# Digital Out of Home

## A Primer | Section 1

### An Introduction

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# What are digital signage and digital out of home?

Digital signage is everywhere you look. It's the digital billboard you drive by when you're on the highway. It's the display at the airport that tells you what gate your flight is leaving from. It's the digital menu board you look at to see what's available to order from the counter of a restaurant. It's the digital touch screen map that helps you know how to get around a mall. It's even the black and white display running along the shelves of the grocery store that shows dynamic pricing for the items displayed. Digital signage is any digital display not in a private area that provides information and that's not personal to you. (The TV at your house? Not digital signage. Your cell phone or personal tablet? Not digital signage. The monitor for your computer at work? Not digital signage.)

The concept of digital signage can be confusing -- it's clouded by the overabundance of terms describing it: digital out of home (DOOH), captive audience networks, in-store media, video advertising networks, narrowcasting and audiovisual signage, to name a few of the more popular references.

So how do we actually define digital signage? Digital signage is a network of digital displays that is centrally manageable and addressable for targeted information, entertainment, merchandising and advertising.

DOOH stands for Digital out of Home. Although it sounds like it might be the same thing as digital signage, and is often used interchangeably, it's actually more specific. DOOH refers to digital displays outside of the home that have advertising and can have their advertising content changed remotely using digital technology. In a nutshell, all DOOH is digital signage, but not all digital signage would be considered DOOH.

Digital signage can be an extremely effective and affordable communications medium for businesses and institutions of all types and sizes. And although not all digital signage has advertising, DOOH and the opportunity for advertising are major drivers of the growth of this market.

# Ecosystem (Players)

The current state of the digital signage market has evolved in a complicated way. Large scale messaging, OOH (out of home) advertising and really anything that used to be on paper can now be more conveniently shown on a display. This transition to digital has happened in a

short amount of time. Printed billboards and outdoor advertising posters went digital. Corporate communications via bulletin boards and memos went digital. Restaurant menu boards went digital. Retail store imaging went digital.

Unfortunately, the transition to digital happened without any industry standards or uniform approaches, which has led to fragmented technology and platforms. There are many different players doing the same things but in slightly different ways, using slightly different terminologies and methods of getting things done, some of which are incompatible. In recent years, the market has consolidated and standardized a bit, with more companies and technologies working together, but there are still many different players that you should know.

Network owners -- for whom this guide is written -- are those who own or operate a network of displays (or potentially a single display) that are in public spaces. That could include owners of digital billboards, a retail store or grocery store owner with displays at one or multiple locations, a university, a hospital, a hotel, an airport or any number of organizations that have public or semi-public locations with displays, or that could have displays, with messaging on them.

There are numerous technology providers. There are manufacturers that make a range of relevant hardware, including displays (of which there are many types), media players (which are sometimes just computers), mounts, kiosks, networking hardware. There are also manufacturers of software that create, manage and schedule content (called Content Management Systems or a "CMS"). Sometimes the CMS software is bundled with media players, and sometimes players are embedded inside displays. There are many different hardware and software configurations.

Digital signage CMS platforms can not only schedule and manage content, but many can also create the content. Most come with templates and plug-ins to allow a network owner to create content in-house, even without a design expert on staff. Many CMS platforms are designed for specific digital signage network types, with the scheduling and content features geared for that application, including ones that specialize in digital signage for educational institutions, retail environments or hotels -- but there are many possibilities. There are also companies that specialize in digital signage content design and management.

There are companies that design, manage and support the systems once they are installed. Installation and design is often done by an outside company that specializes in digital signage, such as an AV integrator or IT company. This is one way network operators can buy a system. Big network operators sometimes buy directly from a manufacturer, who can bring in a team to design and install the system if the sale is large enough.

Any network owner that wants to include advertising as part of the content needs to understand the many players in this part of the industry as well. Many networks are entirely ad-based, but there are other networks that only have advertising part-time, or need to consider advertising as a revenue source even though the main purpose of the network is another type of communication. Many network owners rely on advertising revenue to pay for the costs of putting in and maintaining a network, even if there's other content on the network. A good example is companies that install free wayfinding kiosks on city streets that help pedestrians find their way around or to points of interest. The company that installs the network of displays sells ads and shares revenue with the city, which gets the benefit of the wayfinding system and some extra money without having to pay anything up front.

