

A guide from DigitalSignageToday.com

# Content and Content Management for Digital Signage



**INSIDE:** One consistency among all successful digital signage deployments is great content — just as important is the back-end management system used to control that content.

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# About the sponsors



*NEC Display Solutions innovates, produces and delivers display products and complete digital signage solutions for a wide range of vertical businesses, specialists and lifestyle applications. The company is wholly owned by NEC Corporation, one of the world's leading providers of Internet, broadband-network and enterprise business solutions, employing more than 150,000 people.*



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# Introduction

## The marriage of digital signage and content

**D**igital signage is an exciting new technology that is revolutionizing the way businesses interact with customers. The combination of affordable LCD screens, high-definition video and increasing interactivity is making digital signage an effective way for businesses and advertisers to reach customers.

While the possibilities of digital signage are exciting, just having a new, eye-catching technology is not the entire battle. The novelty of seeing high-definition screens in public places will wear off quickly if businesses do not take the time to create a valid content-management strategy.

“I don’t care how nice the monitor looks,” said Scott Koller, executive vice president and chief operating officer of Wireless Ronin Technologies of Minneapolis, Minn., a company that helps businesses create in-store marketing and advertising campaigns. “At the end of the day, if that content isn’t playing where and when it’s supposed to, and if that message isn’t reaching the customer, then the rest of it is for naught.”

“[Content management] is the most important thing,” said Craig Hubbell, executive vice president of media services for PlayNetwork of Redmond, Wash., a company that provides in-store music, video media and digital signage. “Content is king and the network itself is queen. The two really need to work well together.”

Good content management means that not only is the network running smoothly and the right messages are appearing at the right times in places where customers can easily see them, but also that the content is specifically tailored to the individuals who

comprise the customer base of a business.

“Most networks forget who the audience is and what their needs are,” said Jeff Collard, president of Toronto, Ont.-based Omnivex Corp., a company that provides display management software solutions for digital signage systems. Too often, “networks treat [the audience] like cattle to be sold to advertisers.”

But audiences do not want to be treated as faceless customers. With all of the technology and advertising that goes on in today’s world, it is easy for a person to feel disoriented and alienated, making it all the more important that digital signage realizes its potential and engages the customer as an individual, not as part of the crowd.

***The novelty of seeing high-definition screens in public places will wear off quickly if businesses do not take the time to create a valid content-management strategy.***

So how can the unlimited potential of digital signage be maximized? First, the right hardware must be purchased for the task at hand. The right hardware may be different depending on the size of the network, spending power of the business and what type of content will be playing on the digital signage.

Technologies like RFID, news and weather feeds, touchscreen kiosks and interaction with mobile devices can help engage the audience and provide instant feedback for the business.

**By Fritz Esker**  
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## INTRODUCTION The marriage of digital signage and content

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Aggregators can help match the right network with the right advertiser.

These factors are all components of what should be a well-thought-out, multilayered strategy designed to make a digital signage network as effective as possible.

“You have to have a sound hardware, software and content strategy in place to have a successful digital signage network,” said Michael Zmuda, director of business development for NEC Display Solutions of Itasca, Ill., a company that designs and produces visual display technology.

# Chapter 1 The major types of content-management systems

**B**efore an in-depth discussion of content management and digital signage can occur, it is important to understand the different types of content-management systems. Currently, there are two types of content-management systems: SaaS (Software as a Service) and enterprise.

Each system has pros and cons, depending on the wants and needs of the individual user. One size does not fit all, and one digital signage system may be perfect for one customer, but not useful for another. Before beginning a digital signage project, it is important for deployers to determine the type of content-management system that best meets their needs.

## SaaS systems

SaaS systems feature subscription-based software; display technology, such as a monitor; some form of PC or media player and a network with an Internet connection.

