

A guide from DigitalSignageToday.com

Mobile Interactivity



INSIDE: Digital signage and mobile devices continue to converge when it comes to communicating marketing messages to consumers. This guide addresses the multiple types of interactivity between the two technologies, and how best to take advantage of them.

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Contents Mobile Interactivity

Page 3	About the sponsors	
Page 4	Introduction	 The digital revolution
Page 5	Chapter 1	 Convergence defined
Page 7	Chapter 2	 Forms of convergence <i>DTMF</i> <i>SMS</i> <i>2-D bar codes</i> <i>Bluetooth</i> <i>Photo recognition</i> <i>Mobile Web</i> <i>Location based</i>
Page 11	Chapter 3	 Measurement advantages <i>Trends in mobility and its impact on digital signage</i>
Page 14	Chapter 4	 Best practices <i>Location</i> <i>Content</i> <i>New mobile application enables handheld digital signage</i>
Page 16	Conclusion	 On the horizon

About the sponsors



Symon Communications Inc. is a leading provider of award-winning digital signage and visual communications solutions. The company has been in business for 30 years and serves more than 8,000 customers worldwide. Symon's client roster includes nearly 80 percent of the Fortune 100 and nearly 70 percent of the Fortune 500 companies. Each day more than 5 million people view content delivered via Symon's solutions.



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Written by **Richard Slawsky**, contributing editor, DigitalSignageToday.com

Dick Good, CEO

Tom Harper, president and publisher

Andrew Davis, senior vice president, sales and marketing

Joseph Grove, executive editor

Introduction

The digital revolution

There is no doubt the world has changed, and digital devices have been at the forefront of those changes.

Walk down any street in America and chances are that a large percentage of the people you encounter will have a cell phone in their hands. Some will be busy chatting away, others will be sending text messages and still others will be surfing the Internet, all while going about their daily business.

Nearly 88 percent of Americans subscribe to cellular phone service, according to CTIA–The Wireless Association. Back out those five years old or younger, and that number rises to nearly 99 percent. It's a safe bet that virtually everyone in the United States will own a mobile phone within the next five years.

Although computers with Internet access were a relative rarity 15 years ago, today they are ubiquitous. It's nearly impossible to imagine going about life without access to Google, MapQuest or any of the news services we check on a daily, if not hourly, basis.

The digital revolution has extended to advertising as well. Drive down the highway, and where once stood static billboards now stand massive digital signs with pulsating colors and full-motion video. Walk through an airport, go to the movies, have lunch at a restaurant or visit a retail store and some aspect of the digital age will be encountered, whether via a digital menu board, a plasma screen displaying the latest products or an invitation to send a text message to receive a discount on a purchase.



By Richard Slawsky
Contributing editor,
DigitalSignageToday.com

Virtually everyone in the United States will own a mobile phone within the next five years.

Digital devices are changing nearly every aspect of our lives. And because the various aspects of our lives are connected, it only makes sense that the functions of the digital devices that affect our lives are becoming interconnected as well. In fact, that interconnection has become so prevalent that it's been given a name: convergence.

Chapter 1 Convergence defined

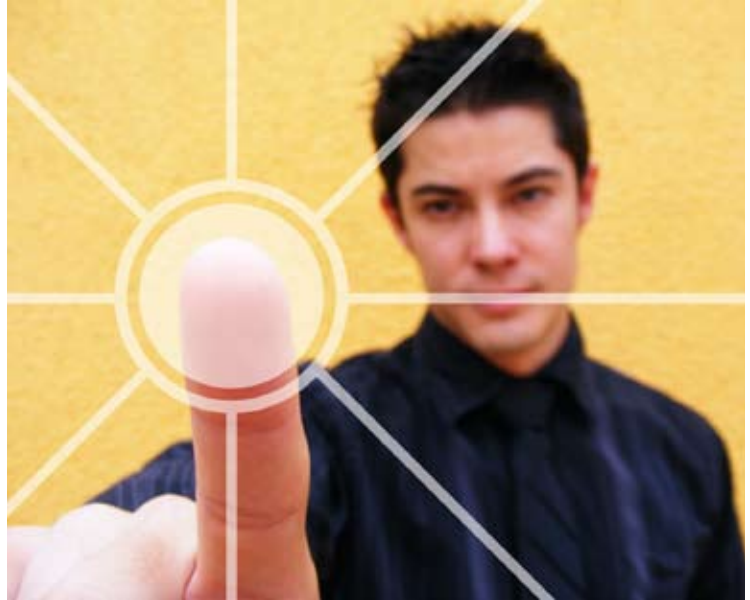
The technical definition of convergence as it applies to digital signage is the operational interplay between the systems that power the delivery of content to digital signage networks and the systems that deliver content to and from mobile devices such as cell phones.

