



# CHRISTIE<sup>®</sup> MICROTILES<sup>™</sup>

THE NEW DIGITAL CANVAS | WHITE PAPER



# THE IMPORTANCE OF BIG

BY ROB RUSHBY

It's a simple formula, really. The bigger something is, the more likely it will be noticed. That formula is particularly true with digital signage – an emerging technology that is still struggling to gain a real foothold in the sectors where it should really thrive: retail and public spaces.

Many factors contribute to why digital signage in these sectors is still an industry largely waiting to happen, but one of the biggest is the size of the displays, and the resulting lack of true impact. The sort of LCD or plasma screen that fills much of a wall in someone's living room, dominating that visual space, is lost in the more cavernous and visually busy space of a "big box" retail store, or public spaces such as train stations, airports, malls and large building lobbies.

Many retailers, and many start-up media companies, have attempted to hang or mount single flat panel screens here and there in these big spaces and watched as shoppers went about their business, mostly oblivious to the displays. The screens are not big enough to have stopping power, and they have long since surrendered the novelty "Wow!" factor they had about them when plasmas and LCDs first came on the market a decade ago.

Alex Hughes, Strategy Director at the UK digital content agency AMiGO, is among many experts who fully understand the importance of Big. "In a visually rich and message-saturated environment, such as a supermarket, clarity, boldness, consistency of message and, of course scale are needed to grab attention and positively disrupt the consumer," says Hughes.

## THE PROBLEM WITH COMPROMISES

Those network operators who've realized their small-screen "Plan A" was not working went to Plan B, clustering several displays together to come up with larger, aggregated displays. Certainly, the results were more noticeable, but they also failed badly in execution.

Commercial and consumer displays all have what are called bezels, the picture frame-like external borders that mask how the plasmas and LCDs are held together and mounted.

When those bezels are snugged together to form a cluster of displays, the combined image has varying degrees of a seamed grid breaking up the visuals. To be blunt, it almost always looks bad. At best, it's a compromised solution.

Then there's the problem of calibrating and controlling many monitors to display colors in a uniform fashion. Red in one quadrant looks more like orange in the other three. The top right corner is brighter than the top left. And so on.

These arrays are also heavy, and installed up against walls, they can prove very difficult and costly to service and repair because somehow or other, the technical people need to get at the back of the units to do almost anything.

There are other ways to go Big, but they present their own unique challenges and have, because of that, only rarely been used.

The outdoor advertising industry is now aggressively converting its billboard inventory over to massive LED displays because the financials now show they can make more money from digital screens and reduce many of the operating costs associated with endlessly re-wallpapering big sheets of plywood along highways. The companies that make those big LED boards have indoor versions intended for retail and public spaces, but there are two very significant problems.

LED screens are made up of thousands of little light-emitting diodes that combine to produce visuals that appear crisp from a distance. But the closer viewers get, the worse the image looks because of what's called the pixel pitch. Outdoor boards look terrible up close because of that pixel pitch, and even the best indoor boards with three to four millimeter pitches still make for very marginal visuals unless viewers step well back. It will work, but again, compromises are being made.

The other challenge is cost, with indoor LED arrays priced well beyond the budget plans of most retailers, building operators and media companies. For now, at least, these indoor LEDs remain niche products because of the cost per square meter.

Front and rear projections are the other options to go Big, but there are again serious challenges involved in making such technologies work well in these environments.

Christie® MicroTiles® are visual building blocks, that can be just about any size, or shape, and be free of the thick, ugly seams and compromises on contrast and clarity that have neutered a lot of the big visuals we've all seen.



Projection systems that produce brilliant images in darkened rooms have to fight with the bright ambient lighting that is part of most retail settings, and the steadily changing natural light conditions that come with most public spaces that have big windows and atriums. Visuals that look great in darkened rooms can look washed out in day-lit areas because of the massive challenges in producing the right contrast levels.

The physical requirements of these sorts of visual systems also demand uninterrupted space in front of, or to the rear of projection media – such as special optical film on glass – to eliminate shadows and silhouettes. Those arrangements are usually hard to come by unless the displays are mounted up above and out of the way, and therefore out of natural sightlines.