There are a number of benefits to using an SaaS system. The network is remotely hosted, meaning management of the network is outsourced to another company, saving a business from having to invest money in servers. Because the network is remotely hosted, there are redundant power grids and network connections in the event of a local power problem.

David Levin, president of Denver-based Four Winds Interactive, says typical SaaS users wish to reap the benefits of the best digital signage without having to spend the time, money and effort to maintain the infrastructure on the back end.

The Internet-based properties of SaaS systems also make it easy for users to obtain the system.

“It’s accessible from anywhere,” said Ryan Cahoy, managing director of Toronto, Ont.-based Rise Vision Inc., which provides Web-based software for digital signage. “Users can log in from a Web server ... You can have hundreds of people contributing content.”

While customers must subscribe to the software, Cahoy says it is a low monthly cost and customers can unsubscribe at any time.

“You can use as much as you need, when you need it, and cancel at any time,” Cahoy said.

However, no system is perfect. Like almost anything that involves an Internet connection, an SaaS system can be vulnerable to viruses and hackers and loss of the connection to the Internet. It’s important to have security standards and



*SaaS systems are Internet-based, so users can log in from a Web server, making adding content easy and accessible.*

firewalls in place, but most of today's SaaS systems are extremely secure.

### Enterprise (licensed) systems

With enterprise, also known as licensed, systems, the software is owned by the customer. The server must be configured with the deployer's network and the deployer is entirely responsible for the maintenance of his own software.

Michael Zmuda, of NEC Display Solutions, says most high-end complex systems are licensed because deployers can then create a digital signage network specifically designed to their needs.

Aside from customization, one of the major advantages of enterprise software is security from third-party intrusion. By maintaining their own network, deployers can ensure that potentially sensitive data and information is not viewed or stolen by third parties. This is also why many businesses use company e-mail addresses instead of popular (and free) e-mail programs like Gmail or AOL. Because e-mail on those programs goes through a separate server, it can be viewed more easily by outside parties, making the information more vulnerable.

Compared to SaaS systems, however, an enterprise system is relatively expensive. In addition to the higher monetary cost, an enterprise system also requires a longer installation process and maintenance must be performed by the network owner, meaning a larger investment in time and effort on the part of the deployer.

***Aside from customization, one of the major advantages of enterprise software is security from third-party intrusion.***

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### The future

While SaaS and enterprise systems currently are the main types of content-management systems, the future holds a new possibility: a hybrid system that combines SaaS and licensed technology. This system would allow the servers to be hosted remotely, taking the onus off of the business owner, but at the same time, it would have the flexibility to allow some customization and for the user to make a limited amount of changes to the content.

Scott Koller, of Wireless Ronin Technologies, uses Kentucky Fried Chicken (KFC) to demonstrate this type of hybridization. Using a hybrid system, KFC's corporate office would control most of the content on the digital menu boards of individual stores. However, individual restaurants would have the freedom to change certain things in their digital menu board. If, for example, there was a special sale at that store, or a different side item was available, the individual store would have the ability to promote that on its digital menu board.

## Chapter 2 Trends in content-management systems

**W**hile it is commonly acknowledged that content management is a vital part of a successful digital signage network, there is no one path to successful content management. There are a number of new trends in the marketplace that aid businesses in their content-management strategies.

### Ease of use

Making digital signage systems easier to use for both businesses and customers is an important trend in digital signage. The most cutting-edge, high-tech system will likely be a failure if people cannot understand how to properly use it.

When it comes to ease of use, Michael Zmuda, of NEC Display Solutions, says digital signage is at a fork in the road. On one side, there are complex, full-function systems that require a sophisticated user and programmer. On the other side is complete simplicity.

There may not be a right or easy answer. The correct solution can depend on the individual user and digital signage can have both options. Some savvy users will want more complex systems, but the majority of the people who will use digital signage will not be that technically savvy. In order for new users to warm up to the idea of digital signage, it has to be easy to use so it does not immediately intimidate and alienate users.

