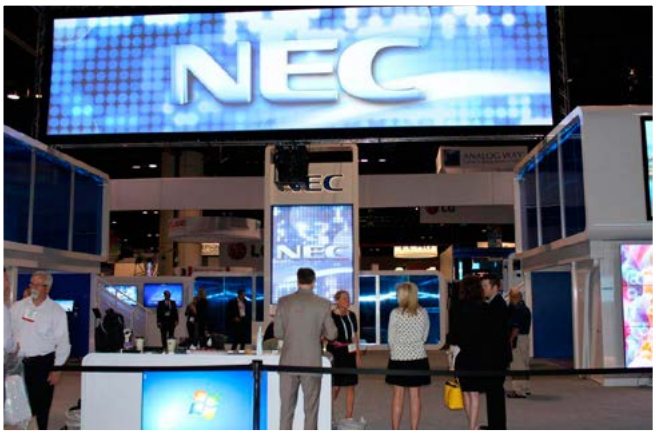
GUIDE



Projectors in Digital Signage

Often overlooked, projection technology can expand the possibilities of digital signage, open new ways to engage customers and build sales.

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INTRODUCTION

When deployers think of digital signage, what first comes to mind tends to be displays incorporating LED, LCD or plasma technology. In the past few years digital signage networks incorporating such technology have become nearly ubiquitous.

But if one were to think digital signage networks consist only of flat panel screens he would be mistaken. Although LED, LCD or plasma displays make up a significant portion of what makes up digital signage, they aren't the only means of delivering colorful, engaging, full-motion content.

The remainder consists of signage incorporating projection technology. And its share is not likely to change any time soon.

With the cost of flat panel displays dropping on almost a daily basis and those displays now widely available in sizes up to 82 inches or greater, why does projection technology continue to maintain a market presence? There are several answers.

Ultimately, it doesn't come down to projection versus flat-panel display. Instead, projection is another application in the digital signage toolbox with a place and application all its own.

In this guide, sponsored by NEC Display systems, we'll look at the technology behind projection, the scenarios in which projection may be the right choice and some of the best practices to ensure successful deployments.

By Richard Slawsky, contributing writer DigitalSignageToday.com

Richard Slawsky has been working in business journalism for more than 15 years, covering industries ranging from oil and gas to advertising to technology. He got his start with the weekly business journal New Orleans CityBusiness and was part of a team that covered the aftermath of Hurricane Katrina. Slawsky now resides in Louisville, Ky., where he teaches in the Communication department at the University of Louisville in addition to contributing to a number of NetWorld Media Group publications.

CHAPTER 1

When to use projection

The cost of flat panels displays has certainly dropped in the past few years, but there are some situations where regardless of modest price differences, projection technology is the optimum solution for a digital signage deployment.

And those situations come up more often than one might think. Most experts peg the share of digital signage accomplished via projection as more than a quarter of the entire digital signage market.

“We see projection as making up roughly 25 to 30 percent of the market, especially in larger venues,” said Rich Ventura, vice president product marketing and solutions with Chicago-based technology provider NEC Display Solutions. “We really don’t see that changing.”

The reasons for the continuing popularity of projection technology may not be readily apparent, although on a closer look they make perfect sense. And while it will never overtake flat panel displays as the preferred method of delivering digital content, projection serves as the perfect piece to fill out the digital signage puzzle.

Making the choice

So why would a deployer choose projection over a display in a deployment? There are three key scenarios where projection would be the better choice.

Size. “The main reason to choose projection is the ability to scale the size and aspect ratio,” said Rich McPherson, senior product manager at NEC. Flat panels currently top out at 110 inches for LCD and there may be situations where a deployer wants a larger display.

Of course, a video wall consisting of multiple flat panels may be the answer, but the setting might not lend itself to deploying a large display or video wall. In some situations the location may not be designed to support the weight of a several displays. In addition, the location may not have access to the power supply and wiring needs to support flat-panel displays.

A "through-the-window jukebox"

Projection allows virtually any surface to become a display, with no need for mounting heavy equipment. And it even allows the display to be die-cut into unusual shapes, as with the guitar-shaped screen that recently appeared in the window of London's Harrods Rocks store.

The Harrods Rocks store window is notable for several reasons. Not only does it use a projection-based screen cut into the shape of a guitar, it is paired with capacitive touch technology to create a "through-the-window jukebox," allowing viewers outside the store to affect content with a touch of the window.

