage as we know it coincides with the onset of the industrial revolution. Over the next few decades, as production and competition rose through the roaring twenties, depression era, and the 1940s, out-of-home experienced a remarkable coming of age. With the 1950s and 1960s, the so-called golden era of advertising, a housing boom and growth of America's car culture expanded the reach of roadside billboards. Simultaneously, the discipline of marketing evolved as other mediums emerged, first radio, and then television and, of course the World Wide Web.

These days, marketing only just barely resembles the 'Mad Men' ideal. With technology at the core of many marketing strategies, data and insights have replaced 'gut instinct' driven campaigns. Today, the best marketing campaigns are unexpected, user focused, and authentic. While out-of-home continues to be an integral part of today's marketing campaigns, the intelligence and analytics we see in newer forms of marketing (from TV and radio to online and mobile) simply did not make their way into the OOH space for a long time.

This is no longer the case. Digital out-of-home (DOOH) advertising has begun to enjoy impressive growth and offer marketing teams ways to engage with customers that were previously out of reach. By combining the power of big data, artificial intelligence, and smart devices with traditional OOH advertising techniques, DOOH is uniquely capable of creating an immersive and optimized approach to marketing.

It is rapidly expanding to enable organizations to provide consumers with highly immersive and engaging ad content outside of the home. DOOH now presents new possibilities in the OOH space, - opening doors for brands to engage consumers with dynamic, customizable, and immersive content. As with any emerging technology, there are a number of challenges facing the DOOH space that the industry must address to enable the full potential of this powerful advertising medium. In this piece, we'll review the benefits of OOH, the value-add digitization brings to the table, challenges facing the industry, and where the industry is headed. Full disclosure: [our final destination will be programmatic.](#)

The need for out-of-home advertising

Marketing is never a question of “if”; it is a question of “how”. When it comes to out of home, there’s no doubt in our minds; when paired with the right creative and exposed to the right audiences, out of home delivers incredible impact. Just ask Spotify. Despite being a service that exists entirely online and in mobile, the streaming giant has benefitted from wildly successful data-driven annual year-end OOH campaigns with 2016 being the year of weird, 2017 focusing on goals, and wrapping up 2018 with a focus on user creativity (i.e. the wacky, out-there, revealing names users have developed for playlists and podcasts).

Commenting on the creative direction for the campaigns, CMO Seth Harman notes, “The ads work so well because music is such an emotional experience, and data about our listening habits, on the macro level, taps into our collective mood. (Adweek, 2017)” Spotify’s global head of Marketing June Sauvaget also says, “Our users have come to expect the year-end ‘Wrapped’ campaign year after year and are eager to see how their interactions on Spotify connect to what is happening across the global Spotify community...it serves as a large-scale thank you to our listeners for their collective impact in shaping the platform throughout the year while further solidifying our place in the global cultural lexicon. (Adweek, 2018)”



¹ Image source: Adweek

² Image source: ISN Global



Unfortunately, with the variety of digitally-enabled marketing methods available today, out of home (OOH) marketing is often overlooked and it's ROI understated. However, the numbers show that this oversight is a mistake. At the end of 2018, out-of-home marketing was the only traditional media channel projected to post organic net revenue growth, with a 21.9% expected increase for the year (Source: Magna Global). Further, it also boasts an impressive ROI with \$1 dollar spent in OOH advertising resulting in \$5.97 in sales (Source: OAAA).

What makes out-of-home advertising effective?

While those numbers are encouraging, and certainly demonstrate that many businesses are benefitting from OOH, experienced marketing professionals know that , with advertising media, "your mileage may vary".

Speaking of mileage, perhaps the best way to intuitively grasp the effectiveness of OOH advertising is to look at its impact on mobile audiences. From public subways and city streets to small town thruways, advertisers have often found success capturing attention from those 'on-the-go'. "According to Census reports, more than 50 percent of New York City commuters used public transportation on a regular basis. With such a captive audience, the New York City subway system is an ideal location for brands to maximize the reach and recall of their key ad campaigns. "Brands like Casper and Seamless have become household names by sharing their brand stories with subway riders... Smart brands like Spotify, StreetEasy and WeWork leverage consumers' predictable travel paths, frequency and time spent, and in-the-moment-in-time mentality to drive app usage, sales and site visits (Notte, 2017)."