The network owners can sell ads themselves, hire an outside company or person (a sales representative or sales rep firm), partner with another company that deals with the advertising side or do it all using software. There's software that helps manage, serve and track ads. This is often a part of a CMS, but not always. On the other side, there are advertisers and the people who represent them -- ad buyers, ad agencies and media planners.

The process of selling and buying DOOH advertising can now be automated on both sides via programmatic advertising platforms. Programmatic advertising is simply the automated buying and selling of advertising based on data and computer systems. Sellers use an SSP (Supply Side Platform) to make their DOOH advertising inventory available to multiple buyers. Buyers use a DSP (Demand Side Platform) to place ads across multiple media owners and environments simultaneously. In between these platforms is an ad exchange, which is basically an auction-driven marketplace for digital advertising inventory. DOOH is now available on ad exchanges that sell multiple kinds of digital ad space, allowing DOOH ads to be bought and sold on a large scale alongside mobile ads, Internet display ads, paid social media and many other kinds. The cross platform integration is key here, because the ability to see the value of audiences reached by DOOH, in the context of all other digital audiences an advertisers wants to reach, is what is allowing the DOOH market to grow and scale.

Because advertisers need data to decide where to place ads and how much to pay, there's also a whole industry around the collection of audience and impression data. There are several organizations that collect audience location data across a wide range of media and locations, such as Geopath (non-profit and specializing in OOH -- out of home -- advertising audiences) and Nielsen (private, global measurement and data analytics company well known for radio and television audience measurement). The Media Rating Council (MRC) was established by the U.S. government in the 1960s to improve the quality of audience measurement. It now works with numerous organizations in the OOH space, including Geopath, to establish standards and protocols for measurement of OOH audiences.

There are numerous companies that analyze a range of audience data to provide further insights beyond impressions. Location data from mobile devices (GPS, cellular, etc.) and technologies that work with it have been very helpful in tracking and analyzing metrics in this space, providing previously unavailable insights into consumer behavior and how people engage with brands that advertise on OOH and DOOH displays. There are also now numerous types of advanced technologies that leverage cameras, computer vision and artificial intelligence to "see" people and things in front of OOH and DOOH displays and make observations about what is seen. Facial detection software can detect people in spaces and report on whether they look at a display and for how long, as well as demographic data about those people (age, gender, etc.).

As you can see, there are numerous players in digital signage, all offering different types of hardware, software, analytics and data, support, content design and services. It can be overwhelming, but there are many companies offering turnkey networks, including hardware, software, support, maintenance, content and audience analytics. Who you engage to help you depends on your goals, resources and budget. Further below is a needs analysis that will help you.

## Environment Types

| Environmental Classification | Definition |
|---|---|
| Shopping Mall | Indoor or outdoor shopping area traditionally considered a "mall" |
| Shopping Center | Smaller shopping facility in which a group of stores tend to face the parking lot |
| Lifestyle Center | Multi-use shopping facility of retail/offices/housing/etc. |
| Outlet Mall | Shopping facility with large parking areas and overflow stores, often outdoor without a food court |
| Food Court | Facility with multiple food vendors and a common seating area |
| Retail | Store selling one or multiple types of products, in which shoppers spend a moderate amount of time |
| Grocery Store | Store mainly specialized in distribution of groceries |
| Convenience Store | Location that offers a variety of goods for purchase -- usually a quick shopping experience such as the store in a gas station or a bodega |
| Bar | Facility where the majority of patrons go for the purpose of drinking |

