

About Digital Billboard Technology

High-tech

Digital technology is changing the delivery of information

Facts vs. Myths

On billboards, digital technology produces static images which are changed via computer (typically every six or eight seconds), providing a non-manual way to change billboard "copy." Digital billboards do not scroll, flash, or feature motion pictures.

Nationwide, there are an estimated 450,000 billboard faces. A tiny fraction of the overall total is digital. Yet this small subset of billboard inventory offers new advantages, giving advertisers and communities unmatched versatility and flexibility in reaching wide audiences.

Advertisers can change their messages quickly, including multiple times in one day. For example, a restaurant can feature breakfast specials in the morning and dinner specials in the evening. A Realtor can feature individual houses for sale and change the creative content when the house sells. Print and broadcast news media use digital billboards to deliver headlines, weather updates, and programming information.

Law enforcement and other public safety officials use digital billboards to reach mass audiences quickly. The image of a missing person or emergency information can be displayed in minutes.

To control digital billboards, brightness levels on signs are equipped with light sensors, which measure the amount of light available in the surrounding environment. In the brightest sun, the billboard is at its brightest to provide the necessary contrast to let the billboard be legible. At night, the billboard is much dimmer to adjust to surrounding light conditions. The billboards use the minimum amount of light necessary to provide legible copy, a practice which meets federal criteria and the lighting industry's standards.



Regulated

Billboards – digital and conventional – are heavily regulated. To keep pace with technology, the federal government has said that roadside billboards (off-premise signs) could use “changeable message” technologies as long as these signs don’t scroll or flash.

On September 25, 2007, the [Federal Highway Administration](#) (FHWA) issued clear guidance, affirming that states could continue to authorize digital billboards:

“Proposed laws, regulations, and procedures that would allow permitting CEVMS (changeable electronic variable message signs) subject to acceptable criteria ... do not violate a prohibition against “intermittent” or “flashing” or “moving” lights as those terms are used in the various FSAs (federal state agreements) that have been entered into during the 1960s and 1970s.”

Industry practices conform to federal guidance, such as display times and lighting. FHWA recommends an eight-second display time. Federal guidelines say digital billboards should “adjust brightness in response to changes in light levels so that the signs are not unreasonably bright for the safety of the motoring public.”

Most states allow digital billboards — along with a growing number of cities and towns from Los Angeles to Roanoke — with regulations on size, lighting, and spacing.

As a form of self-regulation, the OAAA Code of Industry Principles includes clauses against animation and excess lighting.

A Sample of State and Local Ordinance Language for Digital Billboards

Florida

Section 14-10.0009 F.A.C., Chapter 479

The FL DOT interprets the lighting provisions of the State/Federal Agreement (as enunciated in Section 14-10.0009 F.A.C.) and Chapter 479, F.S. to allow the permitting of off-premise, changeable message signs under the following conditions: 1) Changeable message signs will be permitted regardless of the technology that is used, except, if such signs contain, include or are illuminated by any flashing, intermittent, or moving light or lights (other than signs giving public service information such as time, date, temperature, weather, or similar information), they are prohibited;

Allentown, PA

1319.04C

Flashing, blinking, mechanically moving, twinkling or animated signs of any type are prohibited. This provision shall not restrict signs with **electronically changing messages that do not flash**. This prohibition is not intended to include off-premise signs which are commonly referred to as “**tri-vision**” signs that are located within 200 feet of the right of way of, and intended or designed to be viewed from Interstate Route 78 or US Route 22.

OAAA Code of Principles on Digital Billboards

- We are committed to ensuring that the commercial and noncommercial messages disseminated on standard-size digital billboards will be static messages and the content shall not include animated, flashing, scrolling, intermittent or full-motion video elements (outside established entertainment areas).
- We are committed to ensuring that the ambient light conditions associated with standard-size digital billboards are monitored by a light sensing device at all times and that display brightness will be appropriately adjusted as ambient light levels change.

Appropriate Lighting

The outdoor advertising industry has established guidelines after commissioning research by Dr. Ian Lewin, a former chairman of the Illuminating Engineering Society of North America (IESNA). Digital billboards, according to the standards, should have lighting levels no more than 0.3 foot candles above the level of surrounding ambient light conditions.