Harrods spokesperson Sarah Southgate said the retailer has tried projection displays in the past, but "the technology has improved significantly and is (now) much more effective (than before) in daylight."

The ceiling-mounted projector shines its imagery onto a custom-cut piece of 3M Vikuiti film. Vikuiti film, which is sold on a large roll, is self-adhesive and can be easily repositioned once placed on a piece of glass.

Simon Birkenhead, sales and marketing manager for 3M's digital signage division, said the film's ideal use is store windows, since it can be applied directly to the glass at the desired spot.

"It also means there are no bulky electronics to get damaged if someone throws a brick through your window," he said. "It also performs well as a free-hanging screen in large spaces, like warehouses or malls, where a large-format LCD or plasma cannot be placed due to weight."

One company using projection screens in malls is England's Motomedia, which offers an intriguing proposition for mall owners: Let them have access to vacant stores, and they will use projection to place ads on the storefront window. Property owners get a cut of the ad revenue, generating money from real estate that would otherwise have netted a loss.

Since the installation is quick and easy, it's no great imposition to move the screen and the projector when a tenant is found.

Motomedia's managing director Kenny Maclean said his company's business model depends on the flexibility offered by projection. Not only are the projectors and screens easy to move and re-install, they allow for adjustable image sizes; the same projector can be used for storefronts both large and small.

Cost. And of course, along with size comes cost concerns.Kaszycki likens this to buying a car that gets 33 miles per gallon when purchased, but gets only 16.5 miles per gallon after five years of moderate driving. Such a decrease in brightness represents a significant loss for the company, and lowers the return on investment. MRI's BrightVu feature allows for full brightness operation for 30,000 hours, which equates to five years based on operating 16 hours a day.

"In simple terms, up to a 60-inch to 70-inch display, all things being equal the flat panel gets the nod in cost," said Alan Brawn, principal of Vista, Calif.-based audio visual consulting, training, educational development, and market intelligence company Brawn Consulting. "But when you go over that 'magic' 80-inch to 90-inch sizes then the cost advantage can tilt toward projection."

Consider, for example, a scenario where a deployer might want a 400-inch display in a flagship retail store. Although that could certainly be accomplished with a video wall made up of multiple 42-inch displays, the wall could end up costing as much as three times the same display accomplished with projector technology.

The cost difference is apparent even in the scenario of a 3 x 4 video wall utilizing 12 42-inch displays. Assuming $700 per display, the wall itself would cost $8,400.

On the other hand, using a commercial-grade 5,000-lumen projector that may cost $3,200 combined with a $1,000 screen, and the same job can be accomplished for half the cost.

For larger displays, the cost difference widens dramatically.

“Keep in mind, though, the application will normally drive the decision and not the cost,” Brawn said.

Lighting of location. Areas with high ambient light can also lend themselves to projection because the projectors can deliver content at a much high brightness than traditional displays.

“High ambient light applications require more light ‘horsepower’ than the typical 450 to 700 nit flat panel,” Brawn said. “A washed-out image lacks impact and actually can become a negative rather than a positive or even a neutral impression. This type of performance can negate the benefits of digital signage all together. Projectors can approach 50K lumens, which makes them the optimum choice.”

“The main reason to choose projection is the ability to scale the size and aspect ratio.”

— Rich McPherson, senior product manager at NEC.

Unusual deployments

Consider a situation where a retailer plans to open a new location in a mall or on a well-traveled street. Although a printed “Coming Soon” sign might serve to alert potential customers, imagine the buzz that could be created by using rear projection to display an image on the store window. Instead of seeing ongoing construction or a window covered in brown paper, those customers could be treated to images of the products that will be available when that store opens.

Or imagine a revamping of a store or the launch of a new product offering. A massive in-store display could be accomplished without the time, cost and complexity of installing a video wall that will only be in use for a short time.

"We're seeing a lot of people do temporary deployments in scenarios where they don't want to put something up permanent," Ventura said. "And when the new store opens or the product rollout is in place, that projector and related equipment could simply be backed up and moved to the next location."

But probably one of the most innovative uses of projection technology is that involving odd sizes or surfaces.