| Environmental Classification | Definition |
| --- | --- |
| Sit-down Restaurant | Dining facility where the majority of patrons sit at a table to order food |
| Quick-Serve Restaurants | Dining facility where patrons order food from a counter then sit or leave to eat, or sometimes go through a drive-through |
| Transit Hub | A multi-modal transportation stop; usually multi-platform and allows pedestrians to transfer between trains, busses, streetcars, light rail, etc. |
| Transit Station | A stop along a transit line that is unique to one mode of public transportation |
| Airport | Regional, international or private airport |
| Office Building | Multi-business office building |
| Business | Single business office |
| Theater | Single or multi-auditorium venue for watching movies/plays/musicals/etc. |
| Casino | Gambling facility and associated hotel if one exists |
| Hotel | Hotel, motel or resort |
| Stadium | Sports stadium |
| Indoor Recreation | Indoor location where patrons spend leisure time but do not necessarily buy anything |
| Outdoor Recreation | Outdoor location where patrons spend leisure time |
| Academic Building | Classroom building or library (universities, as well as primary and secondary schools) |
| Institutional Housing | Housing designed for temporary use |
| Student Center | Collegiate building designed for multiple purposes such as dining, studying and shopping |
| Spiritual Center | Place of worship |
| Gas Station | Gas Station |
| Rest Stop | Facility along roadway for stopping, often with food, gas and convenience shopping |

DOOH is typically divided into two categories that address audience types:

**Large-format displays** are seen by large and varied audiences, typically in public areas where pedestrians and/or vehicular traffic are passing by. Examples include highway billboards, ads on buses or the outside of other moving vehicles and street furniture, which are displays along sidewalks such as those on benches and bus shelters.

**Digital place-based media** are digital displays in destination locations -- places people are going for a reason other than seeing the display (as opposed to, for example, a movie theater). The audiences are more specific than large format displays, because the content can be related contextually to the place that the audience is and their reason for going there. These include displays in airports, on university campuses, inside taxis, in restaurants and bars, in retail stores, in doctors' waiting rooms -- the possibilities are endless.

Digital signage can also generally be categorized in other ways that address the unique challenges of specific environments.

## Outdoor (Outside)

Outdoor digital signage has different technology challenges than indoor environments. Displays must be visible even when there's a lot of ambient light, such as direct sunlight, so they have to be bright. The hardware has to be able to withstand heat, cold, dust, water and more, depending on the environment.

Examples:

- Drive-through restaurant menu boards
- Outdoor electronic billboards
- Outdoor wayfinding displays
- Digital street signs
- Street furniture

## Indoor (Inside)

Indoor environments offer more flexibility than outdoor environments for digital signage, as the weather, temperature and vandalism concerns are mitigated. Indoor environments vary greatly, and present opportunities to use a wide array of display types, sizes and shapes to meet particular use cases. With this in mind, the most important consideration is generally context. Decisions must be made that balance objectives, available space and the ambient environment. Teams must think through a number of concerns including:

- Ideal spots to install
- Viewability based on behavior near the display
- The use (or non-use) of audio

- Number and genre of competing/complementary messages around it (particularly in a store)
- What type of content will enhance the value for the viewer
- Typical viewer dwell time
- Cost and complexity regarding power provision and proper mounting
- Network/display connectivity
- Ability and methods to properly measure traffic and engagement

## Small format (Inside)

Small format displays present less technical challenges than large format ones, since you'll typically just be picking the size of the flat panel display you're going to use. A single flat panel display wouldn't typically be larger than 110" (measured diagonally), which is currently about the largest display of that type that can be manufactured. Most of the time you still wouldn't use a single display that big, because it would be more cost effective to build a small video wall with smaller displays.

Examples:

- Doctors' office waiting rooms
- Indoor digital menu boards
- Single displays in retail stores
- Corporate communications
- Indoor kiosks for wayfinding or information

## Large format (Inside)

When it comes to large-format displays, there are more decisions to make, and they have different trade-offs. For large format displays, options include video walls composed of either flat panel displays (LCDs or OLEDs) or direct-view LEDs, as well as projection.

Examples:

- Flight information displays (arrival and departure boards)
- Indoor digital billboards
- Some retail store displays

## Interactive Technology

Interactive displays have touch technology incorporated as part of the solution. Projection can technically have touch incorporated using IR or other types of sensors on the projection

surface, but most digital signage applications that need touch will be flat panel displays, either single displays or video walls. Direct-view LED displays would not be used in a touch application. Touch technology can be added to a display using a touch overlay, or be incorporated directly into the display technology. It can work in both indoor and outdoor applications.

Examples of applications that might use touch:

- Public information displays that require user control to navigate menus
- Retail
- Infotainment type displays, that entertain and inform a user at the same time
- Wayfinding kiosks

## Audience

So who sees your content? The audience, and what information they need or you want to communicate to them, should be a primary consideration when considering how to build your digital signage network and how you design your content.