³ Image Source: Adweek

For another example, think back to your last road trip. Where did you stop to eat? Chances are good that, despite the fact that you could have preplanned your meals or found something with Google Maps, your decision was influenced by a billboard that read “Turn Right at the next exit for {some fast food restaurant}”.

Finally, let’s recall an example from [relatively] recent media. The award-winning movie *Three Billboards outside Ebbing, Missouri* brought the out-of-home industry to the forefront. Watching the film, we explore important social issues and experience the captivating effect three simple, text-only billboards had on a small-town in the American Midwest. While anecdotal, these simple examples lay the groundwork for truly grasping the benefits of out-of-home advertising:

- High visibility & broad reach in a given geographic area
- Low CPM (Cost Per Mile) coupled with effective CTAs (call to action)
- Can’t be blocked by ad blockers or similar tech

Digital brings value-adds to out-of-home advertising

Traditionally, out-of-home advertising lacked the ability for marketers to understand the effect their campaigns had at a granular level or personalize campaigns to appeal to a specific consumer or group. By nature, billboards and signs have broad reach but also paint with broad strokes. There is no ability to adapt until the sign is replaced, and the only data available on effectiveness is the sales data for the given market. This is where the digital component adds value.

Some of the most important value-adds DOOH brings to OOH advertising are:

1. Nimble and highly contextualized content

By leveraging data from multiple sources, DOOH is able to deliver dynamic content that is simply not possible with traditional OOH. Additionally, Artificial Intelligence (A.I.) will lead to groundbreaking developments in the space related to contextualized and personalized content.

2. Mobile integration

Geo-fencing enables DOOH content to connect with mobile devices within a given range. The ability to “push” the campaign to mobile devices makes DOOH significantly more mobile friendly than traditional OOH ads.

3. Ability to interact and detect demographics

Not only can DOOH detect demographic information based on inputs from smart cameras, but it can also respond to consumers based on that data. This enables more effective targeting and consumers receiving information that is the most relevant to them.

4. Ability to create immersive experiences

The aforementioned geo-fencing techniques, as well as technologies like augmented reality, enable DOOH ads to be more than just content. Effective campaigns are immersive, multi-sensory experiences that put consumers in the middle of the action.

5. More granular reporting

Understanding the effectiveness of a static billboard requires interpreting imprecise, general data sets that force even detail-conscious, analytical marketers to paint with broad strokes. DOOH enables inclusion of interactive add-ons, tools, and sensors that marketers and agencies with access to create real-time reports based on people counting, traffic flow heat maps, impressions, and more. This, in turn, leads to better decision making within the marketing group and the company's media partners.

6. Remote maintenance servicing

Damaged or vandalized displays result in wasted advertising spend. Network-enabled DOOH displays with smart remote sensors can send notifications when maintenance is needed, limiting costly downtime.

Understanding the importance of integrating data sources

Digital out of home ads make it possible for OOH campaigns to incorporate data from multiple discrete sources. This powerful feature of DOOH makes it highly extensible and enables many of the benefits we discussed earlier. Smart devices like cameras and beacons collect data in a way that makes integration possible. When data collected from various sources is processed and analyzed, the result is often improved audience measurement, context analytics, and content optimization.

For example, by capturing and leveraging geo-location data, a DOOH campaign can be dynamically updated based on the weather or even pedestrian walking patterns.

The power of AI in DOOH

First, let's touch on what we mean by "AI". Artificial Intelligence has become a somewhat overused term, describing everything from self-driving cars and robots to virtual voice assistants and chatbots. For our purposes, let's consider AI to refer to a system or process that approximates human-decision-making by leveraging logic-based machine learning to execute a process or action and potentially provide predictive analytics. All the data captured by marketers using DOOH add-on technology coupled with the ability to deliver content to a target audience in real time make A.I. and DOOH a perfect match.

With add-ons such as a sophisticated rules-engine and CMS, DOOH advertisers can now deliver a more personalized experience. Consider, for example, a kiosk that is able to register anonymized demographic data and also record and learn from how users interact with the kiosk. Over time, the kiosks may be able to iterate and improve the user experience through an increased understanding of the user's preferences. Further, by incorporating data from other sources, such as weather or location services, content can be optimized according to user preferences as well as the context of the environment at the time of an interaction.