In plain English, convergence in the digital signage space means the addition of new interactive technology, bringing multiple elements together and creating a more immersive and engaging experience for the customer.

A dramatic change in the way information is delivered is one of the main drivers of convergence, experts say.

“If you look at the changes occurring within our society, you have people who are rapidly abandoning traditional media, such as newspapers, magazines and even network TV,” said Steve Gurley, senior vice president of marketing with Plano, Texas-based Symon Communications Inc. “They are acquiring information in new ways, primarily through social media such as Facebook, Foursquare and other applications that facilitate the exchange of news and things that are important to individuals.”

Those changes are incorporating an increasing reliance on wireless technologies as today’s customer embraces data and digitally-oriented communications. The end result is that the customer is being overwhelmed with a variety of messages from a variety of sources.



For digital signage to be effective, it must present a compelling argument for viewers to stop and look at it. Technologies such as touchscreens can engage a customer.

“Consumers today are more cynical about what they see and they are more inclined to render an opinion about things that they encounter,” Gurley said. “They are more difficult to engage because they only want to engage with things that have value to them because they are being hit from so many different directions.”

The good news for digital signage, Gurley says, is that it can play a role in capturing customers’ attention in ways that are vast, visible, up to date and to the point. The bad news for digital signage, at least currently, is that it is disconnected from today’s communications models.

“Digital signage lacks the feedback mechanisms that consumers, particularly the young, are demanding, and it lacks the ability to substantiate its value, particularly in terms of calls to action,” Gurley said.

So that digital is more relevant to mobile consumers, the signage must engage them in ways that allow them to absorb information and allow the digital signage operator to qualify and quantify interactions.

That's where convergence comes into play.

"When you look at the digital signage imperative, it must converge with the technology that the youth and the upcoming consumers are increasingly using," Gurley said. "And that is mobile."

One of the main drivers of the concept of convergence is the quest to add value to digital signage. Without that added value, digital signage simply serves as a more expensive replacement for traditional signage.

"Often, traditional digital signage is placing a TV or a display at a point in space," said Mike Schaiman, co-founder of San Francisco-based display technology company Helios Interactive Technologies.

"To expect consumers to spend a significant amount of time watching that without having something, without having a compelling argument as to why they should be spending time at that display, is a nonstarter for a lot of advertisers," he said. "For that reason, what we do is integrate a number of different elements into the digital display, whether it is a display that reacts to gestures and motions, whether it is a touchscreen, whether it is facial recognition or augmented reality, or whether it is creating displays that can be controlled by mobile phone and other devices."

So that digital is more relevant to mobile customers, the signage must engage them in ways that allow them to absorb information and allow the digital signage operator to qualify and quantify interactions.

"We are at the point right now where more and more consumers are not differentiating between the various screen options they have as a way to consume media and engage with their social network, whether they are talking about a computer, a digital place-based screen or a mobile device," said Dan Levi, senior vice president of digital media and strategic partnerships with New York-based Zoom Media & Marketing.

"What we're finding is that our digital place-based network can be used as kind of the fulcrum for all of those coming together, giving consumers the opportunity to interact, whether it is with content that runs on the screen, advertising that is running on the screen or a connection between consumers' existing social media and what's actually happening in the real world."

Chapter 2 Forms of convergence

The convergence of mobile phone technology and digital signage is manifest in seven distinct ways. Some, such as DTMF and SMS, are already well established in the marketplace. Others are still on the drawing board.

DTMF

Dual-tone frequency modulation utilizes the touch-tones generated by a cell phone's key pad to respond to or control content on a digital sign. Touch-tone interactions are recorded and tracked on the back end for the purpose of quantifying signage viewership and call-to-action responses.

DTMF is modeled after the standard voice-response telephone systems, except the action takes place on a digital sign instead of a telephone switchboard.

"I can call into a number that's tied to a particular digital sign, the number acknowledges that I've called in and it gives me instructions to enter a number for one event, enter another number for another event, and so forth, and those events are reflected on the screen," said Symon Communications' Gurley.