Audience measurement will be a key part of your network's success, and is especially critical if your network or display has advertising. Advertisers need information about your audience so they can decide if they want to buy and display ads on your network, how much they are willing to pay for them and what content they should put in their campaigns to target them.

There are numerous ways to measure audiences, which are explained in another part of this document. Standards for audience measurement should be followed by network owners -- this is very important to ad buyers, who need to be able to compare consistent metrics across many different networks and places.

## Market Growth

Consumers are more mobile than ever -- increasing the visibility of out of home media. The growth of mobile usage correlates to Americans spending about 70% of their time outside of the home, an increase of 50% over the past two decades, according to research by the OAAA. 60% of consumers' digital media time is now spent on smartphones, tablets and apps, according to Comscore's "2014 U.S. Mobile App Report." The rise of the mobile consumer has expanded marketers' ability to connect with audiences across multiple touch points.

Out of home (OOH) advertising revenue is now $7.7 billion, <u>based on figures released by the (OAAA).</u> The revenue total marks a record all-time high for OOH with 31 consecutive quarters of growth since the most recent recession.

Almost $4.5 billion is expected to be spent on DOOH advertising by 2019 in the United States, which is an increase of $1.2 billion since 2016. According to <u>an article in Adage</u>, "Zenith forecasts that DOOH will grow faster globally than all other buying methods, and PricewaterhouseCoopers predicts that DOOH advertising revenues will overtake traditional media spend in 2020, growing at a rate of 15% a year for the next four years."

The global digital signage market as a whole is expected to grow from $20.74 billion in 2017 to $31.62 billion by 2023, at an estimated CAGR of 7.28%, <u>according to a report by Orbis Research.</u>

## Effectiveness

DOOH has shown itself to be a very effective medium for communication and for advertisers. In a <u>2010 study by Arbitron</u>, 70% of U.S. residents (aged 12 or older) reported seeing a digital video display in a public venue in the last month, and 52% recall seeing one in the last week. The same study reported that 47% of those who had seen a digital place-based video in the past month specifically recalled seeing an ad, and 19% of those say they made an unplanned purchase after seeing an item featured in the ad. A <u>recent InfoTrends study</u> said that digital displays offer 47.7% effectiveness increase on brand awareness and increase the average purchase amount by 29.5%, as well as generate a 32.8% growth in repeat buyers. <u>42% of shoppers</u> have said they would prefer to shop in a store with in-store video displays, and retailers with digital signage displays experience a 31.8% (average) increase in sales volume.

A study <u>published in 2015 by Nielsen</u> showed that 75% of respondents reported seeing a digital billboard in the past month and 60 percent in the last week. 55% of those were highly engaged, recalling the message on the display. 82% recalled advertisements in the last month with 35% noticing AMBER Alerts or missing child reports and 18% noticing weather alerts. In corporate communications, digital signage displays <u>capture 400% more views</u> than printed displays.

According to a <u>Hospitality Tech study</u>, 38% of those surveyed said they'd be more likely to dine at a quick service restaurant that offered a self-service option, and 41% said they'd be more likely to stay at a hotel that had a self-service check-in / check-out kiosk.

As an advertising medium, DOOH offers advertisers the opportunity to reach broad audiences and have high-impact campaigns. Unlike other types of digital advertising, there are no ad blockers and no click fraud. Technology has allowed for improvements in audience measurement and impression analytics.

And audiences like them! The statistics show that people like digital displays and seek out places that have them. They like completing transactions (even in less traditional ways) on digital displays. They are more likely to look at messaging on a digital display than a printed one. They remember the information they see on them and have higher brand recall when they see ads on digital displays.

Digital signage communications has many advantages over printed communications -- it's faster, easier and less expensive to change. It's scalable. Much of the process can be automated. It offers many benefits to the companies that want to communicate -- and it's clear that audiences like it too.

## Data & Privacy

### Guiding Principles Regarding Privacy and the Use of Consumer Data

Privacy and Consumer Data Usage Guiding Principles are recommendations intended to provide baseline markers that respect consumer privacy and the use of consumer data. Recognizing that the operational characteristics of DOOH practitioners often differ from one another and technology itself changes rapidly, the following guiding principles anticipate individual companies may need to adopt modifications that are consistent with particular business models.