The growth of digital out-of-home advertising

Referring back to the Magna Global report, the projected increase for digital out-of-home net advertising sales (NAR) will increase was a whopping 16%. This goes to show that the idea of DOOH disrupting the OOH advertising space isn't just a prediction for the years to come; it is already happening today. DOOH is delivering results to businesses needing to connect with consumers in the most effective ways and the DOOH industry is investing heavily in new technology to meet market demands. Digital signage, Bluetooth technologies, beacons, and location services are helping to drive the impressive growth in the DOOH space.

Magna isn't the only one bullish on DOOH in the years to come. MarketWatch estimates a compound annual growth rate (CAGR) of 10% between 2018 and 2022, with the DOOH market exceeding \$5 billion USD by 2022 (Source). Even more encouraging, PricewaterhouseCoopers projects that DOOH revenue will overtake traditional media in 2020, growing at a rate of 15% per year between 2017-2020 (Source: Adage).

Convergence of out-of-home with other media

One of the biggest benefits of out-of-home, particularly digital out-of-home advertising, is its ability to drive engagement through other mediums, thereby increasing overall conversions. OOH campaigns far outstrip other traditional OOH advertising when it comes to getting consumers to engage with a brand online. To begin to understand the power of OOH to drive consumer engagement, let's consider some data from a Nielsen study and associated Online Activation Survey (as reported by Billboard Insider):

- 46% of US adults have used a search engine to look up information after seeing or hearing an OOH advertisement
- OOH accounts for 26% of gross online search activations generated by television, radio, print, and OOH while only accounting for 7% of the combined advertising expenditures

Part of the reason OOH is such a powerful tool in in this regard is that consumers are naturally highly engaged with social media and mobile platforms when they are outside of the home. When they see an interesting and engaging ad campaign in the real world, they can quickly and easily share on a social network or learn more by following a hashtag or doing a quick Google search.



For example, consider this larger than life billboard in downtown London, launched in October 2017, designed to target both individual pedestrians and vehicles. Equipped with camera sensors, the 11 million pixel LED screen will pre-programmed ads according to the make, model and color of detected vehicles. The logic here is to use logic, i.e., “tell me what you drive and I will tell you who you are”, to drive ad targeting. Taking it one step further, ad content will also be targeted directly at passerby’s; it will obtaining anonymously age, gender, and sentiment of individual pedestrians in the square and deliver personalized ads. The initial launch featured major brands that signed on to pilot the initiative, including Samsung, Coca-Cola, Hyundai, and L’Oréal. Since then, the installation has continued to evolve with the times, and brands are catching on to the advantages of being in the space. The primary advantage, of course, is that participating advertisers have a leg up on traditional out-of-home advertising, and even less advanced digital out-of-home, in being able to engage with consumers in real time with relevant, impactful messaging. Ocean Outdoor CEO Tim Bleakley, notes, “Piccadilly Lights is one of the world’s most responsive, feature-rich advertising displays. Today is a major milestone in the history of Piccadilly Lights and to mark it we have a superb line-up of iconic global brands across six categories ready to exercise its creativity” (“London’s iconic Piccadilly Lights”, 2017).

⁴ Image Source: Adweek



Returning to the ad capital of the world, New York City, we learn how digital is amplifying brand messaging for MTA advertisers. The MTA tapped Outfront Media to provide entertaining digital content to millions of NY subway riders. With Museum of Modern Art (MoMA) as the launch partner, the agency plans to provide new digital content every month, from paintings and sculptures to animation and full motion video.

Further, advancements in virtual and augmented reality are enabling users of digital out-of-home advertising to take their OOH content to another level. Not only does this lead to more interesting and engaging content, it also inherently makes content more “shareable”, increasing the number of eyeballs on a brand.



⁵ Vangough arrives comes to the 1 line Image Source: Outfront Media

⁶ Image Source: Adweek

For a great example of how out-of-home can couple with augmented reality, check out this Pepsi Max ad placed at a bus shelter in London.

It is not easy to get the attention of consumers in today's ad-heavy world, but as demonstrated in the video, augmented reality can create an experience people will respond to and willingly share, evidenced by the individuals in the video who quickly pulled out their mobile devices to record or call someone about their experience in real time. The takeaway here isn't just that alien abductions, killer robots, and tigers on the street are more interesting than your average ad. Rather that, by creating an experience, DOOH can get users excited about engaging with our content in ways that other mediums simply can't.