Part of what makes certain types of systems difficult is the software.

“The software was written by IT and networking folks for IT and networking

### Five considerations for high-quality content

Good content requires careful planning. Consider the following when thinking about digital signage content.

1. Have a defined message
2. Have a defined audience
3. Have a defined location
4. Have defined performance criteria
5. Know the software platform that best meets your needs

folks,” said Wireless Ronin Technologies’ Scott Koller.

He says as more and more people use digital signage, companies will design the software to be easier to use. The software will become more intuitive so people who are not computer experts can use it.



*Most digital signage deployers are not technologically inclined, and a complex, hard-to-manage system won't meet their needs. Software and hardware need to be simple enough so the average user doesn't feel intimidated.*

### Making digital signage easier to use

As digital signage expands its footprint in the business world, it's becoming easier for users to manage content. New technologies include:

- More intuitive software
- Widgets
- Pre-configured news feeds.

Koller mentions PowerPoint an example; a program that could be extremely complex has been made intuitive enough that even people who do not consider themselves computer experts can use it with ease. This is the direction that digital signage software is headed towards.

“If your content-management system doesn't make it easy to change information, you can't take full advantage of the technology,” said Four Winds Interactive's David Levin.

Widgets are something that can make digital signage easy to use. For example, if someone wants to have a weather feed inserted into his digital signage display, a cloud icon can now be simply dragged and dropped into an area on the creation page, ensuring weather updates are posted on the digital signage network without having to manually input the information.

News feeds also can be preconfigured for ease of use. While putting a news feed into a digital signage network sounds like a great idea — providing customers with relevant, useful and entertaining information — installing one is not as easy as it may seem.

“You can't just go to a Web site and copy a news feed, legally. It is a little more involved than most people think,” Zmuda said.

An agreement must be reached with the news agency to display the content, a process that can take valuable time for a business owner already managing a variety of daily responsibilities. However, content-management companies and software suppliers can now formulate agreements with news agencies, so the rights to a news feed can be obtained easily and affordably.

***Digital signage has to be easy to use so it does not immediately intimidate and alienate the first-time user.***

### Integration with third-party systems

Digital signage also is integrating with third-party systems, such as emergency alert systems. If a hurricane is getting closer to a city, then digital signage can display a tracking map for the storm or provide evacuation advice. If a child has gone missing, an Amber Alert can be

broadcast on the signage. By utilizing emergency information, weather and news, digital signage can give people information that is useful for their everyday activities. By providing useful information, people will think of the digital signage itself as useful and will therefore pay more attention to it when they see it.

“The people who have staying power [in the digital signage business] take real-time information and get it in front of people who want to see it,” said Jeff Collard, of Omnivex.

### Avoid clutter

While providing news, weather and emergency feeds can be advantageous for a digital signage network, a certain amount of restraint should be exercised in how much is being displayed at one time. If too many feeds are displayed simultaneously with ads, the customer might feel overwhelmed, not know where to look and, ultimately, walk away without seeing anything.

“[The informational feeds] can add a nice dimension of immediacy,” said Dylan H. Jones, owner and executive creative director of Jones Digital Media of Oakland, Calif., a company that helps businesses with strategy for their digital signage campaigns. “It works very well if you have a multipane screen ... but make sure it’s not cluttered. Control the screen clutter.”

### Use existing data

Companies also can use digital signage to take full advantage of information that already exists within the company’s files,



*By integrating digital signage with third-party systems like emergency alert services, the audience will become accustomed to looking to digital signage for vital information, making it easier to get attention for other content.*

but may not be well known by most of the employees.

“The biggest trend is enabling customers to take full advantage of data they already have,” Levin said. “Connect to existing data as opposed to having to create new data.”

In a corporate environment, this can mean using the digital signage to post sales statistics, manufacturing information, safety tips and any other pertinent information the company feels its employees should know.