1.  **Privacy by Design:** DOOH practitioners take privacy into account in the entire engineering process to develop products that anticipate and mitigate any privacy concerns.
2.  **Transparency Is Critical:** Consumer data collection practices should be transparent and accurately disclosed.
3.  **Legitimate Purpose:**  DOOH practitioners only collect consumer data for specific, explicit and legitimate purposes.
4.  **Compliance with Laws:** The collection and use of consumer data must comply with all applicable laws.
5.  **Individual Control:** Consumers should have control over whether to disclose personally identifiable information.

6.  **Protection of Personally Identifiable Information:** DOOH practitioners should take reasonable precautions to protect personally identifiable information in their possession from loss, unauthorized access or theft.

## The Impact of Privacy Laws

The General Data Protection Regulation (GDPR) was recently enacted in the European Union (EU) related to the data protection and privacy for all individuals within the EU. It also addresses the export of personal data outside the EU. The GDPR aims primarily to give control to individuals over their personal data and to simplify the regulatory environment for international business by unifying the regulation within the EU.

The regulation contains provisions and requirements pertaining to the processing of personal data of individuals inside the EU, and applies to any business established inside or outside the EU, processing personal data of people inside the EU.

GDPR provisions are encouraging lawmakers to consider similar regulations in other regions, most notably the recently adopted California Privacy Act which reflect many aspects of GDRP. These laws pertain to the collection, storage and use of personal consumer data by companies.

## DAA

The Digital Advertising Alliance (DAA) establishes and enforces responsible privacy practices across the advertising industry, providing consumers with enhanced transparency and control through multifaceted principles that apply to multi-site data and cross-app data gathered in either desktop, mobile web or mobile app environments. The DAA is an independent non-profit organization led by leading advertising and marketing trade associations. Both IAB and OAAA are members of DAA.

## Ad Buying Overview

When planning the deployment of a DOOH network (networks that are completely ad-based or a mix of ad content with non-ad content), you must take into consideration how you will sell ads to buyers, and how they will buy them from you.

Advertisers typically buy ad space from media platforms in one of three ways: directly from the media platform / network itself, via an agency or using technology that automates the buying of ads such as an ad buying platform or programmatic buying via a DSP (demand side platform). Sometimes a network will have a mix of ads purchased in different ways -- think of

when you watch a television broadcast on a local TV channel -- you'll see ads from large, national (or international) companies, which you could find on various TV stations across the country, and also local businesses in your area that are sold by the local TV station, often produced by that TV station itself. Network owners also have choices -- they can sell ads using an in-house sales team, using a rep firm or using technology such as an ad network exchange or SSP (supply side platform).

When a network owner sells ad space directly to advertisers, they form a direct relationship and must negotiate together all the terms of a campaign -- how often the ads will run and for what length of time, how long the campaign will be, what the price will be, how many other ads can be shown in the same spot, who the audience is and how to target them, etc. They will do this using an in-house sales team or a sales rep person or firm.

Sometimes ad buyers may work with an agency that negotiates directly with network owners to purchase ad space. The agency will negotiate all the terms of the campaign on behalf of the advertiser, typically for a percentage of the total ad spend. Larger ad buyers, and even many smaller ones, will frequently use agencies, so all DOOH network owners should become familiar with how agencies work, how they make money and what they require to work with them successfully.

Finally, ad buyers can buy ad space across multiple platforms and networks through programmatic technology. Programmatic is technology that automates the ad buying and selling process, offering efficiency and speed that allows the sales process to scale. The ability to scale DOOH campaigns is critical to its success as an advertising medium and ability to increase its share of advertising revenue.

While there will always be unique publishers, media outlets and venues that advertisers will pursue regardless, increasingly ad buyers are relying on software, data and technology that lets them buy ad space on a large scale based on their desired audience (and other parameters) -- and not because of a relationship with a media or network owner. Standards allow for re-use of creative materials. This means that a single ad buyer could purchase ad space and deploy one set of creative materials to potentially thousands of locations and network types, from cell phones to websites to DOOH -- in a very short time frame. Networks that don't work with programmatic platforms on the sales side are missing out on ad revenue purchased this way.