Programmatic buying and digital out of home advertising

Algorithms and automation are two of the biggest buzzwords in marketing and IT, and for good reason. Incorporating algorithmic decision-making enables you to scale processes rapidly and efficiently in a way that is data-driven and responsive. Programmatic buying has in fact transformed online advertising over the past few years, with industry estimates projecting that programmatic buying will account for 85.2% of digital display ad purchases by 2019 (Source: eMarketer). While the benefits of programmatic buying can be extended to DOOH, some tweaks are needed to enable the same efficiency and scalability programmatic buying brings to the world of internet advertising.

Programmatic buying: a crash course

Programmatic buying is a mechanism for purchasing ads using data, software and automation as opposed to having humans do the work. Generally, software for programmatic buying will leverage some sort of application programming interface (API) and algorithms to purchase ads. This software usually interacts with programmatic selling software on the other end that functions in a similar fashion.

Software-driven workflows enable rapid, highly targeted, data-driven marketing campaigns that are well suited for online environments. The data-rich mobile and Internet advertising space is ideal for this sort of process as it is easy to not only plan and create a campaign, but also to measure its effectiveness, generate reports, learn what works, and iterate from there. As this cycle repeats, programmatically-driven marketing campaigns can become more and more effective for marketers.

Current challenges with programmatic buying & out-of-home advertising

While a data-driven, automated approach to media buys makes sense online, reaping the full benefits of programmatic buying in the out-of-home space is something of an uphill battle today. Although there has been significant progress in the DOOH industry, the move towards programmatic buying is not yet as pronounced as in the online and mobile space. Ad exchanger indicates that only 39% of marketing planners are aware that digital out-of-home ads can be purchased programmatically (Source: Adexchanger).

Furthermore, there are technological and workflow difficulties with programmatic buying in an out-of-home environment. For example, online, capturing data on consumers and the effectiveness of a given campaign is “easy”. Cookies from web browsers and user data from mobile apps make it possible to capture historical and demographic information about consumers and serve them targeted content. Each campaign is effectively a composed of many one-to-one interactions in a digital world that isn’t limited by the constraints of physical real estate. Further, the transactions that occur can be tracked and reported against with ease.

The scenario in the out of home space is very different. Not only is there a limited amount of physical space to work with, there is an inherent “one-to-many” approach that comes along with out-of- home ads that makes tracking its impact on a given consumer significantly harder to quantify. Ad purchasers need to engage different media owners personally and carry out a campaign in a heterogeneous environment that is difficult to automate effectively. Further, “proof of play” reports may often conflict or require a physical audit.

Ensuring transparency and compliance when handling first-party data can be a complicated endeavor in an environment where interactions are one-to-many. For these reasons, advertising campaigns in the DOOH space often require significant manual oversight. This manual interaction further increases the likelihood for human error and more issues down the line. While many vendors have attempted to bring new ideas to the DOOH space, the market has suffered from the “black-box” nature of the different technologies available that make it difficult to integrate it with software-based workflows at scale.

What's needed to enable scalable programmatic buying with DOOH?

By understanding how DOOH is different from online advertising, we can create an environment conducive to effective programmatic buying and scalability in the DOOH space. The key areas that need to be addressed to make this possible are:

- Accurate counting of DOOH impressions- If you're not assessing you're not progressing. One of the primary reasons online advertising is able to be so targeted and effective is the ability for marketers to measure clicks, page view time, and other impressions with a high level of granularity. As smart cameras, beacons, sensors capable of tracking dwell time & other customer behaviors become more prevalent, DOOH will be able to iterate in a similar fashion. A big part of ensuring this occurs will be solving "Proof-of-Play" problems. In short, marketers need validation that their ads have actually run when they should have, and the industry needs to provide a means for that to occur without requiring arduous, labor-intensive, expensive audits.
- Optimized DOOH workflows- There are a number of workflow challenges that are unique to DOOH when compared to online:
 - Media owners must pre-approve the content that will be displayed on their screens
 - More network bandwidth is required to serve content in DOOH applications
 - First-party data is not standardized
 - Physical hardware requires maintenance (either as a result of wear and tear, damage, or vandalism)
- Standardized, transparent, DOOH Supply-Side Platforms (SSPs) - Open, competitively-priced, fair, exchanges will be key to enabling programmatic buying at scale in the DOOH space. Quantifying the value of DOOH real estate is currently not as clear cut as the value of a web page that generates 100,000 unique page views a day and knows their demographics. Enabling market demand to drive prices by way of fair and transparent exchanges will have significant economic benefits on DOOH. Clear Channel Outdoor Americas' announcement of the development of a programmatic OOH buying solution in conjunction with Rubicon Project, was just one of many steps in the right direction in this regard. Another major benefit of supply-side platforms is applying the same logic to personal data. By enabling data owners to set the rules and prices related to use of their data, the industry enjoys increased compliance, transparency and protection of first party data.