For example, when Best Buy opened a location in the Mall of America in Minneapolis several years ago the company deployed a "living mannequin" solution to market their upcoming presence. This consisted of a rear projection solution in the shape of a Best Buy employee with the projection of the blue shirt employee on to the surface. The video consisted of a person talking to the potential customers about the exciting new products and services they can now purchase at the store. This was placed in a very small space at the entrance to multiple escalators throughout the mall. It truly created a huge buzz for patrons.

"If the wall where you want to feature the display consists of unique angles or curved surfaces or the space itself can't fit a video wall, a projected solution might be the answer," Ventura said.

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— Rich Ventura, vice president product marketing and solutions, NEC Display Solutions

CASE STUDY: Frazer Methodist Church

The challenge

Frazer Methodist is always looking for ways to encourage its congregation to actively participate in services. Several years ago, church administrators struck upon the idea of projecting various parts of the service, such as Scripture passages, sermon notes and song lyrics onto a screen in the sanctuary. The response was so great that Frazer Methodist installed a permanent projection system in the church. The challenge arose, however, when the projectors that were initially purchased did not meet the administration's expectations.

The images became overpowered due to light streaming in from stained glass windows and the lighting necessary for the television broadcast that takes place from the sanctuary every Sunday. Instead of projecting colorful images and verses as originally hoped, Frazer Methodist's new projectors only worked well while projecting typical PowerPoint slides.

"We were very happy with the system except the projectors were just not bright enough," said Scott Skoneki, a parishioner Frazer Methodist and head of the technology team. "The system was simply not accomplishing what Frazer Methodist needed it to do."

The solution

The answer came when the church's pastor attended services in another state where projection technology was used exactly how Frazer Methodist had envisioned. Trouble, the projection system carried an eye-popping price tag.

Skoneki had recently seen a projector from NEC that could duplicate the level of brightness of the more expensive model at a fraction of the cost. After a demonstration of the projector, Frazer Methodist officials decided this was the projector that would be a perfect fit for their needs.

Designed specifically for large venue applications such as churches, sports arenas and theaters, the installed projectors from NEC provided viewers reliable brightness in a light weight, easy-to-install package. "The power of this projector allows us to turn on our bright lights and still see TV-quality pictures," Skoneki said. "We can even use special backgrounds, digital photos and creative lettering. Most importantly, this NEC projector proves you don't have to spend hundreds of thousands of dollars in order to get high quality images."

As Frazer Methodist's AV system now stands, there are two NEC projectors hung from the back balcony in order to shoot images on the two 9-foot by 12-foot screens located 50 feet apart at the front of the church. These screens are used primarily to display responsive readings, sermon outlines, video, song and Scripture. In order for the pastor and the choir members to also see what is being projected on the screens, Frazer Methodist purchased a 42-inch plasma monitor from NEC as well. The plasma display is located in the balcony of the church and can double as a prompt for the pastor during televised services. The slim style and bright display of the plasma display provides a picture that is visible from the front of the church.

In addition, Frazer uses NEC-installed desktop portable projectors in the church's Fellowship Hall for Sunday school, youth group meetings and training while NEC lightweight, micro portable projectors are employed for outside missions and visits to homebound church members.

The benefits

Whether it's displaying live footage of baptisms, photos of new church members or daily announcements, the projection system has enhanced nearly every facet of Frazer Methodist's services. At funerals, families can now share videos of loved ones; while at weddingsbrides and grooms can display childhood photos during their marriage ceremonies.

"Without question, there is much more participation with the new projectors," Skoneki said. "In Scripture readings alone, the pastor will place the passages on the screen and the congregation will read along. The best part is that we haven't even scratched the surface of all the ways this system can be used."

CHAPTER 2

Technology: Creating the image

When discussing projection technology in digital signage applications, there's only one place to start: the projector itself.

Mainly, there are two types of projectors used in digital signage applications. About 50 percent of the projection market, give or take, is devoted to each type. The choice of projector will in large part be determined by its application.

LCD projectors

An LCD projector is the modern equivalent of the slide projector that was a feature in many homes in the 1960s or the overhead projectors teachers once used in classrooms. To display images, LCD (liquid-crystal display) projectors typically send light from a metal-halide lamp through a prism or series of dichroic filters that separates light to three polysilicon panels – one each for the red, green and blue components of the video signal. The technology has its roots in the old-time color wheels that were the basis for many Christmas displays.

As polarized light passes through the panels individual pixels can be opened to allow light to pass or closed to block the light. The combination of open and closed pixels can produce a wide range of colors and shades in the projected image.