On the buying side, buyers use a DSP (Demand-Side Platform), which automates the process of buying, serving and tracking ads. All the data (supplied by the network owners or publishers from the other side of the platform, called an SSP -- Supply-Side Platform) is available there and can be looked at as part of much larger buying and media planning

decisions. The ad buyers can buy the ads with what's called Real Time Bidding (RTB), in which they bid against other ad buyers for available ad space. They can also go through a process called programmatic direct, in which qualified buyers (often agencies) are granted access to a programmatic network and can buy directly from the network. The difference is that programmatic direct gives an ad buyer more direct insight into the specific audience of the network its buying from. Using RTB, ad buyers bid based on parameters they set and will have less specifics about the networks their ads actually show up on. Both are sold in a cost per thousand views (CPM) pricing structure, and the views from programmatic direct are typically more expensive, due to the additional information provided on the network and its audience, the views are more valuable.

Most network owners can be successful utilizing a mix of local inventory, selling programmatic direct and RTB sales. No matter what route you choose, it's important that you consider how you want to sell ads at the beginning of your network implementation process, so you can make sure you have the necessary resources set up for that strategy, particularly if ad revenue is an essential part of your network's success.

## Extensions & Interactivity

As it becomes increasingly challenging to reach today's consumer in the fragmented media landscape, the effectiveness of DOOH advertising has become more significant to brand marketers. There are a variety of digital marketing avenues that can be used in conjunction with a DOOH campaign to extend the reach and impact of the campaign, driving measurable behaviors such as app downloads, social interaction and content generation, almost all through users' mobile devices.

When combined with other advertising as part of an integrated media plan, OOH has been shown 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.

Integrating digital marketing via mobile devices with OOH extends the conversation beyond the physical location of the OOH media. Consumers can continue to engage with a brand on a more personal level, even as they move past the physical media. A DOOH campaign can encourage a user to download an app, post to social media using a hashtag, participate in a contest, like a brand on Facebook or follow them on Instagram and so much more.

OOH advertising can incite a consumer to interact with a brand in some capacity (visiting a store, making a purchase, sharing on social). When combined with mobile, immediate action is much more likely. When a consumer interacts with a brand through mobile, it empowers

them to take an action in the moment, whether it's broadcasting the brand's message to their network through social media, RSVPing to an event or even purchasing a product. OOH is a local medium, so mobile can amplify a brand's message when combined with OOH because it creates an avenue through which a consumer can digitally and immediately engage with a brand.

OOH can also be a public venue for user-generated content, either as a way of asking users to submit content or as a way of displaying pictures, text or video. For location-based social media, an OOH display can be used as a check-in point, extending the reach of an OOH campaign to that consumer's social media friends, who may not be (and probably aren't) in the same location. DOOH also allows its content to be updated in real-time based on many factors, including interaction with and communication from viewers. It can also offer immediate feedback and incentives for consumers to participate. For example, a consumer could be prompted to take a photo and share it using a hashtag that immediately shows up on a DOOH display exhibiting user content, like a Twitter wall or Instagram wall.

DOOH also offers another level of interactivity beyond printed OOH because of its ability to integrate touch. Touch interaction allows users to directly interact with DOOH content -- they can play games, personalize content, give their contact information, record and display content, and much more.

## Developing a Needs Analysis

The need to understand and, most importantly, to articulate the specific objectives of what you are trying to achieve with the signage system is critical. And you need to do so well before you begin the actual design process of selecting hardware and software, and creating the content to be displayed on-screen.

It is not only imperative to understand what you want the digital signage system to accomplish but also how it will be evaluated. Once the objective has been set, the second most important question revolves around what is called the criteria for judgment. In short, "How will the success or failure of the system be judged and by whom?" What metrics of judgment will be used: ROI, ROO or other qualifiers? How much time do you have to succeed and what are the repercussions if you do or do not meet your objectives? If you do not meet your objectives in short order, will you have time to regroup and try again? On the reverse side of the coin, if you are wildly successful, are you prepared to go from five displays to 50 or even 500 in a large deployment?

No matter what size system you may have in mind, efficient and effective design is of great importance, and it begins with the needs analysis and asking questions critical to the eventual

design. Even if the graphics are bright and colorful and the resolution is high, if the system is not designed through a careful needs analysis, it will not reach its full potential, and it will end up costing more than it should.