***If too many feeds are displayed simultaneously with ads, the customer might feel overwhelmed, not know where to look and, ultimately, walk away without seeing anything.***

### Branding

Digital signage content also is being used for the sole purpose of branding, or advancing the lifestyle or image that a store seeks to promote. An example of this would be the signage used by the Hollister

Company of California. The store sells surfing-related items, so to promote the brand, the store has a screen that shows a 24-hour live feed of Huntington Beach. Does it advertise a specific product? No, but it does promote the store's image and brand and gives it an added veneer of hipness.

### RFID

One trend that is becoming very popular is the radio frequency identification (RFID) tag. An RFID tag works like this: a chip is placed into a device that can be scanned whenever it comes into close proximity with a sensor. For example, an RFID chip can be placed inside a traveler's hotel key card. When the traveler passes a digital display, the RFID tag will communicate with the sensor, letting the display know the identity of the person passing by and enabling it to flash relevant information, such as what conference room his meeting is in, or ads for nearby restaurants.

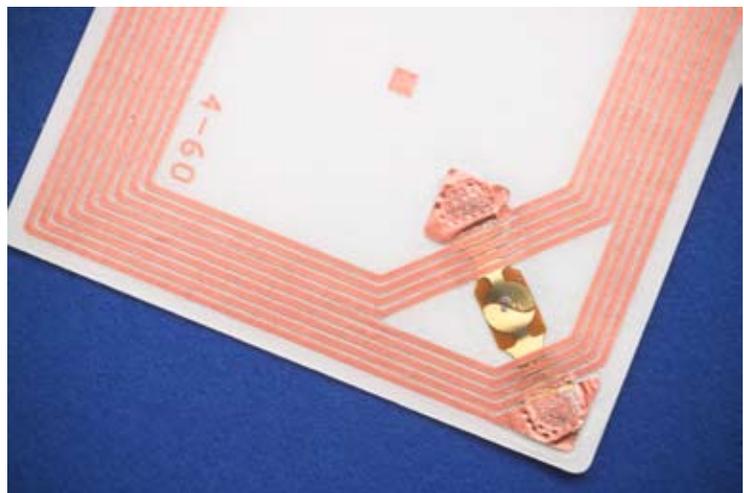
RFID chips also can be placed into loyalty cards for retail stores. If a customer has a loyalty card and passes a display kiosk, targeted digital signage can activate, making purchase recommendations for the specific customer. RFID chips can be placed into items of clothing, so when a customer goes to a fitting room to try on that item of clothing, the screen can scan the chip and the signage can display other suggested clothing items as well as variations for the current piece of clothing, such as different colors or sizes.

At Wireless Ronin, Koller works with Aramark, a food services company, and he thinks similar technology will soon be in place for college students to use at



*Digital signage can help a store brand itself and reinforce a certain image.*

university cafeterias. Already, Koller's company has created the Burger Studio, where customers can order their food from a kiosk, then take a ticket and pick up their orders. This way, customers feel like they have greater control in the ordering process. If the order is wrong, it can be



*RFID tags can be placed into any device that is then scanned when it comes into close proximity with a sensor, causing nearby digital signage to display targeted messaging.*

easily discovered from the customer's ticket whether or not the error was made by the staff or the customer using the display.

In the future, Koller says students will be able to swipe a card and the kiosk will have a history of the food items and payment methods that student has used in the past. If the student orders a plain hamburger on a regular basis, the kiosk will tell the customer that he has ordered the same food item a certain number of times in a row and will ask him if he simply wants to repeat that order. This will save the student the time and effort of re-entering his order every time he uses the kiosk.

### Network monitoring

Network monitoring is another important trend in content management. Companies can set up a digital signage network, but the network is useless if it is not installed properly or if there are technical difficulties.

“For mission-critical digital signage, it's not only about the system operation,” Zmuda said. “It's also about real-time diagnostic monitoring.”