"Let's say I use my keyboard as a directional arrow," he said. "So pressing '2' takes me up, '6' takes me to the right, '4' takes me to the left and '8' takes me down, so I can navigate a screen just by pressing those numbers on my keypad. I'm working on my phone and seeing things move around."

SMS

Short message service, or text messaging, is currently one of the main forms of mobile/digital signage convergence in the marketplace today. Essentially, customers are invited to send a text message to a number displayed on a digital sign. In return, they receive something of value.

"With SMS messaging, the big advantage is that almost everybody has an SMS-capable phone," said Bob Rosenberry, manager of visual solutions for Palo Alto, Calif.-based technology company HP.

There are four SMS-based convergent applications, according to Gurley. Those are:

- **Signage as recipient.** In this implementation, signage viewers send text messages via a short code to a digital sign for the other viewers to see. Viewers of the messages can then send their own text responses to the message, thereby creating a group dialogue. This feature is frequently used in places where people congregate and is typically instituted as a way to stimulate conversation.



The popularity of text messaging makes it an effective way to engage with customers.

- **Content selection.** This implementation allows the viewers of digital signage to control the content that appears on the screen. For example, a user could text the keyword “11111” to short code 55555 to see a movie trailer, or text the keyword “22222” to the same short code to see a music video. The content management software receives the code and changes the displayed content accordingly. It also tracks and reports on the viewer’s content preferences.
- **Content control.** This implementation allows viewers to use their phone’s SMS feature to control elements on a screen. For example, the viewer can move game pieces on a game board by texting a keyword to an SMS short code. The signage software uses these keywords to manipulate the game pieces and control the action of play. Like the “signage as recipient” implementation, this model is designed to get large crowds engaged with the content.
- **Promotional/marketing.** This implementation uses the digital signage to promote an interaction between the viewer and a marketing promotion. For example, the digital signage may display a message that says “Text the keyword COUPON to 55555 to receive a coupon for 20 percent off of your next oil change.” In another example, the digital signage could encourage viewers to text a keyword that will initiate the delivery of promotional content back to the viewer’s handset.



Barcodes embedded in digital signage offer a way for retailers to learn more about their customers’ preferences, but the wide variety of encoding schemes makes widespread adoption problematic.

2-D bar codes

This method enlists digital signage viewers to use their cell phones to photograph a 2-D bar code that is present in the digital signage content. The cell phone employs an application that interprets the bar code and directs the phone to display content that is connected to the bar code.

For example, imagine a customer in front of a product display case at a retail store. The customer takes a picture of a tag on the digital sign using his mobile phone and an application on the phone recognizes the product and places a call to a customer service center, or displays information about the product on the phone itself.

“I think there are several different advantages from the customer’s perspective,” said Brian Ardinger, senior vice president and chief marketing officer for Lincoln, Neb.-based technology company Nanonation. “It is information that is relevant to them and it gives them a way to interact and engage with the brand that they couldn’t before. From a business perspective, it gives the brand the

opportunity to have further conversations with their customers, but also has a potential to push some of those costs that you might have had with a stand-alone kiosk to the owner of the phone. You don't have the upfront infrastructure costs for the screens, because people are already walking around with screens."

There are some major obstacles to widespread adoption of 2-D barcode technology, however.

"The problem is that there are more than 60 2-D barcode encoding schemes out there, and 13 different encoding schemes that are supported by mobile phones," Gurley said. "The chances of the consumer already having the appropriate application on their phone for interpreting a specific barcode are slim."

Bluetooth

This method uses a Bluetooth transceiver situated near the digital signage to initiate a wireless data connection to the viewer's Bluetooth-enabled handset as the viewer comes in close proximity to the screen. Once the connection is established, the system sends the viewer content that augments and enhances content on the digital signage. The system also tracks who, where and when these interactions were established, enabling the network operator to track viewership.

To date, there has been only limited penetration of Bluetooth technology in the marketplace.

"Not all phones are going to be Bluetooth accessible, which means that your audience is already limited before you account for

whatever adoption rate you will get," said Helios Interactive Technologies' Schaiman. "It is definitely an area of interest for us, but the market today is fairly immature."

Photo recognition

This method is similar to 2-D bar codes except that rather than photographing a bar code, the viewer photographs the entire digital sign. An application on the cell phone then interprets the photo and directs the phone to display content that augments the content on the sign.

"Nokia's Point & Find application is an excellent example of this form of convergence," Gurley said.