Metal-halide lamps are used because they output an ideal color temperature and a broad spectrum of color. These lamps also have the ability to produce an extremely large amount of light over the same area compared with other types of bulbs such as incandescent or fluorescent. Projectors on the market today can produce from 2,000 to 15,000 lumens or more.

DLP projectors

Digital light processing is a type of projector technology that uses a digital micromirror device. Although the concept is much the same as the old-time

color wheel referred to previously, the key differences are the light source and how it is transformed into an image on a screen. In DLP projectors, the image is created by microscopically small mirrors laid out in a matrix on a semiconductor chip. Each mirror represents one or more pixels in the projected image. The number of mirrors corresponds to the resolution of the projected image.

These mirrors can be repositioned rapidly to reflect light either through the lens or onto a heat sink. Rapidly toggling the mirror between these two orientations (essentially on and off) produces grayscales, controlled by the ratio of on-time to off-time.

There are two primary methods by which DLP projection systems create a color image: those utilized by single-chip DLP projectors and those used by three-chip projectors. A third method, sequential illumination by three colored light emitting diodes, is in development.

In a projector with a single DLP chip, colors are produced either by placing a color wheel between a white lamp and the DLP chip or by using individual light sources such as LEDs or lasers to produce the primary colors. The color wheel is divided into multiple sectors: the primary additive colors: red, green and blue and in many cases white (clear). Newer systems substitute the primary subtractive colors cyan, magenta, and yellow for white. The DLP chip is synchronized with the rotating motion of the color wheel so that the green component is displayed on the DMD when the green section of the color wheel is in front of the lamp. The same is true for the red, blue and other sections. The colors are thus displayed sequentially at a sufficiently high rate that the observer sees a composite "full color" image.

A three-chip DLP projector uses a prism to split light from the lamp, and each primary color of light is then routed to its own DLP chip, then recombined and routed out through the lens. Three chip systems are found in higher-end home theater projectors, large venue projectors and DLP Cinema projection systems found in digital movie theaters.

DLP technology can be used effectively with a variety of light sources. The main light source used on DLP display systems has generally been a replaceable high-pressure mercury-vapor metal halide arc lamp unit (containing a quartz arc tube, reflector, electrical connections, and sometimes a quartz/glass shield).

The role of application

Again, which type of projector to use depends on the application for which it will be used. The most significant benefit of LCD is that the technology uses

"For extended use applications it is recommended to use DLP projection over LCD as the technology lends it self to longer usage hours," Ventura said. "If you try to use an LCD projector in an extended use situation you'll run the risk of yellowing and degradation of the image."

— Rich Ventura, vice president product marketing and solutions, NEC Display Solutions

a three-imager RGB optical system and as such provide the most accurate colorimetry. If this level of accuracy is important then LCD should be considered. On the other hand, LCD isn't the best option for extended use.

"For extended use applications it is recommended to use DLP projection over LCD as the technology lends it self to longer usage hours," Ventura said. "If you try to use an LCD projector in an extended use situation you'll run the risk of yellowing and degradation of the image."

DLP has the edge when it comes to duty cycle, sealed optics, lack of burn in or image retention and total light output, Brawn said. The duty cycle and lack of burn-in simply means you can operate the DLP 24/7/365 with no problems.

"The sealed optics means you do not have to change out filters," he said. "One other possible advantage is that DLP has led the way in hybrid light engines or lamp-free designs. Recently there are a couple of LCD products that are hybrid illuminated but DLP is the leader."

Last but not least is total light output, Brawn said. DLP projectors go up to 50,000 lumens and LCD peaks out at just under 20,000.

A third technology known as liquid crystal on silicon (LCOS) has emerged in recent years. LCOS is a reflective technology similar to DLP projectors but it uses liquid crystals instead of individual mirrors. In LCOS, liquid crystals are applied directly to the surface of a silicon chip coated with an aluminized layer, with some type of passivation layer, which is highly reflective.

Multiple projectors

Occasionally a single projector isn't powerful enough to deliver the level of brightness the deployer desires. In addition, the deployer may want to avoid a situation where someone walking in front of the projector beam disrupts the image. And relying on a single projector for a particular task means that an issue with that projector brings the entire display down.

All of those issues can be avoided through the use of stacking.