To illustrate this point, Zmuda uses the example of a fast food restaurant with digital menu boards. In the past, a store worker might have to first notice that the display was not working, then make a phone call to inform the right people that the display was down. That process wasted valuable time that could cause customers to grow impatient and possibly take their business elsewhere. As the old saying goes, time is money, and real-time monitoring

***“For mission-critical digital signage, it's not only about the system operation. It's also about real-time diagnostic monitoring.”***

— Michael Zmuda, director of business development, NEC Display Solutions

of digital signage will save companies both time and money.

### PC-based hardware and software

Lastly, an emerging trend in content management is the shift to PC-based hardware and software, as opposed to proprietary software and associated hardware. The first benefit of a PC-based digital signage system is the installation cost.

“Everyone is looking to lower the cost of installation and the media playing device is one of the first things on the list,” Zmuda said.



*PC-based hardware and software is less expensive and more flexible than proprietary software, allowing spaces like malls to take advantage of digital signage.*

While a lower price is a plus, that alone is not worth making the shift to PC-based hardware and software. Another important advantage is flexibility.

PC-based systems use Windows, a standard program that works the same across PCs. Proprietary non-Windows software is unique to one company and that company's hardware. The hardware cannot play other companies' software. Therefore, if the company that provides the proprietary hardware and software goes out of business, there is no easy way to replace it. The whole system must be redone, which can be expensive. On a Windows-based platform, the only component that would need to be changed would be the software, meaning a lower risk for a business that chooses to invest in a digital signage system.

“The flexibility is better on a PC,” Levin said. “The more openness and the more power you have on the digital device, the more you can offer.”

## Chapter 3 OOH and the use of aggregators

For decades, effective advertising meant TV, print and radio campaigns. Most advertising was meant to reach customers when they were at home (with the exception of radio ads, which could reach customers in their cars). Now, newspaper circulations are rapidly declining and print ad revenue is down. Inventions like TiVo and DVR make it easier for people to fast-forward through television commercials, while satellite radio and iPod docks make it easier for people to listen to music without commercials. The problem is many advertisers have not adjusted their thinking to this new era.

“Advertisers are still tied into a TV mentality,” said Jeff Collard, of Omnivex.

Instead of viewing digital signage as a way to deliver a targeted message to a specific person, advertisers are still sending out untargeted messages aimed at a massive audience. Advertisers want a big package; they do not want to deal with small individual companies on an individual basis. This is where aggregators enter the picture.

### Aggregator benefits for advertisers

Aggregators serve as something like a matchmaker, linking businesses with advertisers.

***Advertisers want to know that their ads will reach many screens before they commit to a business, but the business needs advertising revenue before it can put up many screens. Aggregators are able to bundle the smaller screens from various stores together, solving the problem for both advertisers and businesses.***

***“Advertisers are still tied into a TV mentality.”***

— Jeff Collard, president, Omnivex

An aggregator can find out what demographic an advertiser wants to reach, then link that advertiser with a package of small stores with digital signage networks that the advertiser can devote time to in order to reach its desired demographic. Because digital signage is so targeted and specific, the end result is fragmentation, meaning media buyers do not even know where to begin when it comes to getting their ads out to the right places.

### What does an aggregator do?

An aggregator:

- Links businesses with appropriate advertisers
- Takes the time to target businesses that reach the advertiser’s desired demographic
- Eases the burden on media buyers.

In the days before cable television, advertisers knew that people would be watching one of the three major networks, so it was easy to reserve space there and know that the message would reach the right audience. But with digital signage, there are so many individual screens in

## CHAPTER 3 OOH and the use of aggregators

different locations that it is not easy for an advertiser to know what ads should go where. This is where aggregators can help.

“Media buyers get frustrated because there are so many options,” said Dylan H. Jones, of Jones Digital Media. “There’s so many different places to buy from, from a small hair salon to a large Wal-Mart-type store.”