Several factors need to be considered when performing a needs analysis on a potential digital signage project, and they follow a deceptively simple process. Understanding what the needs analysis tells us, and applying the information to the hardware and software selection is a key to eventual success. The ultimate design criterion is for the end user to realize and receive true return on investment or return on objectives.

## Design

- What is the objective or purpose of this installation?
  - A call to action
  - To sell a product or service
  - To inform the viewer
  - To entertain
- Who is the intended audience/viewer?
  - Customers
  - Employees
  - Visitors
  - Passers-by
- What information do you want to communicate?
  - Product advertising
  - Current information
  - Personalized messages
  - Instructions or directions
- How many displays will be required?
  - Are you looking to deploy the signage in more than one location?
  - Do you have the buy-in from all offices and departments?
  - Are you planning an incremental roll-out?
  - Can the platform you're considering be scaled easily to support an expanded system or will you have to upgrade and sign a contract for more advanced technical support?
- Do you have a lead person designated to evaluate and test the system?

## Content

- Where will the content come from? Who is responsible for updating it?
- Who will be responsible for the overall "look and feel" of the content to ensure it reflects your organization's branding?

- Do you have graphic designers on staff or the services of a design firm?
- Can suppliers, vendors or partners of yours help supply content?
- Do you need any special approvals, permissions or waivers?
- What mix of content will make your signage attention-getting and memorable? (To be truly engaging, combine marketing content with informative, even entertaining, content.)
- Will you need to add audio with your content?
    - Is audio permissible in the environment that you have chosen for the digital signage system?
    - Have you planned for the control of audio in the limited area of the display so as not to disturb others not viewing the display?
- Are you prepared for the investment of time and money required to keep the content fresh and relevant?

## Advertising (DOOH)

- Will your network have advertising? If yes, is the network all ad-based or a mixture of ads and other content?
- Will you never have advertising on your network, or could you potentially want to add it later? Can the hardware and software you're specifying now support advertising later if you do want it?
- How much money do you expect your network to make? Does it need to pay for itself? Does it need to be a significant source of revenue?
- Does the CMS you're using support advertising? Can you integrate it with other types of software, like an ad server or SSP?
- Who will advertise on your network? Local businesses? Anyone who wants to? Do you need to maintain control over who advertises on your network or what content the ads contain?
- Would you prefer to use an automated system that's part of a larger ad buying platform, or will you sell ads yourself or hire someone else?
- How will you track your audience? How will you track impressions?
    - How will you report it back to advertisers?
    - How will you show proof of play?

## Connectivity

- What is the network configuration?
- Are there any bandwidth limitations?
- Will you be sharing a network with other applications outside digital signage?
- Do you have special security concerns?

- Do you need to integrate your digital signage with in-store or company-centric databases?
- Who specifically will be responsible for installing the equipment and connecting it to the network?
- Where will primary servers or players reside? Centrally or remotely?
- What are the distances between the displays and your players?
- For displays located far from a source, what kind of signal distribution are you considering?
- Are you looking to integrate video from another source into your content feed?
- Will the location you're choosing for your displays present any special challenges for cabling or other technology?
- How do you plan to distribute audio as well as control signals?
    - Will these signals travel over their own wiring or use the same cabling used for the video distribution? Does your cabling support these multiple channels?
- What level of network security is needed? Where are there potential network security vulnerabilities and how can they be mitigated?

## Operations

- Will you have a single person administer or multiple people who require passwords and permissions for any specific content?
- Who ultimately will be the "owner" of the information?
    - Will it be HR, corporate marketing, MIS, a web content/design team, product marketing/sales or your IT/AV department?
- Is IT involved in the project? Who is the primary contact for IT issues?
- Will any ad agencies or multimedia production companies be involved?
- Who will be responsible for content sourcing and the actual uploads?
    - What are their skill sets? Who are their backups? Are they technically skilled?
- Will you need to update content frequently so it's relevant and timely? How often? Where will those updates come from?
- Is local input from remote sites required to allow users at the displays to make updates?
- Will you need to integrate additional building operations, such as paging, security or fire alarms into the digital signage?
- Who will be notified if a display or player goes offline?
- Will you have someone on-staff to troubleshoot issues and be dispatched to get a display or player up and running?
- Will you have to perform real-time status checks and log reporting of content?
- Does the system support troubleshooting from a remote location or will it require an on-site service call from someone who's hundreds of miles away resulting in lengthy system downtime?
- Are there provisions for proper system backup for operation and storage of content?

