

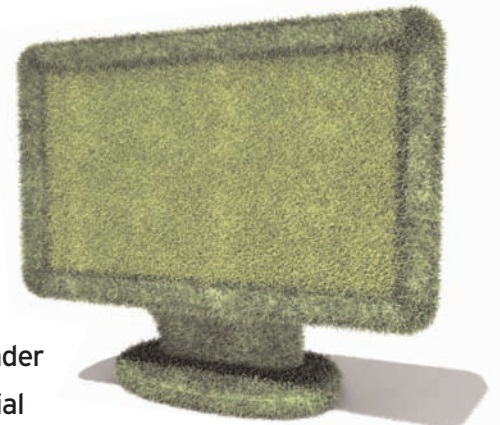


## **DIGITAL SIGNAGE OFFERS AN ENVIRONMENTALLY FRIENDLY WAY TO COMMUNICATE THAT'S EFFECTIVE, EFFICIENT AND GOOD FOR THE BOTTOM LINE.**

Since November 2009 when emails emerged from the University of East Anglia in the UK throwing into question the veracity of data supporting the theory of manmade global warming, public discourse about the idea that greenhouse gasses generated from human activity trap the sun's warmth and thus ultimately will raise global temperatures to threatening levels has become highly contentious.

As a consequence, where the concept of being "green" once was looked upon as admirable, the disputed science of global warming has, in the minds of many, cast a pall of suspicion over anything labeled as "green." However, regardless of the charges and countercharges over the science behind the theory of global warming, few could dispute the broader notion that protecting the environment is essential to the health, well-being and survival of this planet's inhabitants.

This white paper examines the topic of being "green" in the context of digital signage. It does not seek to address whether or not manmade global warming exists, if there were ulterior motives behind the proponents of that theory, or how -or even if- politicians should respond. Rather, this paper explores how digital signage can minimize the environmental impact of communicating with the public, specific steps to take with digital signs to ensure the environmental impact of their use is minimal, and most importantly the concept that employing "green" strategies with digital signage is a wise business decision.





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With this knowledge, it will be possible to reap the numerous benefits communicating via digital signs offers while simultaneously taking steps to conserve precious natural resources and protect the environment.

## GREENING BASICS

Often when the environmental impact of digital signage is mentioned, some valid, but rather well-worn, assertions are made. First, when compared to printed signs, digital signage appears far greener. Digital signage messaging, which can be updated easily, eliminates the need to print new signs over and over as messaging necessities change. The fewer the signs that get printed, the fewer the trees that need to be cut, transported to mills, processed and made into paper. Additionally, with digital signage there is no need for inks and chemical coatings as with printed signs.



Waste disposal is also a common environmental concern with printed signs. Cutting out the need to replace printed signs eliminates the energy needed to dispose of or recycle the signs and –to the degree printed signs aren't recycled– the impact of adding tons more paper,

plastic, ink, chemical coatings and paints to landfills.

Another benefit to the environment is the ease with which digital signs can be updated. Sending new messages out via a digital signage computer network eliminates travel required to physically visit the location of each sign, which is necessary to replace old printed signs with new versions. Eliminating the transportation component reduces pollution and thus the impact of signage on the environment.

*With digital signs, updating ads and promotions is a matter of a few keystrokes.*



But these considerations are only one element of the green equation. There's also the impact going green can have by reducing or entirely eliminating certain expenses.

## GOING GREEN –A SOUND BUSINESS STRATEGY

Going green with digital signage isn't simply a matter of reducing the environmental impact of communicating with the public; it makes good business sense. While that may seem a bit surprising, upon closer examination it becomes clear that communicating with digital signage can be less expensive than doing so with the print alternative. Interestingly, what makes it cheaper also makes digital signs more environmentally friendly.

What ties economy and being green together is the ability of a digital sign to display countless messages, which is something that would require innumerable, printed signs. Consider a casino that relies on backlit transparent signs to promote specials, entertainment acts and other features. In this instance, the sheer quantity of signs needed to tell patrons about frequently changing entertainment acts and special offers along with the expense of the backlit signage medium make using digital signs a cost-effective alternative.

With digital signs, updating ads and promotions is a matter of a few keystrokes. Equally important is eliminating the need to manufacture the transparent plastic film and specialized inks required to print backlit signs. Digital signs also answer the question of proper disposal before it's even raised. Obviously, the specific type and expense of printed signs in use will impact when the financial break-even point is reached by choosing the digital alternative, but in the example of a high-volume signage use like a casino it can be two years or less.

Closely related to the cost benefit of digital signage vs. printed signs is something that could best be described as "message per meter." Digital signage networks have an innate ability to playback



multiple pages –one after another– in an endless sequence just as a TV channel plays back a ceaseless lineup of entertainment, commercials, news and other content.

