



Digital Signage 101

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With the ability to deliver highly engaging and targeted content, digital out-of-home signage brings information, education, and advertising closer to patrons, shoppers, visitors, travelers, staff, and students. It entertains, captivates, and informs them at points of purchase, transit, waiting, and gathering throughout their day. It is convenient, compelling, and customer-centric.

Large format displays and other digital signage deliver the power to communicate more effectively through dynamic, engaging messaging. Also known as digital-out-of-home (DOOH) advertising, digital signage solutions can range from a single digital sign to the sophisticated deployment of hundreds of advertising displays or menu boards.



Just a decade ago, the options and opportunities were very limited. The term “digital signage” was relatively new and often misunderstood. Large format public displays were primarily informational and installed in environments consisting of complex server networks, such as airport arrival/departure boards. Since large format LCD displays and most plasma panel technologies were driven in a peer-to-peer configuration managed locally by a computer or DVD player, even the most engaging content could not escape the confines of what was essentially a passive one-way relationship of content delivery and display.

Recent advancements in flat screen display technology have opened up exciting new market opportunities for digital signage. Today’s displays offer 1080p high-definition video delivery and touchscreen capabilities, along with the ability to

change messaging at a moment’s notice based on interactive feedback and sophisticated analytics. More industries, market segments, and public sector organizations are experiencing the benefits of digital signage and the industry is experiencing accelerated growth that is predicted to continue into the foreseeable future.¹

The Four Functions of Digital Signage

Effective digital signage is expected to perform four primary functions: advertise, educate, inform, and entertain.

Advertise – Just like their print counterparts, digital signs can be used to advertise products and services. Perhaps even more compelling is the opportunity to sell space to third-party advertisers. A company with an extensive network of digital signage in high-profile, high-traffic locations can generate an attractive and steady revenue stream from advertisers while continuing to use the signage to communicate its own messaging.

Educate – Educating audiences crosses the line between delivering advertisements and providing information. For example, the main purpose of a digital menu board is to educate viewers about menu items, prices, product descriptions,



ingredients or calorie count. The same menu board can also highlight daily specials and promotional offers, an “educational” effort which is ultimately designed to entice buyers and sell more products.

Inform – Digital signage surrounds us throughout our public spaces, providing critical information to help us find our way and stay safe. Digital signs at airports and train stations displaying timetables and route maps are prime examples of how this new breed of signage is being used to provide information. Universities are using campus-wide digital displays to deliver communications about upcoming events or emergency notifications. With the introduction of interactive digital signage, audiences can drill down into deeper levels of messaging to learn more about items of interest.

Entertain – In some environments entertainment may be the primary purpose of digital signage, but in most cases it will be a secondary concern. Nonetheless, digital signage content should entertain to keep an audience’s attention. The content itself can be produced in an entertaining manner, live TV feeds or short video clips can be displayed alongside company messaging and other digital content. In locations where an audience will be exposed to signage for long periods of time, such as in a waiting room, lengthier clips of entertaining content can be ideal.

The Benefits of Going Digital

There is plenty of overlap among these four functions and they are by no means mutually exclusive. If the distinctions seem blurred it is precisely because digital signage technology allows for multi-purpose messaging. In fact, constraining digital signage content to one category may prove counterproductive, whereas

a signage strategy that covers all four categories takes full advantage of the medium’s capabilities. While intelligent and informative messaging is achievable with traditional printed signs, a digital format offers many additional benefits that print media cannot.

Flexibility

The digital medium adds an unprecedented degree of flexibility and creativity to the delivery of messaging via public signage. Content can be updated at a moment’s notice, empowering organizations to adapt quickly to changing circumstances such as price fluctuations, out-of-stock merchandise, or new regulations – without the cost and delay involved in updating print signage. Going digital also offers expanded abilities to craft messages that incorporate video, live TV and real-time data feeds such as weather, news and stock prices.



Targeted Messaging

Offering complete control over when and where content is displayed, digital signage enables the delivery of highly targeted messages. A restaurant, for example, can use digital signage to automatically rotate between breakfast, lunch and dinner menus. Retail environments can employ the broadcasting practice of “dayparting” and adjust

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content based on the demographics of customers likely to shop in the morning, afternoon or evening. Targeted messaging can also take into account signage location and traffic flow at each location throughout the day. For example, a mall may deliver different content to signs installed near the food court, movie theater and department stores.