- Have you properly estimated the amount of time it takes not to just implement a system, but also manage it and update it with fresh, relevant content later, after the novelty wears off?
- What are your service and support requirements?
- Will your service provider support the entire system?

## Software

- Are you considering a hosted or software as a service (SaaS) solution or a single purchase, licensed software solution?
- Will you need to reformat your existing content for the display?
- Will you be streaming multiple media streams and files simultaneously?
  - Does the software interface support this (and will your player have enough CPU processing and memory to prevent lag)?
- Do you plan to send HTML content and XML feeds to your digital signage?
- Do you want to display information crawls or RSS news feeds to audiences?
- Does the player software support this? Is it a standard feature or an add-on?
- If you're considering a system that uses preloaded templates and layouts, have you test driven the system for ease of use and to explore its creative potential?
- Is the system capable of generating automated email alerts in case of system and/ or display failure?
- Does the system perform status checks of connected devices and log content play out for reporting purposes?
- Does the software support image rotation for portrait and landscape layout orientation?
- Thinking of stretching an image across multiple displays in video wall? Does the software support video wall processing?
- Will touch displays be used in your application and will the software support them?
- If you plan to integrate advertising into your content, is the software capable of handling it?
  - Can it interface with ad buying platforms?
- Can it potentially handle both locally purchased ads and ads served from an ad buying platform?

## Hardware

- Where will the content be served from?
  - Is there a local media player? If yes, is it part of the display(s)? Can it be placed behind or near the display? How far?
- Does the system need to interface with external hardware, such as a PoS system?
- What display size(s) and resolution(s) will be used?
- Do you plan to orient displays in both portrait and landscape configurations?

- Does the player solution you have in mind support the rotation of images?
- How exactly will the displays and appliances be mounted? On the ceiling, floor, or wall?
- Do aesthetics play a major part in how you mount displays?
  - What is your wall or floor made from? Do you have a way to wire the hardware in an inconspicuous way?
- How many hours a day will the displays be in use?
- Do you have round-the-clock access to the equipment or do you have to wait until non-business hours to service equipment?
- Based on display locations, will you have potential security issues? Do you need to limit physical access to the hardware that's located in public areas? Can you secure not just the hardware, but also the network ports?
- Do you want to remotely control the display(s)?
- Are there safety considerations with the signage and/or player installation?
- Are there space and heat-dissipation issues?
- Will you need to protect displays and equipment from dust, debris, and the elements, as well extremes in temperature or moisture?
- What are your power needs and can they be met with the existing infrastructure?
- What electrical codes apply? Do you have any power consumption limits?
- Will you have to contend with images being seen in brightly lit or sunlit areas?
- Will your digital signage installation meet all local and federal codes and requirements?
- Does your display or system need to meet ADA requirements?
- If your system has advertising, how does need for audience measurement affect your hardware requirements? Do you need additional hardware (cameras, beacons) to help measure views and keep track of audience information?

## Business

- What are the objectives of the digital signage project?
- How will the project be judged in terms of a failure of success and by whom?
- What is the timeline for judgment and what are the repercussions for failure or success?
- Is the digital signage system based on revenue generation, i.e., ROI, and if so, what is the business plan for revenue generation?
- Is the digital signage system based on attainment of objectives, i.e., ROO, and if so, what is the business plan and strategy?
- If the digital signage system is ad-driven, who are the key advertising players and what are their needs?
- Are there participating partners in the project and if so, what is the division of responsibilities and metrics of completion of tasks?
- Have specific vendor/partners been chosen and properly vetted?
- When evaluating a supplier for your digital signage system, also ask:
  - What does the price include? What are the options?

- Is technical support extra, and who provides that support?
- What are the shipping terms, return policies and warranties?
- Is training available? In what format and delivery method? Is the training good? Is the training appropriate for whomever will be managing various parts of the system (content, physical maintenance, etc.)?
- How is customer service handled, and how are complaints adjudicated?

### 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.