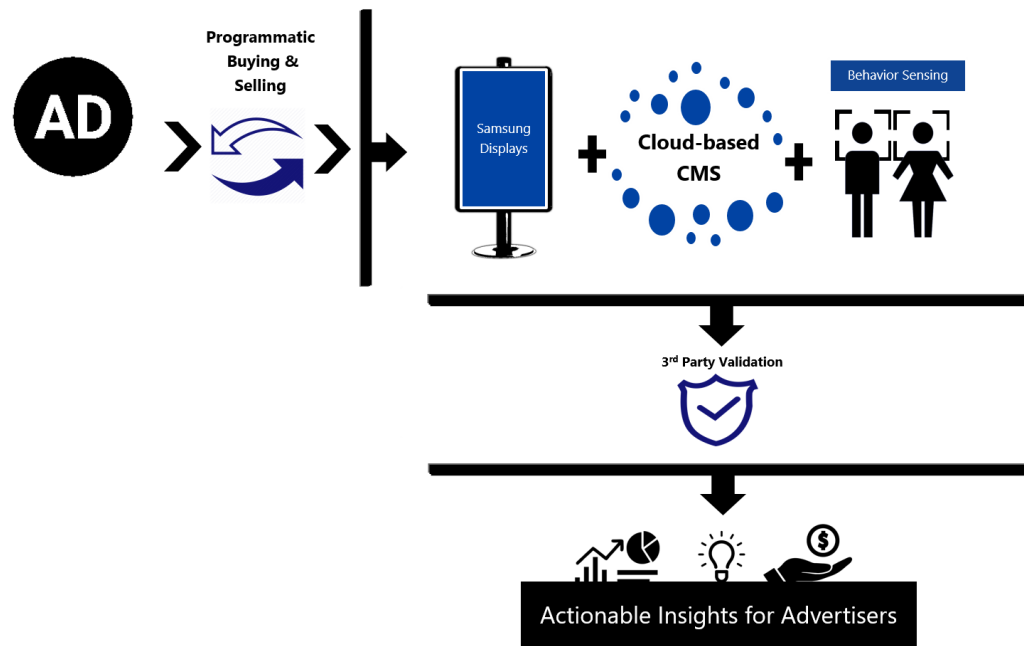
The good news is that much of the framework for what needs to be done is already here. As DOOH matures, advertisers will benefit from a more seamless ad purchasing experience in the DOOH space and enhanced reporting and analytics. The DOOH industry is on the path toward impressive growth over the next 5 to 10 years as the market develops and benefits from increased adoption of related technologies like IoT, beacons, smart sensors, and augmented reality.

Why Samsung SDS?

Samsung SDS - a world leader in data analytics and digital signage – is playing a role in driving accountability in Digital out-of-home. We're committed to ensuring we do our part to advance the DOOH space with solutions and services that drive the industry forward. Given our position in the digital signage, analytics, and business intelligence markets, we're uniquely positioned to help drive the change needed in the broader DOOH market and provide the expertise required for your enterprise to get the most out of their venture into the world of DOOH.

SAMSUNG SDS Nexshop DOOH

An End-to-End Platform for DOOH





Conclusion

While there are still challenges for the industry to overcome, the data and use cases are clear: **the possibilities for DOOH are endless and DOOH will be an important part of enterprise marketing for the foreseeable future.**

Going forward, with the scalability enabled by programmatic buying and other technologies, digital out-of-home will become more and more relied upon by advertisers as part of their media mix. By leveraging video analytics, geo-location data, and ad-optimization, DOOH can create a proximity marketing opportunity that takes context into account to help you win the moments that matter.

As Mr. Willie Nelson put it, "Like a band of gypsies we go down the highway, we're the best of friends – insisting that the world keep turning our way." Though the road is windy, there is an end in sight for programmatic DOOH. We can't wait to see where it leads.

About Samsung SDS America, Inc.

Samsung SDS America (SDSA) is the U.S. subsidiary of Samsung SDS, a \$8B global software solutions and IT services company. SDSA helps companies optimize their productivity, make smarter business decisions, and improve their competitive positions in a hyper-connected economy using our enterprise software solutions for mobility, security and advanced analytics.

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