Accepted

In 2008, Arbitron, the media research firm, set out to answer a relatively simple question: what does the public think of digital billboards. In the first study of its kind, the Arbitron researchers found people are aware of and positively inclined toward this new technology.

The Arbitron study focused on the metro area of Cleveland, OH, where digital billboards have been operating since 2005. Through telephone surveys, researchers found “the vast majority of commuters (more than four out of five) feel the digital signs provide an important community Service.”

More than half of the commuters polled had noticed digital billboards in the past month. The vast majority of those commuters remembered at least one ad running on the boards. More than eight out of ten people said digital billboards help the community with emergency information, while the majority said they were attractive. Meanwhile Cleveland City Councilman Joe Cimperman described digital billboards as modern and tech-savvy:

“Digital billboards are right in line with the whole cityscape. They communicate that we are a city that embraces technology. We actually have some of the newest state-of-the-art, cutting edge advertising,” Cimperman said.

Among younger demographics, digital billboards are an even bigger hit. The Arbitron study found 60 percent of those 18-34 found digital billboards to be attractive, while 86 percent agreed digital billboards help the community with emergency information. And perhaps most tellingly of all, 77 percent of 18-34 year olds said digital billboards are a cool way to advertise, according to the study.

Digital billboards are a step up for communities looking to modernize their outdoor advertising. The public finds them useful, attractive, and “cool.”



Traffic Safety

New technologies prompt questions about safety. Studies of contemporary digital billboards have found them to be safety neutral and not correlated with traffic accidents.

Specifically, two studies funded by the Foundation for Outdoor Advertising Research and Education looked at digital billboards and driver distraction from two different angles. The first was performed by the Virginia Tech Transportation Institute (VTTI), an academic traffic safety research institute used by government agencies and the private sector. Researchers analyzed the eye glances of drivers along with driving factors such as lane changes and speed. Randomly selected people drove specially equipped cars which monitored when their eyes glanced toward digital billboards, conventional billboards and other objects. The study found the average glance toward a digital billboard was less than a second.

This finding is important, because a separate study released in 2006 by VTTI identified a two-second threshold for increased risk due to distraction: “Glances totaling more than two seconds for any purpose increase near-crash/crash risk by at least two times that of normal, baseline driving.” Therefore, the typical glance toward a digital billboard is under the threshold.

The study identifying a two-second threshold has a long name: “The Impact of Driver Inattention on Near-Crash/Crash Risk: an Analysis Using the 100-Car Naturalistic Driving Study Data.” Virginia Tech performed this study for the National Highway Traffic Safety Administration. This exhaustive study also said: “Short, brief glances away from the forward roadway for the purpose of scanning the driving environment are safe and actually

decrease near-crash/crash risk.”

Accident records also say digital billboards are not a traffic safety risk. A comprehensive study was performed by Tantala and Associates, a consulting engineering firm based in Philadelphia which has performed analytical research for government. Researchers examined three years of accident data for highways in the Cleveland, OH, metro area. This area is a good test site because seven digital billboards have been operating since 2005, and because accident data is available from the state Department of Transportation. An analysis of accident records from 18 months before the digital billboards were installed and 18 months afterwards showed “digital billboards have no statistical relationship with the occurrence of Accidents.”

This analysis looked at various view zones, or distances, from the digital billboards. Likewise, this study accounted for other factors such as deer hits and weather conditions (known as “bias factors?”). No matter how the accident data were analyzed, the conclusion was the same: digital billboards are not related to accidents.

Several states have also performed their own studies on digital billboards, looking at accident data near digital billboards. Transportation officials in Virginia, [South Carolina](#), and West Virginia reported digital billboards have not caused traffic safety problems. Local officials also have reviewed accident records:

“The electronic billboards have gone up on city streets, eight of them, and since they’ve been up over the last several months, we have had no instances that they have contributed to any driver inattention that has resulted in a collision. So I don’t believe that that’s an issue.”