"The Nokia Point & Find application allows users of certain Nokia smartphones to point their camera phone at an object and receive content or information tied to that object," he said. "For those who view this technology as obscure, one need only consider that Google and several other companies are actively pursuing a similar offering as a means to facilitate the shopping experience."

Mobile Web

This method utilizes digital signage content that promotes URLs that link to content that is designed for presentation on a mobile phone's browser. The mobile content then augments the content on the digital signage. Just as with the other mobile methodologies, viewer interactions with the mobile Web are statistically analyzed for the purpose of extrapolating viewership.

Although most experts agree that augmented reality is destined to be one of the dominant forms of mobile phone/digital signage convergence, the current challenge is finding a practical application for the technology.

Location based

This method, commonly dubbed augmented reality, utilizes a cell phone's geo-positioning capability to deliver content to a viewer. The content on the digital signage invites viewers to launch an application on their cell phones. The application determines the longitude and latitude coordinates of the viewers and delivers content that augments the content presented on the digital signage.

Although most experts agree that augmented reality is destined to be one of the dominant forms of mobile phone/digital signage convergence, the current challenge is finding a practical application for the technology.

“At our last sales conference, one of the things my team and I did was to give an overview of the various technologies to our sales team so they can be aware of what's going on and what to talk about,” said Zoom Media & Marketing's Levi.

“Augmented reality was one of the things that everyone thought was the coolest, and nobody could figure out what to do with it,” he said. “I think that's the case right now. It is cool enough, but there hasn't been really any practical application across our networks.”

Chapter 3 Measurement advantages

From the perspective of the advertiser and network operator, one of the main advantages of the convergence of mobile and digital signage technology lies in its ability to measure the audience. Any system that creates an interface between mobile technology and the content management system of a digital sign is going to have the capability to record transactions, to record how people are interacting, see what they are doing and what they look at.

Depending on the implementation and the type of network, operators can gather information ranging from the very general to the very specific.

“With mobile technologies, I can start at a high level and watch what signage viewers find of interest,” said Symon Communications’ Gurley. “I can then see what specific content is of interest, offer them more content, capture their interactions, allow them to give me their feedback and then track their continued level of interest once they leave the venue. I also can engage them after they leave the venue. It’s not a one-shot opportunity. With mobile technologies, the possibilities are almost endless.”

Such control doesn’t necessarily constitute an invasion of privacy, however.

“You don’t necessarily need to give up your personal information for an interaction,”

Gurley said. “You may give up the EID or device ID of your phone, but you really haven’t given up any personal information, per se. But the interaction itself, which provides more content and more information to the consumer, is where the value lies. If I see something on the screen that attracts me, or if I can get more relevant information, then it is a better experience for me and I am more willing to do that.”

It’s necessary, however, for an advertiser to provide a customer with something of value to persuade them to interact and provide that information, says Nanonation’s Ardinger.

“If I’m going to give you my e-mail or let you know who I am, what does the retailer have to do that makes it worthwhile for me to engage them in that particular manner?” Ardinger said. “It’s different for different brands and for different offers, but at the end of the day that’s what drives the interaction.”

Audience measurement is more than simply counting numbers of people. If a customer’s personal information can be captured, it smooths the way to establish a deeper bond with that customer.

Often, media today is used as a way to promote a product and capture e-mail addresses, phone numbers and names, but the reality is that people who are

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CHAPTER 3 Measurement advantages

using social media, mobile technology or digital out-of-home are using it in much more of a long-term fashion, says Rob Gorrie, president and founder of digital out-of-home aggregator and strategy firm Adcentricity.

“There is definitely a CRM component to it that allows you to start a longer dialogue,” Gorrie said. “But then you can take it up even higher, and start asking what their participation in these programs through mobile and digital out-of-home actually does and where does that allow me to take the ongoing conversation.”

Trends in mobility and its impact on digital signage

By Steve Gurley, senior vice president of marketing, Symon Communications

Excerpted from "Trends in Mobility and the Implications on Digital Signage," posted on DigitalSignageToday.com.

It could be said that digital signage is a 21st century technology whose value can only be truly quantified by using 1950s measurement technology. The great paradox of digital signage is this: in today's signage networks, content is designed using sophisticated software, managed through intricate scheduling systems, delivered over sophisticated networks, run on advanced media players, presented on state-of-the-art monitors, to be seen and acted upon by... well, your guess is as good as mine.