That ability means a theoretically unending sequence of desired messages can be played back on a digital signage network in a finite space. It's almost silly to conjure up how printed signs would do something similar –wallpaper the entire planet? Clearly, when it comes to the number of messages communicated per meter (or whatever unit of measurement desired) of space, digital signage is the clear winner.

From the perspective of being green, winning the "messages per meter" crown makes digital signage a far more environmentally friendly and aesthetically pleasing alternative. From a business perspective, the ability to playback the sequence means more goods and services can be promoted per unit of wall space, which should positively affect sales.

When it comes to actually producing the message to be communicated, digital signage is a better business and environmental approach. Whether it's printed or digital signage, there is a pretty well established workflow to creating a message. The former requires transport of people and actual end product at several points in the process. From the moment paper stock arrives at a printer till the time someone in an organization –or an outside contractor– actually hangs the finished printed sign, transportation never ceases, nor does the environmental impact of that transportation.

On the other hand, the digital signage workflow is far more efficient. There literally is zero transport of physical media and people required between the point of origination of a digital signage page and where it's displayed. Cutting out all of "the middlemen" needed from concept to delivery in the print workflow makes digital signs





an attractive alternative from a productivity point of view, and reducing the transport of people and materials makes digital signs the greener choice.

Add to the efficiency equation the ability of some digital signage software applications to extract specific information from existing databases and facilities management software packages to automatically create digital signage pages, and the positive impact digital signage can have on the productivity of an organization becomes even clearer.

## MINIMIZING ENVIRONMENTAL IMPACT OF DIGITAL SIGNAGE

While digital signage offers certain advantages over printed signs from the standpoint of environmental protection, that's not to say the digital medium isn't without its own set of environmental concerns.

Among the most serious are power consumption and the associated environmental impact of producing the electricity needed to drive the displays and computers that feed them; the use of hazardous materials in the production of digital signage displays and computers; and the impact of display and computer disposal as well as that of the packing materials needed to ship the devices to their locations safely.

### DISPLAY POWER CONSUMPTION:

On the display side of the equation, the growth of LED technology for backlights presents an alternative to fluorescents and has made it possible

for display manufacturers to employ new power savings strategies, unavailable with fluorescent backlights, in an increasing number of panels.

One such strategy is the use of Pulse Width Modulation, which can be used to vary LED power consumption and brightness. A simple way





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to evaluate energy efficiency is to get familiar with the government's ENERGY STAR program as relates to monitors. It's also wise in many applications to turn off individual digital signs or all the signs on a network after hours to save energy.

*A simple way to evaluate energy efficiency is to get familiar with the government's ENERGY STAR program as relates to monitors.*

#### **DIGITAL SIGNAGE PLAYER POWER CONSUMPTION:**

The other power draw in a digital signage system is the player –typically a computer running dedicated software. Here, a few alternatives are possible to minimize power consumption, depending upon the application. Embedding the computer in the actual digital signage display can produce power savings –simply by eliminating an entire computer monitor and other redundant pieces of hardware, such as a second video card. Even if using an embedded computer is not possible, certain things can be done to minimize power consumption of a stand-alone system, such as replacing spinning disks with solid-state disks. SSDs also require less cooling, which can translate into power savings.

#### **HAZARDOUS SUBSTANCES:**

In July 2008, an article in *New Scientist* magazine based on research by a University of California-Irvine professor set off alarm bells in the press about NF3, a gas used in the production of LCD panels, solar panels and integrated circuits. According to the article, the gas has thousands of times the affect on the atmosphere as a comparable amount of carbon dioxide.

But as a *Columbia Journalism Review* article said in August 2008, the media hyped the findings and distorted the impact of NF3 on the environment –mostly because of the small quantity of the gas being released into the atmosphere. The article quoted Michael Prather, the



professor responsible for the study, as saying: “It’s not a big deal by itself,” Prather said in an interview. “We’re looking at less than half a percent [the impact] of CO2. Is it the most important thing? No. But it should be in the market basket. And it should be monitored.”

Regardless, hazardous substances used in digital signage players (computers) and fluorescent backlights are legitimate concerns with the former using components with lead and cadmium content and the latter containing mercury. On the positive side, however, the European Union has established its RoHS (Restrictions of Hazardous Substances) directive restricting the use of six hazardous materials, including lead and cadmium. Further, California has enacted its own restrictions on the use of certain hazardous materials in electronics manufacturing. Such efforts have and will continue to make digital signage greener.

#### DISPOSAL AND WASTE:

One way to minimize the impact of disposing digital signage components is to extend their lives. Doing things like choosing longer-life backlighting options, such as LED technology, and limiting monitor use to the time of day when, for example, a store is open or an air terminal is actually in use, can lengthen life. Additionally, donating old displays to charity not only can benefit worthy organizations but also keep panels in use and out of landfills. In fact, many communities will not accept monitors and computers as waste.

Finally, the fragility of monitors and computers makes proper packing material essential for safe transport. Asking about the use of recycled packing material and recycling that material after delivery of panels and players is also important for those wishing to make their digital signage installation as environmentally friendly as possible.