Stacking is a low cost, flexible way to achieve very high brightness from a standard projector. It involves placing up to four projectors across for instance, an auditorium, so that brightness can be multiplied and redundancy is achieved in the event that one projector or more are not operating.

With stacking, the on-screen image isn't blocked when someone walks past the front of the screen as the unblocked projectors still can project their image, filling up to 75 percent brightness in the shadowed area.

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Another challenge arises with especially large screens. While one projector may not be capable of producing an image wide enough to fill a large screen, edge blending enables the use of multiple projectors to accomplish the job. Edge blending involves combining several images to create a single seamless image.

Although in theory the concept sounds as easy as simply placing several projectors side-by-side in a process known as image butting (because the images are butted up against each other) in reality it can be difficult to achieve.

Different projectors, even of the same brand and model, often have different characteristics that can result in different colors and brightness between images. It can be also difficult to line up the images correctly, resulting in gaps between images. And if the images overlap to eliminate those gaps, that area of overlap can end up being brighter than the rest of the image.

Edge blending technology allows adjacent images to be overlapped, electronically modulating the intensity of each image to seamlessly fade from one image to the next with no intensity difference between them.

CHAPTER 3

Technology: Displaying the image

The other side of the projection equation is the surface on which the content is displayed. There are two basic methods of getting the image from the projector to a place where it can be viewed by the consumer: front projection and rear projection. The type of surface used depends on the type of projection involved.

Screens

Front projection operates in a manner in which anyone who has ever been to the movies is familiar with. The image is projected on to a surface, which reflects it back to the viewer. That surface can be anything from a wall painted white to a surface specifically designed to reflect projected images.

Screens designed for front projection applications are generally flat and rectangular, although they may come in a variety of shapes and be curved as well. Those screens are generally white or gray to ensure maximum reflectivity with a minimum of discoloration.

One of the properties of a projection screen is its gain; a measure of reflectivity of light compared to a standard screen coated with magnesium carbonate or titanium dioxide. Levels of screen grain typically run from 0.8 for a light grey matte screen to 2.5 for a highly reflective glass bead screen. Higher gains could be accomplished by simply using a mirror, of course, although that would reflect the image of the projector as well.

It might seem to make sense, then, that high-gain screens are preferable to low-gain ones. Higher reflectivity means a brighter image and that's good, right? Not so fast. Again, it comes down to the application.

A 1.0 gain screen diffuses light evenly in all directions, giving a similar viewing experience no matter what the viewing angle. A high-gain screen, on the other hand, appears much brighter when viewed from directly in front of the screen while the brightness falls off dramatically when viewed from an angle. The higher the gain, the more limited the optimum viewing position.

Screens designed for front projection applications are generally flat and rectangular, although they may come in a variety of shapes and be curved as well. Those screens are generally white or gray to ensure maximum reflectivity with a minimum of discoloration.

In addition, a high-gain screen does not always reflect red, green and blue equally, so the viewer may see color shifts when viewing from different angles. And with screens with a gain higher than 1.0 an image may appear brighter in the middle than at the edges, a phenomenon known as hotspotting.

In general, a high-gain screen is preferable for high ambient light situations or where viewers will be located directly in front of the image, while a low-gain screen is likely to work better in situations where viewers will be looking at the content from a variety of angles.

No need to touch: Projection tech turns objects interactive

By Mark Boyd

A new kind of retail digital signage is taking the best of interactive tablet and touchscreen technology to add a dramatic flair to the in-store shopping experience.

The application, developed by New York-based Perch Interactive, eliminates the touchscreen and reimagines the product-sample table itself as the interactive device. Light and motion sensors activate digital content and cause it respond to the shopper's touch. It won Best New Retail Technology at Digital Signage Expo's DIGI awards and is currently deployed in stores such as Nordstrom and pop-up boutique retailer BaubleBar.

"The Perch experience draws on the best of what kiosks can offer, without detracting from the natural connection between a shopper and the product," said Perch Co-Founder and CEO Jared Schiffman. "We are able to tease out the engagement analytics just like a kiosk or in-store tablet can do. But with Perch, the focus remains on the shopper's relationship with the product."

Digital content is activated when a shopper picks up a display item. As the shopper feels and investigates the product in his hands, he can access information, video, social media and images through the Perch display to reinforce their connection with the product he is considering buying, Schiffman said.