Collard uses the example of a dentist’s convention to illustrate his point. The convention lasts for three days and there will be digital signage displays at the convention. However, advertisers are not used to thinking in three-day increments for ads, or planning for that targeted of a campaign. An aggregator can include the signage at the convention as part of a larger package, something the advertiser will more easily understand.

Advertisers typically want a large bundle of screens. For small businesses, a large bundle may not be affordable.

Rise Vision’s Ryan Cahoy says this becomes a “What came first? The chicken or the egg?” dilemma. Advertisers want to know that their ads will reach many screens before they commit to a business, but the business needs advertising revenue before it can put up many screens. Aggregators are able to bundle the smaller screens from various stores together, solving the problem for both advertisers and businesses.

### Aggregator benefits for businesses

Aggregators do not just make things easier for advertisers; they make things easier for the business owners as well. A store



*Aggregators connect store owners with advertisers, saving time and helping a store make the most of its advertising budget.*

owner might be very knowledgeable about his business and how to run his store, but he may not be very good at marketing his store. Aggregators can connect store owners with advertisers in a way that will get the store’s brand messaging across to potential customers.

***Aggregators can connect store owners with advertisers in a way that will get the store’s brand messaging across to potential customers.***

Aggregators also keep store owners from having to waste valuable time doing legwork. Instead of spending time chasing down advertisers and trying to convince them to take out ads on the store’s digital signage network, the store owner or manager can remain focused on the day-to-day operations of the store, while still reaping the benefits of robust advertising on the digital signage network.

### Next generation of aggregators

According to NEC's Michael Zmuda, "The next generation of aggregators will be able to automatically link large numbers of independent digital signage networks. The advertisers and ad agencies will be able to easily select the networks and venues where they wish to run ads, make offers to place the ads and download the ads without any manual intervention — it will be much like ad placement on the Internet."

This automatic ad placement will take place completely agnostic to the type of CMS system that the network may be running.

## Chapter 4 Add-ons

**A**s digital signage evolves, a number of add-ons become not only available, but commonplace. Companies are finding ways to be more creative with their content, so that digital signage is much more than music or movies playing on a TV screen.

### Interactivity

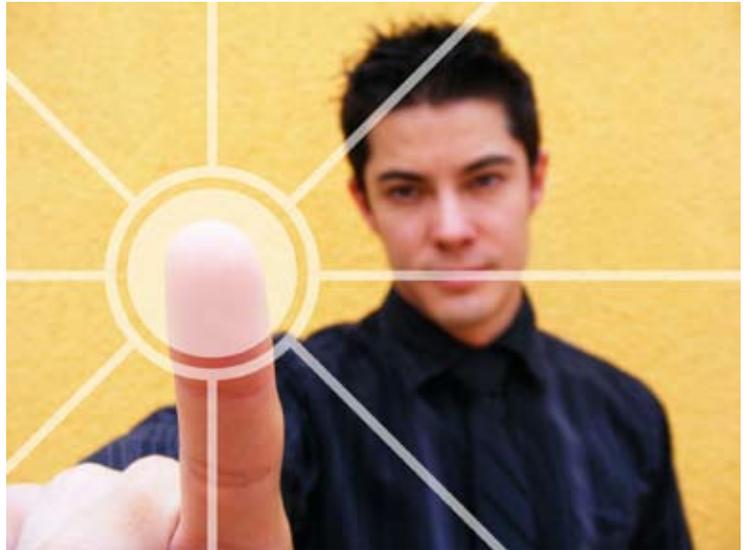
One of the most important add-ons in the world of digital signage is interactivity. For digital signage to be successful, it has to engage specific customers on an individual level. Digital signage cannot follow a one-size-fits-all method of advertising.

Interactivity is a way to engage customers on a personal level with the ads and give the customer a sense of control, so he feels he is choosing to see the content that appears on the screen and that it is not just being forced upon him by a faceless corporation.