In an age where Internet advertisers can target and measure audiences with exacting detail, the best a digital signage network operator can typically do is to determine whether or not someone looked at the screen. If a signage operator wants any details beyond that, surveys and questionnaires must be employed — a throwback to the 1950s.

Sure, one may be tempted to propose a scenario wherein an operator could tie their digital signage system into a point-of-sale or inventory system and then apply sophisticated analytical models to quantify the business impact of viewership. Possible, yes; but not an easy model to scale due to the extensive skills and resources required to pull it

off. One may also be tempted to point out that viewership can be quantified via visual recognition systems that can tell an operator/advertiser the sex and approximate age of a viewer. This is true, but unfortunately few if any recognition systems can tell the operator/advertiser whether the content prompted a response and then go on to quantify the business impact of the resulting response.

This is a big problem. Just look at the newspaper industry. Centuries-old journalistic icons are closing their doors because they cannot measure who views and then acts upon their ads. Gone are the days when rough approximations of viewership were satisfactory.

Does this foretell of a potentially limited future for digital signage? The logical conclusion would be yes, unless...

Unless what? Unless the same systems that design, manage and deliver content can also track viewers in response to a call to action. One scenario would suggest that viewer tracking, including call-to-action monitoring, can be achieved by marrying digital signage content management systems with emerging mobile technologies.

It is clear that rapidly evolving trends in mobile communications are facilitating the aforementioned convergence of digital signage with mobile technologies.

[Click here to read the entire paper.](#)

Chapter 4 Best practices

As with everything, interactivity between mobile phones and digital signage has its place.

Location

The effectiveness of convergent content will depend in large part on the venue in which it is located. Because such content requires a viewer to spend some time in front of the screen, chances are it's not going to be successful as "glance media."

"All this stuff probably works a lot better when you have captive audiences as opposed to transient ones," said Helios Interactive Technologies' Schaiman. "It has a bit more play in a food court or in a movie theater, where there is a significant amount of dwell time."

Deployers need to think about how a person is going to be engaged and what are the environments where they will get engaged in a big way, says Zoom Media & Marketing's Levi. Zoom operates the largest digital out-of-home network located in bars and other nightlife destinations.

"We program our bar network with an eye towards how consumers are using media in that space," Levi said. "The reality is that our screens are looked at frequently over an extended period of time. The average dwell time in our venues is about two hours and 10 minutes."

In that situation, nobody thinks twice about texting, using Twitter or checking their Facebook page, Levi says. Using mobile devices already is part of the behavior, so the advertising opportunities are a logical connection.



In venues such as bars, customers are used to using their mobile devices, making it easier to integrate already te mobile advertising opportunities.

Zoom's research shows that one in five people in a bar or other nightlife destination already have experience with using their mobile phone to interact with advertising.

"We talk about it as the casual consumption of media over an extended dwell time," Levi said. "What we program on our screens is all about the bar: drink menus, special events and all stuff about where you are."

Zoom also operates the largest network of digital signage in fitness and health clubs. In that environment, the use of mobile/digital signage interactivity may not be as appropriate, Levi says.

"We do nothing with interactivity or any kind of mobile engagement in the gyms for a very straightforward reason," he said.

"It is a membership environment, so you're paying to be there," he said. "Our partner gyms are all very focused on making sure

that people are not using their mobile devices when they're working out for privacy and safety reasons. If we started running programs that tell people to take out their phone and send us a text while they're on a treadmill, it could create a problem."

Content

Ultimately, however, content is still king. The success or failure of a particular campaign will depend in large part on the attractiveness of the content and the value of the information it provides.

"You can't expect to take a commercial you watch while sitting on your couch at home and put it somewhere where there is no reason to watch a commercial," Schaiman said. "It has to have some value."

New mobile application enables handheld digital signage

Free applications for smartphones are one way to bring digital signage to the customer. Symon Communications is only one company taking advantage of this new technology, with its InView Mobile product. InView mobile determines a user's location and then retrieves and plays interactive, multimedia content specific to that location. If no content is assigned to that location, general content is delivered.

"InView Mobile marks a major new milestone in visual communications," said Charles Ansley, Symon's CEO and president. "With InView Mobile, Symon can create an unprecedented visual communications experience that goes far beyond traditional digital signage, wayfinding and kiosks. Symon can now design and deliver real-time, interactive content directly to the individual and tailor the content to the individual's particular location and content preferences."

An iPhone user can launch InView Mobile in a participating hotel and receive interactive information specific to that hotel, says Symon's Gurley.