## STRIKING THE RIGHT BALANCE

The Screen Forum, an independent working group focused on sharing best practices in the digital signage industry, has released a list of one dozen steps aimed at ensuring digital signage networks deliver the maximum impact with the minimum affect on the environment.

The steps, available on a popular news portal <http://www.prweb.com/releases/2010/05/prweb3948684.htm>, are a well-reasoned list of prescriptions for minimizing the impact of digital signage networks on the environment. While the list is publicly available on the Web and self explanatory, one aspect of the Screen Forum's 12 steps is particularly fascinating and worthy of consideration.

Achieving balance underpins much of the list –the balance between environmental impact and performance; the balance between achieving communications goals and doing so in a way that does not diminish, or is sympathetic to, nearby landmarks; and the balance between fulfilling its main purpose as digital signage and giving back to the community by promoting environmental awareness.



Balancing performance and environmental impact touches many phases of digital signage network rollout and operations. The concept laid out in the steps seems to focus on drawing a distinction between saturation and sufficiency. Many of the steps advocate doing no more than is necessary to accomplish the desired mission of communications. Limiting the number of computer components, the size of the network and number of displays therein as well as the power requirements of the network seeks to balance the task at hand with the environmental cost of accomplishing it.

Achieving equilibrium in terms of digital signage performance and placement vis-à-vis nearby landmarks gets at the most basic of





environmental concerns, namely impacting the locale in which the sign hangs. The concept is akin to the stark contrast between states that have outlawed or restricted placement of billboards along highways and driving down the Las Vegas Strip. The Screen Forum's admonition balances the legitimate desire to communicate important messages via digital signs with the need to appreciate the surroundings of the signs and minimize whenever and however possible the likelihood of the sign's detracting from their local environment.

Acknowledging the opportunity to use the network –if even only on a periodic basis– to raise the awareness of the public about environmental concerns is particularly fascinating because it recognizes there's far more to a digital signage network than hardware and software. In fact, the reason for being of any digital signage network is to communicate messages –often finely defined, narrowcast communications. Balancing that mission with the unrelated goal of communicating to the public about environmental concerns recognizes that there's more to communicating successfully than a well-defined message. It's almost as if the Screen Forum transplanted the concept of public service announcements from the television medium to the arena of digital signage, except digital signage networks have no government-mandated public service obligation to fulfill.

## **DIGITAL SIGNAGE: A GREEN MACHINE**

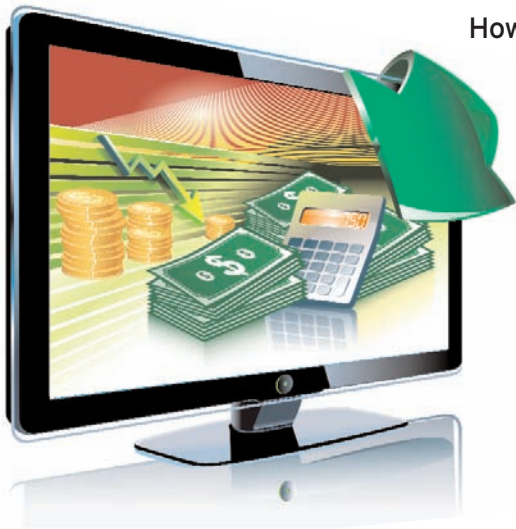
Without question, few people would commit to digital signage as a communications medium solely on the basis of its environmental impact. Digital signs must fulfill their primary function, namely effective communications, or they are of little use to marketers, advertisers and other professional communicators. That being said, there is no reason why their environmental friendly status shouldn't



be considered as another strong reason to consider replacing traditional printed signs where appropriate.

The green nature of digital signs offer communicators an opportunity to shrink the amount of plastic, ink and chemical coatings introduced into the environment, a way to reduce the number of trees cut for paper products, and eliminate the transportation emissions associated with the entire workflow chain from producing to displaying and ultimately replacing printed signs.

Beyond these benefits to the environment, going green via digital signage also positions communicators to realize cost savings, enhance productivity, improve responsiveness to changing communications requirements and make more efficient use of display space. This synergy between the environmental and business benefits of digital signs contributes to a healthier world and a more profitable bottom line.



However, simply replacing printed signs with their digital equivalents isn't enough to reap these benefits. Digital signs have their own set of environmental concerns, such as power consumption and the use of certain toxic or greenhouse gas producing chemicals in the production of displays and electronic components. However, with proper planning electrical consumption can be diminished, and industry efforts to remove elements like arsenic and cadmium from computer components are reducing the release of these chemicals in landfills.

Often businesses and their employees seek ways to be greener as they pursue their objectives but find it difficult to identify concrete steps they can take. For professional communicators, however, there is a greener way to disseminate vital information. That means is digital signage –a powerful medium that's also environmentally friendly.