Engaged Customers

The ability to provide relevant messaging, entertaining content, and highly engaging multimedia renders digital signage more compelling than static print signs. Customer attraction and retention rates have been reported to jump almost immediately in response to dynamic digital media. As stated in a digitalsignagetoday.com article:

“Research indicates that digital signage achieves communications results such as sales lift, product/service enquiries, increased awareness and reduced perceived waiting time while also adding vitality and energy to an environment and improving safety. Digital signage can provide both high ‘reach’ to large audiences and high ‘engagement’ while messaging can increase traffic to websites and mobile commerce through text, downloads, mobile browsing and even voice messaging.”²

The examples are numerous. Casinos have experienced a significant uptick in sales at game tables when digital signs are installed. Retail

environments report that digital media drives traffic and increases revenue. Additional research has shown that crisp colorful video content entices more consumers and drives impulse purchases.

The WOW Factor

Digital signage is modern, high-tech and “cool.” While it was once the exclusive domain of high-end luxury brands and big dollar venues, today digital signage is more accessible than ever for organizations and budgets of all sizes. Even a modest digital signage installation, such as a single small-screen display on a retail shelf or countertop, can affect a consumer’s impression and result in an uptick in sales.



Cost

By eliminating the costly, time consuming and repetitive print production necessary to update static messaging, digital signage offers cost savings over time and as quantities increase. Nonetheless, just a few years ago, the high cost of a total digital signage system and installation prohibited mass adoption. Today, installation costs can be surprisingly low and digital signage solutions can offer rapid ROI for most customer applications, large or small. For example, recent advancements in cost-effective media player technology paired with cloud computing services have notably lowered the barrier to entry. With ongoing innovation, performance will continue to increase as costs further decline.



A Greener Option

Although digital signage consumes energy, it can be considered an eco-friendly alternative to printed messaging. Digital signage reduces print waste by eliminating the energy, water, ink, and solvents needed to produce, transport, and dispose of print signage. Energy-saving LED backlit technology, currently available with some display products, further reduces digital signage's carbon footprint.³

Implementing a Digital Signage Solution

Implementing a successful digital out-of-home solution involves more than just selecting a suitable display. Key variables to consider include: screen size/type, location, configuration and wiring, media players, networking, testing, content creation and management.

Screen Sizes and Types

Something as simple as a digital photo frame can be the perfect signage solution for a small shop. On the other hand, digital signage also encompasses billboard-sized displays and multi-screen video walls. In theory, any display can be repurposed as a digital sign. In reality however, this type of corner cutting will do more harm than good. A traditional consumer television makes for a poor digital signage solution, and is liable to wear out before the benefits of digital media can be achieved.

Professional-grade commercial displays, by comparison, are engineered to an “always on” usage model and ruggedized for 24/7 operation in demanding public environments. These commercial displays may include some or all of the following advanced features:

- Support for a wide range of content types, including video, still images, HTML web pages, Flash, PowerPoint and more
- Multiple input options to enable a broad variety of content from a number of different sources
- Built-in speakers and audio output for external speakers
- Remote control, networking, programming and scheduling, and screen saver functionality
- Enhanced brightness and contrast levels for superior image quality
- True high-definition images
- Ability to operate in both portrait and landscape modes
- Options for wall-mounted and free-standing installations
- Video wall support
- Touch screen interactivity

Location, Location, Location

The old adage about real estate is just as true for digital signage – location is everything. If content is king, then location defines the scope of the realm. Even the most engaging content will do little good if it's not seen at the right time, in the right place, by the right audience. Sometimes location is obvious. In a quick service restaurant, the digital menu board will occupy space previously filled by the old-fashioned “analog” menu. Travel schedules and maps in a transportation terminal should be positioned in convenient locations

updated remotely from a single location.