—[RICHARD WILES, CHIEF OF POLICE OF EL PASO, TX](#), IN TESTIMONY BEFORE THE TEXAS TRANSPORTATION COMMISSION (DECEMBER 6, 2007)

The Federal Highway Administration notes there was “no scientific evidence” causing the government to believe digital billboards are unsafe. Other changeable message signs, such as tri-action billboards, have been in operation for decades. Likewise, FHWA said there is no evidence these changeable message signs represent a safety hazard to drivers.

Effective

Digital billboards are proving to be a boon for advertisers, particularly local advertisers. The vast majority of all advertisers on billboards (77.1%) are locally owned businesses, marketing to their friends and neighbors within a community. Because they can be updated instantaneously via computer, digital billboards give advertisers an unparalleled ability in media to reach a mass audience quickly and cost effectively.

In a recent study conducted by respected research firm Arbitron, more than half of the respondents said they found digital billboards attractive. Likewise, 64 percent of all people polled said that digital billboards are “a cool way” to advertise. When young adults 18 to 34 years old were asked the same question, favorable reaction rose to 77 percent among the respondents. Nearly 70 percent of the young adults also believed that digital billboards provide useful information.

Nearly one in five viewers discussed an ad seen on a digital billboard with other people. The study found that 83 percent of all respondents can recall at least one advertisement on a digital billboard and 65 percent of viewers can recall at least two ads. Over a third of all travelers who noticed digital billboards noted a radio station message while nearly as many people noticed a television program advertised.

Across the country, media outlets are heavy users of digital billboards as a way to increase brand recognition for newspapers and television stations. In addition to the traditional branding forms such as highlighting anchor teams, digital billboards give media outlets a new kind of flexibility. Many television stations and newspapers choose to use the billboards to highlight news stories. In Toledo, OH, the daily newspaper announced a major local court decision via digital billboards – within minutes. Broadcasters also use digital billboards to draw attention to programming, with advertisements changing to highlight different shows.

“The ability to tap into the marketplace at such incredible exposure levels no doubt contributed to our ratings victory.” Shelia Obermeyer, WCPO Channel 9, Cincinnati, OH

“They gave us the ability to keep our message fresh with a rotation of layouts on the same design. They also gave us the opportunity to keep our message timely.” Scott Hunsicker, Reading Phillies, Reading, PA

“When we run the boards, we see the sales. It has been very effective. Finally, advertising that works.” Chip White, The Works, Wyomissing, PA



Public Service

On August 1, 2007, at 6:19 pm, a downtown bridge for I-35W in Minneapolis collapsed, killing almost a dozen people and creating a dangerous situation for drivers. Within minutes, a digital billboard network in the area had switched from showing advertising copy to informing drivers about the collapse. Later that evening, the digital billboards advised motorists to take alternate routes.

Indeed, digital billboards represent such a potential boost to public safety, Homeland Security Secretary Michael Chertoff has instructed FEMA to "Explore other ways digital billboards might be employed as an effective enhancement to our Nation's disaster response efforts."

Law enforcement officials across the United States also recognize the unique abilities of digital billboards to inform citizens about dangers to the community, and to seek information. Digital billboards are used to display AMBER Alerts to help find missing children. Time is critical in resolving child abductions; digital billboards can deliver quick information to motorists.

Additionally, federal, state, and local law enforcement officials have entered into partnerships with outdoor advertising companies to show the images of wanted fugitives and other suspected criminals on digital billboards. The FBI is using digital billboards across the country, with dramatic results that started with a pilot project in Philadelphia.

"When Senator Coleman and I landed, we're driving in . . . and there were already billboards at 9:00 in the morning -- actual billboards -- telling people where to go for alternative routes." – Senator Amy Klobuchar (D-MN)

"Digital billboards have been effective in supplementing existing emergency-information systems and . . . have the potential to further improve our ability to inform our citizens in times of disaster." - Secretary Michael Chertoff, Department of Homeland Security

"You can place them near the scene of the crime. You can place them near the scene of the problem. And as a result, the people seeing the billboard are going to be people who should have some familiarity with the Problem." – Michael Mason, FBI

"The posting on the boards contribute to an environment where the criminal feels the pressure that they have no where to go." – Sheriff Michael Haley, Washoe County, NV.



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