DAVID SMITH ■

Airport digital media ecosystem concept from Synect, which recently worked with Orlando International to create a fun and interactive check-in experience

entertain & inform

The latest digital displays are getting bigger and better while integrating with the small screens in passengers' pockets

Advances in technology have thrown the world of airport digital signage into a state of flux. The enormous LED entertainment screens at LAX's Tom Bradley International Terminal are a spectacular demonstration of the desire of a modern hub airport to dazzle passengers with technology, while creating a special sense of place. At the other end of the spectrum, technology in smartphones is changing the dynamics of airport wayfinding and advertising.

How can airport designers cater for tech-savvy individuals while not alienating those who are less comfortable with smartphone apps? And how can designers link up smartphone technology with the digital signage?

ABOVE: Billund Airport's smart signage system can be used to optimize passenger flows

Case study: Eindhoven Airport

When opening its new terminal in 2005, Eindhoven Airport in the Netherlands asked Net Display Systems (NDS) to install its Smart Airport Signage solution. The airport wanted to improve the traveler experience, but also to centralize control of signage and make it easier to use dynamically.

Björn Pieper, chief commercial officer of NDS, says Smart Signage uses the PADS digital signage software program across the airport. "Whether they are menu or meeting boards, internal schedules or flight information boards, putting everything on one software system allows information to move around the airport freely and it also means screens can be reused dynamically for different purposes. For example, a flight information screen that is not in use can become an advertising screen at the push of a button. Or if there's an emergency, such as a lost child, it's easy to put out information on every screen in the airport."

The work at Eindhoven Airport took place in two phases. First, in 2005 NDS installed the Flight Information Display System (FIDS), consisting of 50 displays, and the company's PADS4 digital signage software at the arrival and departure area, check-in counters, security area, gate area and baggage reclaim area.

The commercial angle is exploited, too. Next to the flight information displays there are special offers for retail. In this area, useful information is also given about airport services. Meanwhile, menu boards in restaurants are instructed by PADS4 to dynamically display pricing and special offers. NDS also provided a digital meeting room solution for the business center on the second floor. A centrally positioned display informs attendees when meetings take place.

In 2013 Eindhoven Airport opened another new terminal and NDS installed another 18 PADS displays. NDS also participated in the development of a 12-screen video wall displaying alerts, news and sport headlines.

BELOW: Smart airport signage at Eindhoven Airport can switch between FIDS and advertising

Mobile technology

In his role as director of digital at Arup, Alan Newbold wrestles with such questions with major hub airports, such as Heathrow, Hong Kong and Dubai. For Newbold, mobile technology is at the forefront of his thinking about signage and wayfinding. "Airports are at an intersection where the trend is toward using smartphones, especially for wayfinding, but it doesn't suit everyone yet. We will gradually see fewer information displays and more delivery through apps," he says. "The move will suit the millennials and the internet generation who are happy not to speak to anyone through an entire process."

A feeling of wayfinding confidence is a subjective matter and designers need a Plan B for those who feel ill-at-ease with mobile technology. "For the foreseeable future we will retain a lot of the traditional architecture of wayfinding that helps passengers navigate around the airport," says Newbold.

Targeted advertising

London's Gatwick Airport is at the forefront of the smartphone shift. It has mapped out its entire space using Google's Street View. Google's trolley units came and took 2,000 images of the North and South terminals and stitched them together. A smartphone app can be used to navigate through a maze of corridors, shops, departure gates and restaurants.

Newbold says there are ways to tie the mobile technology to the digital signage used for commercial advertising. Resourceful advertisers can use a similar strategy to car manufacturers, who, for example, target Toyota drivers with new models as they travel under gantries. "Using Bluetooth, we know when an individual is walking past and can tailor information based on the person's background, location and what they're looking at in the airport. An advert might say, 'Hi, Mr Newbold, your flight leaves at such a time and we know you are a Thomas Pink shirt buyer. Here is 20% off and the store is down on the left.'"

> Gatwick Airport has mapped out its entire space using **Google's Street View**

Newbold says such targeted ads could appear on smartphones, but also flash up on the large digital signs overhead. Another approach, he says, is to use technology that exploits angles of vision. Again in the automotive space, this technology can promote, for example, a new DVD player to a car passenger while showing normal GPS to the driver. Airport advertisers could present different ads to children and adults. Although some people would find this type of targeted advertising aggressive and invasive, the trick is to focus on the right audience. "Younger generations want to be sold to as long as they are not bombarded at every turn," he says. "The whole airport experience is changing. People get there earlier to enjoy the retail offerings and this influences the types of signage.