Bandwidth requirements and number of displays in an installation will set the bar for network requirements. An organization's existing network infrastructure may suffice, or may need to be expanded to support a given solution. For larger deployments and applications requiring high bandwidth content delivery, it can be most efficient to install a dedicated network to support the digital signage. If scalability of the solution is a goal, it is helpful to consider this from the outset when assessing network requirements.

Taking a Test Drive

As with any technology implementation, testing a digital signage solution is a critical step along the path to deployment. Running a pilot program can help gauge the feasibility and effectiveness of a proposed solution and ensure that technical requirements are met. Taking the time to perform a small-scale test run can identify problem areas that would be more difficult to address further down the road.



Content Creation

As critical as the displays themselves, content can make all the difference in the success of a digital signage solution. Whether designed to sell, educate, or inform, the more engaging and

entertaining the content the more it will compel attention and action from an audience. Unless requirements are very basic, such as a few JPG photos or PowerPoint slides, it may be well worth the investment to contract with a professional graphic designer or content creation specialist experienced in working with multiple content types and configurations, which can include dynamic screen regions, real-time information, on-screen widgets, video, animation, interactivity, and more.



A mid-range option is to use software tools for creating digital signage that offer the ability to import multiple media types and assist with layout.

Some best practices for developing content include:

- **Keep it moving** – Motion, including animation, video, special effects and other dynamic content, is more eye-catching and compelling than still photos.
- **Keep it real** – Real-time data deliver fresh, timely and relevant content; this can include RSS feeds and other data pulled from the web.
- **Size correctly** – Build to the proper screen resolution and aspect ratio to avoid distorted or blurred images.
- **Have fun** – Even in the most serious and professional environment, digital signage will be more effective if it is entertaining and engaging.

In addition, it is worthwhile to consider the following while developing content:

- Will all displays mirror the same content or will there be different content displayed on each screen?
- What resolution is required? For the most part, content is built to match the resolution of the display. For video wall configurations, more calculations may be required to determine proper resolution.
- Is the signage interactive? This requires more design and programming.
- How many regions will be on screen? Digital signage can consist of a single region for displaying full-screen photos or video, or may include multiple independent screen regions. In the latter case, each region can include unique and dynamic content.
- Will the signage include real-time data (such as weather or stock ticker) or a TV feed? In the former case, Internet connectivity will be required; in the latter, the media player will need a TV tuner.

Content Management

For the most basic digital signage implementations, content management may require nothing more than swapping out files on the media player's built-in or external storage device. For more complex configurations with multiple displays and content streams, a robust management solution is needed. A variety of software tools exist for scheduling and managing signage networks and content. According to one report, there are an estimated 350+ such software packages available.⁴ Depending on the software solution implemented, a wide variety of scheduling and management options may be available, which can include:

- **Location management** – The capability to deliver content to as many unique

streams and screens as needed may vary significantly among software solutions

- **Dayparting** – Originating with TV and radio, this term refers to delivering targeted messaging based on type of audience likely at varying times of the day.
- **Facial Recognition** – This functionality combines an integrated camera and facial recognition software to capture audience metrics – such as age range, gender, number of viewers, and length of time spent looking at screen – for use in tailoring content based on this data.
- **Instant Updates** – Standard with most content management solutions, this feature offers the ability to instantly update content as prices, item availability, or special promotions change.
- **Emergency Alerts** – Instant updating capabilities can also be used for emergency notifications in reaction to inclement weather, earthquakes, terrorist events or emergencies on campuses, in medical facilities or other locations.
- **Remote Control** – Networked multiple-display solutions call for single location remote management to control updating and scheduling. Many content management providers offer web-based solutions enabling this control from any remote PC.
- **Monitoring** – Some content management systems offer remote monitoring of display analytics and content streams, enabling periodic quality control checks. Analytics reported can include continuous hours of runtime, downtime, crashes or bugs, as well as data on the most frequent contact points on interactive signage.



Emerging Trends

The evolution of digital signage over the past decade has been swift, as technology has advanced and marketers have embraced the advantages of replacing static signage with compelling digital counterparts. Recent innovations such as large format touch screens, facial recognition technology, and near field communication (NFC) promise to further fuel the growth of this rapidly developing market.