Perch uses a 3,000 lumen projector with a native resolution of 1280 by 800. The projector features an LED-based lamp that lasts more than 20,000 hours so that the bulb never requires changing, according to the company's website.

Before its current trial in selected Nordstrom department stores, the retail chain's independently run concept store Treasure & Bond used the display technology for a holiday gift promotion. Treasure & Bond is currently using the technology in a small selection of its stores to evaluate the impact.

"We tend to try lots of things that no one else has, and this was still completely different to anything else we've ever done," said Paige Boggs, general manager at Treasure & Bond. "We chose a range of products that could tell a bigger story and we also thought about products we could share that have a wide range of appeal."

In New York's SoHo shopping district, jewelry retailer BaubleBar also is testing out the alternative touchscreen technology to help them align their content from online to in-store. Their "Spotted on" website section shows Instagram pictures of happy buyers modeling the BaubleBar jewelry. At the summer pop-up store, the Perch display used social media to update a "Spotted on" feed for the in-store samples featured on the Perch display table.

"We have seen through data collected online that showing women how and when to wear our jewelry really drives engagement and conversion," said Amy Jain, co-founder of BaubleBar. "We are excited to bring this content to life in a fresh and innovative way that we believe will enhance our customers' offline shopping experience."

In the future, stores like BaubleBar will be able to gain similar customer insights direct from their in-store displays rather than from the data on their websites. To meet retailer demands for a greater analytics potential with their in-store technology, Perch records every interaction that occurs: highlighting what products are most popular and which digital content is most interactive. Retailers can align their data with insights into shopper dwell time and overall sales figures to better understand the role in-store digital content can play on purchasing behavior.

Mark Boyd is a freelance writer covering retail technology.

Rear projection

Not quite as common but equally worthwhile is rear projection. For most people their encounter with the concept came via the boxy rear-projection big screen televisions that were popular for a brief period prior to the advent of flat-panel displays.

Rear projection screens typically involve some type of film that allows light to pass through without distortion. That film often can be cut into shapes or integrated with static posters or similar displays. One of the most popular brands of rear projection film is Vikuiti, manufactured by Scotch Tape maker 3M.

Interactivity

The proliferation of tablets and smartphones has trained consumers to expect to be able to touch and interact with virtually any screen they see. Flat panel displays are increasingly touch-enabled, and projection technology offers the opportunity for a similar degree of interactivity.

“Projection opens a whole new world for interactivity,” Ventura said. “With projection you can create a new level of interactive surfaces. Retailers are able to project onto common pieces of retail fixtures like tables as a new medium for interactive digital signage.”

There are several methods by which interactivity is accomplished in a projection application. There are three main schools of touch technology; infrared (IR), camera-based and capacitive. IR is inexpensive, and now offers multi touch with very accurate tracking, but can be impacted by sunlight and is still not as precise and high performance as other options.

Camera-based touch, using a system similar to that incorporated in Microsoft’s Kinect gaming system, has been around for a few years and can be very high performance, but it can require frequent calibration to keep working correctly, Brawn said. In addition, IR and camera-based systems can be negatively impacted by debris or dirt on the screen causing malfunction or low performance.

“Capacitive touch is now being scaled up to larger sizes, and uses the same technology as smartphones and tablets,” Brawn said. “This offers very high performance and durability as any smartphone owner can tell you, but is expensive and size-limited … for now.”

As an example of the interactivity potential of rear projection applications, several years ago Ralph Lauren stores in Manhattan and Chicago debuted interactive store windows incorporating projection technology combined with

a lightweight touch foil applied directly to the glass. The foil is also a rear projection screen that displays an image similar to the store's website.

Customers can then browse the available merchandise that matches with the theme of the store window. It's even possible to purchase items via the window, which has a credit card reader and on-screen keyboard.

"After watching Steven Spielberg's Minority Report, I really wanted to find a way to make that amazing technology a retail reality," said senior vice president David Lauren when debuting the technology. "We are thrilled to offer such a unique and exciting way for our customers to further explore the world of Ralph Lauren; with this initiative we are reinventing the concept of shopping anytime."

Kids play center deploys interactive projection tech

Children's entertainment center Safari Adventure in Riverhead, N.Y., recently installed an EyePlay Interactive Gaming System, an interactive projection technology solution from Armonk, N.Y-based EyeClick.

EyePlay is a virtual indoor playground that allows multiple players to interact with colorful graphics and sounds projected onto floors or walls. Kids play games such as Piano, Super Soccer, Frogz, Disco Floor, Cheese Heist and others.