"At Kuala Lumpur Airport they already provide a free bus shuttle to the shopping outlet and Singapore Changi is opening its Project Jewel retail and leisure complex next year."

ABOVE: A two-sided 30 x 10ft digital display at JFK T4 provides news, arrivals and weather information, as well as advertising
BELOW: A digital canvas creates a fun and interactive check-in experience at Orlando

Newbold says a lot of the most innovative LED and dynamic signage technology is being used for advertising to raise non-aeronautical revenue. But a balance has to be struck between making profit and satisfying the practical demands of passengers for wayfinding and flight information.

Decluttering sightlines

"The key is to declutter the airport environment so that when people arrive at the airport there is a lot of clarity about the signage, and sightlines are not overloaded with advertising," he says. "That's what we're doing at Heathrow, where we have all the traditional yellow and black wayfinding signs, but there is also advertising and sponsorship at decision points."

Dynamic signage, which can alternate between showing departure information, adverts and news, has to be positioned carefully to avoid confusing passengers. "You see a plethora of large advertising screens as soon as you arrive in some airports and it makes it harder to navigate," he says. "Too much dynamic signage in the wrong place makes passengers stressed and resentful. That's why we have teams of psychologists looking at what the human brain can deal with, what amount of rotation works best and where the best places are to put up dynamic signs. After security, for example, might be a good place to put lots of advertising as passengers tend to be more relaxed."

JFK Terminal 4

An awareness of the risks of puzzling passengers at a decision-making location influenced the thinking behind the installation of a dual-sided LED flight information display in the arrivals hall at John F Kennedy Airport's T4. One side of the curved NanoLumens 30 x 10ft (9 x 3m) display is reserved for advertising, with the option to change the message to welcome specific passengers. The other side is for meeting and greeting, with passenger information, welcoming messages and bulletins about news, sport or even emergencies such as a lost child. The clear division between advertising and information eases visitors' minds as they anxiously await the arrival of family and friends. The prominence, size and resolution of the screen make it a visual magnet.

"One reason we looked into putting up such a big screen was the trend for passengers to look for digital information," says Daryl Jameson, VP of IT and baggage systems at JFK's T4. "They like to use smartphones and know what's going on in the world, so there's an expectation they will get information about flights and news in digital form on high-definition screens."

Jameson says that placing the screen center stage in arrivals was also about creating a sense of place and mirroring the iconic large-scale digital signage in New York's Times Square.

A similar desire to create an exclusive sense of place was behind Orlando International Airport's decision to build a video display that spans the length of five football fields behind its check-in desks. The Synect 1,560ft (475m) digital canvas is comprised of 700+ 55in (140cm) LG LCD screens and is part of a US$3.1bn makeover of the ticket lobby.

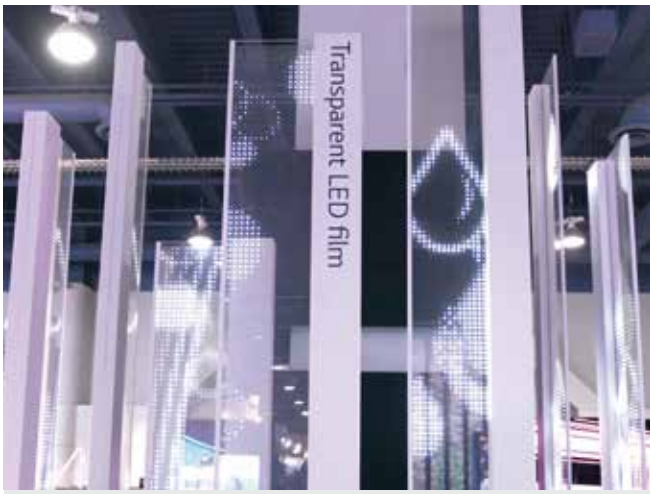
"We wanted to create a 'wow' effect with the wall, which is unique in the world," says Carolyn Fennell, senior director, public affairs and community relations at Orlando Airport. "We are suggesting a carnival atmosphere with the wall. Orlando relies on people returning every year and we have to make it a special place to come to."