Screen Sizes

As technology continues to advance and costs correspondingly decline, ever-larger screen sizes will continue to enter the market. Expect to see more creative and compelling use of screens as large as 84" inches along with more prevalent use of expansive video wall configurations. At the other end up the spectrum, the use of smaller screen sizes is an emerging trend predicted to grow exponentially in the next few years thanks to technology advances in this arena. Primary among these is Power over Ethernet (POE), which eliminates the intricacies and costs involved in running AC power to small screens, and is considered by many to be a game changer that will fuel mass adoption of small screen signage for the retail shelf and hospitality applications.

Interactivity

Several technologies are fueling exciting advances in digital signage interactivity, which enables new uses such as navigating product catalogs, browsing menus, requesting specific information, and even placing orders. Among these are touch screens, facial recognition software and near field communications (NFC), all of which promise to deliver greater customer engagement and a more personalized user experience. Touchscreen interactivity in particular, which offers the familiar feel of smartphones, media tablets and web apps, renders content exponentially more compelling to today's connected, technology-savvy audiences.

Predictive Analytics

A corresponding emerging trend predicts greater use of data-driven digital signage, which employs interactive technologies to deliver key analytics. This data is then used to optimize content and increase ROI.

Near Field Communications

Near Field Communication (NFC) technology enables the instant transfer of data between digital signs and mobile devices, transforming a passive audience into active users able to capture content of interest or conduct purchase transactions. Noted for its speed and security profile, this technology is powered by a chip capable of establishing connections and automating information exchanges in less than 0.1 seconds, for minimal signal interference and enhanced data security.

NFC is currently best known for its potential to enable a wide variety of new functions on mobile phones and other devices. With Windows® 8 support for native NFC stacks, a wider range of potential users and uses will surface, including validating IDs, brokering cashless payments,

unlocking doors, and automating data exchange in larger screen digital signage installations.



Media Players and Networking

The Open Pluggable Specification (OPS) from Intel® presents an exciting development in media player design. With standardized requirements for modular, interchangeable media players, OPS simplifies digital signage installation and setup as well as delivers greater flexibility and future scalability.

Media Formats

Public signage content will continue to transition steadily from static to dynamic, with trends predicting ongoing increases in the use of Full HD 1080p video. New and emerging display solutions technologies, as well as the lower cost of processing these technologies, will continue to enable this shift. An additional enabler is the increased usage of file formats such as HTML5 and H.264 video compression, which require less storage space and render video easier to manage over the network.

Conclusion

With the ability to deliver highly engaging and targeted content, digital out-of-home signage brings information, education, and advertising closer to patrons, shoppers, visitors, travelers, staff, and students. It entertains, captivates, and informs them at points of purchase, transit,

waiting, and gathering throughout their day. It is convenient, compelling, and customer-centric.

After a decade of rapid transformation and growth, digital signage today is mature enough to offer affordable and reliable solutions. However, it represents relatively new and rapidly evolving technology. As innovation continues and interactive displays and kiosks become more cost-effective, marketers and administrators will enjoy ever-greater opportunities for effectively communicating with audiences in virtually any environment, including retail, healthcare, manufacturing, education, transportation, hospitality, the workplace, and more.

About ViewSonic

Building upon our 25-year heritage as a pioneer and innovator in desktop display technology, ViewSonic has become a leader in the commercial display and digital signage market. With a forward-thinking, solutions-focused approach, ViewSonic is dedicated to elevating out-of-home display marketing to new levels of creativity and success. Our innovative commercial and institutional digital signage solutions include media players, hospitality TVs, ePosters, immersive video walls, and interactive full HD commercial displays up to 84 inches.

¹IHS.com, Global Digital Signage Market Nears \$14 Billion, Spurred by Real-Time Analytics in Retail Category, Tuesday, October 29, 2013

²www.digitalsignagetoday.com, Digital Out-of-Home, your guide to digital signage application & business trends today, page 12. Media Planet, January 2010

³The Greening of Communications. Keywest Technology, Inc. http://global.networkdalliance.com/downloads/white_papers/The-Greening-of-Communications-White-Paper.pdf

⁴CorporateTechDecisions.com., Digital Signage for Corporate Facilities: What you Need to Know.