“The stuff has to be relevant for the person in front of the screen,” said Jeff Collard, of Omnivex. “If I’m in front of a screen and all you’re doing is throwing ads at me, I don’t have to look.”

One of the ways to keep customers interested in the signage is to provide relevant, educational information and combine that information with interactive components.

“Interactivity is completely the future,” said Rise Vision’s Ryan Cahoy. “Everyone’s comfortable with the iPhone and BlackBerries. People are very, very comfortable interacting with that type of screen and that’s translating to digital



*Customers need to be engaged on a personal level and feel like the message is aimed at them. Touchscreens are one way to engage customers.*

signage. Within two or three years, most digital signage screens will be interactive.”

For example, if the digital signage is a part of a large museum, then a touchscreen kiosk can include an interactive map that allows visitors to familiarize themselves with the surroundings.

If an ad is promoting an event, then the digital signage should allow people to use the touchscreen to register for the event right there, while information about the event is still fresh in their minds.

A digital signage kiosk at a store can include features where a customer can use

***Interactivity is a way to engage customers on a personal level with the ads and give the customer a sense of control, so he feels he is choosing to see the content that appears on the screen and that it is not just being forced upon him by a faceless corporation.***

the touchscreen to see a demonstration of a specific product's features and how that product is used. There also can be fun things like trivia games to keep customers entertained.

Interactivity also can be tied into social networking sites like Facebook and Twitter that are becoming more popular every day. PlayNetwork's Craig Hubbell says companies can create Facebook and Twitter pages tied into their stores' digital signage. Users either can become a fan of the page on Facebook or follow the store on Twitter. If a music video is played at the store, it can be played on the Facebook page as well. People who go to the Facebook or Twitter pages can then be allowed to vote on which features they like the best and make suggestions on how the company can improve its advertising.

### Mobile devices

Mobile devices, such as cell phones, already are having an impact on digital signage, and they are poised to be a big part of the future of digital signage. They are an extension of the existing trend of digital signage becoming more interactive.

The most obvious example of the marriage between digital signage and mobile devices is that of a digital sign telling customers to text a number to receive a coupon or more information about a product. Such communications can allow a customer to opt-in and receive future communications from the business, even when the customer is outside the store.

Mobile communications also allow for instant feedback on whether or not customers are actually engaged with the

***Mobile communications also allow for instant feedback on whether or not customers are actually engaged with the digital signage, or merely glancing at it as they pass by.***

digital signage, or merely glancing at it as they pass by.

"You can spark a whole series of communications off the back of that first communication," said Patrick Collins, president of 5th Finger, a San Francisco-based company that specializes in mobile marketing.



*Cell phones can become an extension of digital signage, allowing customers to engage with the signage and increasing the impact of the messaging.*

Coupons, educational messages and any other announcements the company wishes to send to customers can be communicated via mobile device. Customers can earn loyalty points by staying with the program for a certain amount of time, and those loyalty points can be transferred to coupons or even into PayPal, allowing customers to get cash back.

Mobile devices can be used in ways similar to RFID chips. If a person opts into a store's membership program, then that person could walk up to the digital signage, hold up his phone and content would appear on the screen that is tailored to that specific customer's interests and buying history.

Coupons also could be loaded onto the phone and then scanned at the checkout, giving customers discounts on products.

Downloading music or video content from the display also is a possibility.

"Mobile devices are a great way to interact with a display that is not interactive," said David Levin, president of Four Winds Interactive.

Cahoy says mobile devices will soon interact with digital signage in ways similar to how a remote control interacts with a television set. As handheld devices become more and more like mini-computers, they can become an extension of the digital signage.

"Instead of going to the computer to change the channel or the playlist, you'll be able to do it from your mobile device," Cahoy said.

***"Mobile devices are a great way to interact with a display that is not interactive."***

— David Levin, president, Four Winds Interactive.