"They can then go to a participating arena, launch InView Mobile again and automatically receive information about events playing in or coming to that arena," he said. "A user can even launch InView Mobile at work and receive real-time performance metrics related to their job. All of this is controlled through Symon's state-of-the-art content-management system, which means that the potential for unique interactions are limitless."

InView Mobile is a free application available on the Apple iTunes App Store, Lifestyle genre.

Conclusion On the horizon

So where does convergence go from here? Here's what the experts have to say.

According to Symon Communications' Gurley, the most significant development in digital signage in the next few years will be an increasingly tighter integration between digital signage and mobile devices.

"For digital signage to thrive and to be more than 'digital wallpaper,' its impact on viewers must be quantifiable," Gurley said. "Rapidly evolving trends in mobile technologies will allow cell phones to become extensions of digital signage. Content presented on screens will be seamlessly tied to the content on the mobile handset. When this happens, calls to action will be issued via the digital signage, responded to on the handset by the handset user and quantified on the back-end by the content management system."

Internet transactions are increasingly being initiated by mobile devices rather than traditional PCs, Gurley says. At the same time smartphones, which are an emerging catalyst behind the increase in mobile transactions, are capturing a larger portion of the mobile device market.

The smartphone market share has increased from 17 to 23 percent in the last

year alone, and that trend is expected to continue.

"It is clear to those that follow the mobile industry that we have entered a new era in mobile communications," Gurley said.

"The first era (1973 to 1995) was about using a phone without wires," he said. "The second era (1996 to 2006) was about increasing personal productivity via wireless e-mail, wireless calendar management, text messaging and so forth. The third era (2007 to present) is about 'personal impact.' Personal impact is about people using mobile technologies to simplify their lives via mobile commerce, mobile lifestyle management and mobile entertainment."

The personal impact era is being made possible by three key enablers, Gurly says. The first is a burgeoning supply of easy-to-use smartphones that have come on the market since 2007 — principally led by the iPhone. This new generation of devices allows everyone, even technology novices, to do things that only the most technologically-sophisticated person could do just a few years ago.

The second enabler is the plethora of smartphone applications that are continually extending the value of the devices.

"As consumers continue to adopt these easy-to-use smartphones and use them as a focal point for managing their lives, it only makes sense that digital signage and the handset be fully integrated in such a way that the signage ignites the need for a transaction and the phone becomes the platform on which the transaction is executed."

— Steve Gurley, senior vice president of marketing, Symon Communications

CONCLUSION On the horizon

The third enabler is access to fast networks. New smartphones can not only utilize fast 3G broadband data networks, but they also seamlessly access very fast Wi-Fi networks. Fast network transport is an essential element to delivering multimedia content to the handset.

“As consumers continue to adopt these easy-to-use smartphones and use them as a focal point for managing their lives, it only makes sense that digital signage and the handset be fully integrated in such a way that the signage ignites the need for a transaction and the phone becomes the platform on which the transaction is executed,” Gurley said. “The only element that is needed to bring the vision to reality is a content management system that can manage the look, feel and delivery of content to both screens and do so in a fashion that makes the experience seamless and integrated as well as account for the transaction on the back end so that the digital signage operator knows exactly what the viewer did on their handset in response to content presented on the digital signage. Fortunately at Symon we already have this kind of system.”

Nanonation’s Ardinger predicts that more and more retailers will provide employees with mobile apps to use on the sales floor.

“If you think about sales associates, most of them don’t have computers that they can access information readily and easily on the floor,” he said. “With mobile

technology, you can put a lot of that in their hands that you could not before. There’s an opportunity for employee training and an opportunity for having information on the showroom floor that they did not have access to before.”

Helios Interactive Technologies’ Schaiman sees 3-D, augmented reality and facial analytics as playing a prominent role in the future of mobile/digital signage convergence.

“I think that personalization at some point will become extremely important in that displays that react to you and open up a dialogue with you as opposed to just shouting out information,” he said. “That seems to be the general trend.”

And Adcentricity’s Gorrie predicts that the mobile/digital signage convergence will produce much more immersive, tightly integrated and locally relevant experiences for the customer.

“If you think about all of these technologies, whether it be Google Mobile or some of the iPad or iPhone applications, or the location-based services such as Foursquare, all of this really is local advertising,” he said. “When you are able to connect all of those dots from Bluetooth to Wi-Fi content downloads to the immediate sharing of information locally and geographically or across many types of displays, all of this stuff is going to become much more powerful.”