Owner Stephanie Shin said the interactive gaming system aligned with her company's strategy. As of its installation date, Shin estimates that there has been a 15-percent increase in walk-in traffic due to customers who return because of EyePlay.

"Our goal is to provide an amazing experience and the EyePlay has brought the experience to a new level," Shin said.

"Projection opens a whole new world for interactivity"

— Rich Ventura, vice president product marketing and solutions, NEC Display Solutions

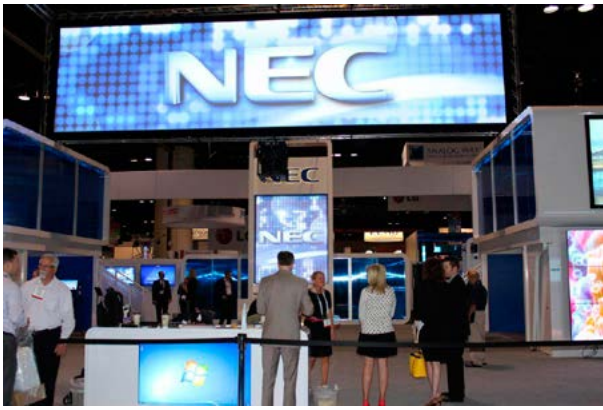
CHAPTER 4

Best practices when using projector technology

Ultimately, the question of what type of technology to deploy in a digital signage application comes down to the idiosyncrasies of that particular deployment. While flat-panel displays might be appropriate for some situations projection technology works best for others.

That being said, digital signage has the strongest impact when the most appropriate solution for a particular deployment is the one used.

“Projection continues to have its place in the digital signage universe and the world is not all flat!” Brawn said. “I am simply expanding the scale and scope of digital signage displays to encompass all display technologies.”



A few best practices

The rules of thumb when it comes to deploying projection technology are likely similar to those Clint Eastwood espoused about his workshop in the movie “Gran Torino.” Each tool has a function and there’s an appropriate tool for every job.

Use the right projector: One of the most important things to remember is that if you’re going to do extended use you want to use a projector that’s designed for that. Also, make sure you use a projector that’s going to support the resolution you want it to support.

Use the right edge blending solution: In addition, if you are trying to create a very large image utilizing edge blending, make sure you are using the right edge-blending solution.

“I was in a restaurant recently where three projectors were being used in an edge blended application,” Ventura said. “There was a white bar around the center of it and it just looked terrible. In addition, they were using LCD based projectors in an extended use application that had probably only

“If the client isn’t completely sure what they want to accomplish and what it entails things may not mesh together properly and the installation falls flat”

— Rich McPherson, senior product manager at NEC

been in use for about six months and you could already see the yellowing of the image."

Use the proper throw distance: Proper throw distance, or the distance the projector is from the screen, is important. The projector should use a zoom lens rather than a lens with a fixed focal length. A fixed lens forces the venue to place the projector in one location, while a zoom lens allows for adjustment and the choice of multiple locations.

Also, make sure you not only have the proper throw distance but also the right brightness for that distance and environment.

Use content designed for projection: When designing content for edge-blended displays, rich colors and patterns help to hide the blended region. Try to avoid all white and all black. Also it is probably a good idea to avoid full-screen fast motion to prevent the viewer from experiencing discomfort.

Work with an experienced technology provider: "Probably most important", McPherson said, "is to work with your technology provider to make sure you understand what it is you hope to achieve."

"I think the best practices are really understanding what the customer needs and wants and at the same time understanding the capabilities of the technology and how things work together," McPherson said. "If the client isn't completely sure what they want to accomplish and what it entails things may not mesh together properly and the installation falls flat."

CONCLUSION

As with anything, projection done well can grab customers' attention, engage them and ultimately result in higher traffic, sales and profits. Done poorly, it can be a waste of time, money and effort and ultimately turn into a negative for the venue and the integrator.

Although this guide hopefully sheds some light (pun intended) on the mystery behind projection technology, there is no substitute for working with an expert who has the knowledge and experience to take a venue's goals and turn them into reality. We at Digital Signage Today encourage anyone interested in incorporating projection into their digital signage plan to take advantage of the resources we offer, conduct due diligence and contact a technology provider who can assist with the project.

Good luck!

About the sponsor:

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