Orlando's wall is integrated with the airport's operation center, SITA's AirportCentral. Passengers see real-time departure notifications and predictive information, such as expected wait times at security and baggage collection. "The sharing of all this real-time information in such an eye-catching way helps to reduce the anxiety of our passengers," says John Newsome, CIO, information technology.

> Too much dynamic signage in the wrong place **makes passengers stressed and resentful**

Airline opportunities

As for the airlines, they have the opportunity to insert full-motion videos into the digital canvas. But if a check-in point is vacant, Orlando Airport will use that portion of the screen to advertise the home city's attractions. "The airlines love it as they have an enormous digital canvas to do their branding on a large scale," says Newsome. "Displays can be



ABOVE: The Great Hall at the Tom Bradley International Terminal at LAX features an eight-screen 'story board' RIGHT: LG's new Transparent LED film could transform airport windows into dynamic signage

bright, dynamic and changeable. They can show different things depending on the season, and switch logos and colors. You can't do all that with static signage."

One thing the airlines are not allowed to do, however, is promote their commercial partners, such as rental car companies and hotels. Other advertising opportunities are available in the airport and the digital canvas is reserved for the passenger experience, which advertising could compromise. Airlines benefit, too, from the endlessly reconfigurable nature of the wall. "It's all done in increments of one counter because the dynamic wall makes it easy to expand to adjacent counters, or relocate," Newsome says.

Orlando Airport also professes a desire to use its wall to entertain passengers; an animated aquarium game engages younger children. Arup's Newbold says that entertainment is a developing trend for modern airports and gives the example of the seven super-large Daktronics video walls at LAX's Tom Bradley International Terminal. The centerpiece is the 72ft (22m) Clock Tower, which he describes as "a very cool and original use of technology". The tower is built around the terminal's main elevators, with a motion-sensitive interactive surface composed of 6,480ft² (600m²) of LED screen media.

Two of the main screens in the terminal are found in the arrivals and departures areas. The Welcome Wall installation is based around an 80ft (24m) LED wall, which is viewed as passengers descend a two-story escalator to the baggage claim area. The multimedia content includes scenes of greeting, as well as topical content. Meanwhile, the Bon Voyage Wall provides a send off for departing passengers as they clear security and cross the departure bridge to the Great Hall. It hosts a range of installations, including a series inspired by the Jumpology series by photographer Philippe Halsman. Images of LA locals and celebrities jumping up and down in super-slow motion are flashed across the 120ft (37m) digital wall.

"Increasingly, passengers expect to see big screens that entertain, as well as inform, and many airports now have areas for cinema rooms. The Tom Bradley Terminal displays are all about selling Los Angeles as a glamorous destination," says Newbold. ■

> "Passengers expect to see big screens that entertain, **as well as inform**"

Window of opportunity

LG Electronics has introduced a Transparent LED display, which is in essence a film attached to existing glass panels. The company says the display is ideal for indoor and window-facing areas with large glass surfaces, such as the interiors of airports.

"At airports there are massive windows and all of that glass throughout a transportation hub can now become a digital signage application," says Gary Wicka, head of marketing for LG Electronics' USA Business Solutions.

Wicka says that at 0.8mm thick, the 30mm (1.2in) Pixel Pitch display can be installed on any existing glass surface using a self-adhesive transparent film. The LED film delivers a brightness of more than 1,000cd/m² (nits), with each 19 x 19in (48 x 48cm) panel containing 256 LED pixels.

The transparency means perfect images are not the objective, Wicka says: "We don't want to take away the fact that you need to see through the glass. It's a way to keep that transparent view while bringing a message to life on it. Most importantly, you don't have to rip out all the existing glass and infrastructure. All you have to do is add in the film. It's a very low-cost method."

Meanwhile LG has also introduced 88in (224cm) Ultra Stretch digital signage for airport flight information displays and other applications. The 700cd/m² display is nearly two feet wide and benefits from a 32:9 aspect ratio for high-resolution images.

The displays can be standalone, or installed in a square pillar to create a 360° video wall column. LG says it can also be daisy chained together to create a 4 x 4 tiled installation for larger displays. The eye-catching design is perfect for clothing or cosmetic store displays, wayfinding, airport flight information displays, hotel signage, museum displays, Quick Service Restaurant menu boards and behind-the-counter displays.