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### Measuring effectiveness

One of the big questions posed by digital signage has been "How do you measure the amount of people looking at the sign?" Interactivity is an easy way to solve that problem. By getting the customers to interact with the signage, companies can then measure how many people are engaged by the sign. For example, a touchscreen display can measure customer "hits" the same way an Internet page can measure its traffic.

NEC Display Solutions' Michael Zmuda says interactive displays also can help businesses understand what is working and not working with their digital signage.

For example, a company might have its logo at the bottom corner of its touchscreen display, but touching the logo does not lead to any interactive transition based on the original content layout. Tracking the touches of this display can give the business feedback as to what the customers want to be interactive,

***By getting the customers to interact with the signage, companies can then measure how many people are engaged by the sign.***

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much like clicks on an Internet site. If the customers keep touching the logo, then the company might want to make the logo part of the touchscreen interface and have it lead to more information when touched.

“The more interactivity, the more things people can do [to measure the audience],” said Brian Tervo, chief executive officer of TIE Kinetix of Burlington, Mass., a brand management company.

Companies also are finding other creative ways to monitor the success of their digital signage. Collard tells the story of how travelers at Heathrow Airport in London were asked to put on glasses while waiting for their flights. As they walked through the terminal waiting for their planes, the glasses would record exactly what the travelers looked at and for how long. It could follow where their eyeballs went and therefore tell businesses what digital signage displays were getting customers’ attention.

### Adaptability

An important add-on to digital signage networks is the ability to adapt to specific environmental conditions.

This can be done in a few different ways. One way is to link the digital signage content to the store’s inventory.

For example, if toasters are an item a store has in excess, then the digital signage can be programmed to spend more time promoting the toasters.

The opposite of this can be effective as well. If toasters are sold out, then any ads for toasters can be removed from the digital signage playlist until toasters are back in stock.

Digital signage content can be adjusted to fit outdoor environmental conditions

### Areas of adaptability

To make the most of digital signage, it should be able to adapt to:

- Specific environmental conditions within the retail environment
- Outdoor environmental conditions
- Daypart

as well. If it is raining outside and a store sells umbrellas, then the signage can be programmed to promote umbrellas while the rain lasts.

Koller and Wireless Ronin worked with a coffee shop on a similar initiative. They entered the zip code and the temperature for the store. If the temperature for that zip code was considered to be warm or hot, then the digital signage promoted cold drinks. If the temperature was considered to be cool or cold, then the digital signage promoted hot drinks.

Companies also can adjust their content to the time of day. If senior citizens frequent the store at a certain time, then the content during that time can be targeted toward them. If teenagers frequent the store at a different time, then the content can be catered to that demographic during that time.

There are more advanced techniques for this, too, including facial recognition software. Cameras can pinpoint whether a face belongs to a young or old man and the ad the signage plays can be adjusted accordingly (e.g., playing a music video ad for a younger man and a more conservative ad for an older man).

## Conclusion Keep the content fresh and personal

**W**hen all is said and done, companies need to remember that they must not grow complacent with their digital signage networks. Novelty will soon wear off and businesses should make sure their content stays fresh. On-screen content will become considerably less effective as customers see it for the fourth or fifth time.

“The more frequently a customer visits an establishment, the more frequently the creative content needs to be changed to be effective,” said Michael Zmuda, of NEC Display Solutions. “People ignore something if they see it over and over again.”

The only way to fight digital signage becoming mundane and impersonal is through a good content-management strategy. Without it, digital signage will turn into an overwhelming maze of information that businesses and customers struggle to navigate.

“As digital signage grows and applications become more complex, the importance of the content-management system grows,” said Four Winds’ David Levin. “It is the most important part of the digital signage equation.”

*“The more frequently a customer visits an establishment, the more frequently the creative content needs to be changed to be effective. People ignore something if they see it over and over again.”*

— Michael Zmuda, director of business development, NEC Display Solutions