Projection systems use lamps to generate their bright images, and those lamps are rated to last a matter of months, not years, before needing replacement. The costs of those lamp bulbs, and the labor associated with making the changes, has so far ruled out projection systems as viable options for most digital signage projects.

## CHRISTIE MICROTILES END THE QUALITY COMPROMISES

If Big is going to truly work in these kinds of settings, a new technology is needed. At Christie, we looked at the opportunity, and at all the challenges, and applied the weight of our experience and R&D capabilities to come up with Christie® MicroTiles™.

It's an entirely new, modular display technology – developed and patented by Christie – that represents several years of R&D and utilizes DLP®, LED and rear-projection technologies. This is technology that makes a lot of the physical, maintenance and cost issues

associated with being Big go away. It's also technology that shifts the mindset from just, somehow, making display media work within an environment, to enabling a digital canvas that opens wide the visual possibilities.

Christie MicroTiles are visual building blocks, that can be just about any size, or shape, and be free of the thick, ugly seams and compromises on contrast and clarity that have neutered a lot of the big visuals we've all seen. These display modules have super-fine pixels that are viewable from any distance. They have superior viewing angles. And they've been purpose-designed to address the many challenges of Big.

The physical properties of Christie MicroTiles address all of the challenges of putting full motion media into large retail and public settings, and at the same time open up new possibilities. These tiles are little blocks – 12" (306mm) high by 16" (408mm) wide, and 10" (254mm) deep – that can easily be stacked and tiled in any conceivable shape. They can fill a full wall. Frame a window or fixture. Run like a ribbon around a room. Look like a Scrabble game in progress. Instead of bulky seams brought on by display bezels, Christie MicroTiles seams are 1mm and largely disappear.

Christie MicroTiles run cool and need only a couple of inches behind them for airflow, and are all but maintenance-free. The LED light sources that drive the display image are rated at 65,000 hours of usage before their brightness starts to degrade, which is equal or even better than LCDs. If servicing is required, it's all done easily from the front, and the most complicated component – the light engine – can be replaced in 15 minutes or less.

The tiles are designed to be aware of their neighbors and self-calibrate and adjust, meaning an array of tiles will always be uniform in brightness, color and contrast. While other tiled displays need steady care and monitoring to maintain a uniform look, the Christie MicroTiles have processors that steadily talk to each other and continually reach a consensus on how they should all look.

The tiles also produce remarkable color saturation, meaning when a brand manager sees a display with her company's logo, it won't have "pretty much" the company's particular orange or blue... it will be exactly that orange or blue.

Our R&D team was able to take advantage of a known phenomena called the Helmholtz Kohlrausch (or HK) Effect. By methodically testing light sources, we were able to produce more saturated colors and brighter, more vibrant visuals. There are very long, complicated scientific papers written about the HK Effect, but the bottom line is the resulting visuals have no equal in the display business.

While there is massive sophistication behind the technical design, for the end user it's a very simple process. The output from a PC or media player runs into a small external control unit, and that unit drives the Christie MicroTiles. Those tiles stack and join like blocks with simple screws, and connect with standard line and power cords. When particularly large displays require multiple control units, those units talk to each other and synchronize automatically, in a matter of seconds and without any intervention from technical people.

"The timing of the arrival of Christie MicroTiles in the industry is excellent in the sense that we're at a point where both from the consumer's perspective and the brand's perspective, there's a few key issues that matter more and more, like the size and impact, the creativity in how it fits in with the space, and the quality of the image."

Denys Lavigne – Arsenal Media

## BEYOND THE WOW, THERE'S A BUSINESS CASE

For digital displays to truly work in environments with large footprints, long sightlines and tall ceilings, they need to be Big and they need to be much more than technology that was fit in where there was room, or where it seemed to make some sense. The displays need to be true design elements that work within the overall concept of the venue, and become part of the overall customer and visitor experience.

"The timing of the arrival of Christie MicroTiles in the industry is excellent," says Denys Lavigne, President of Canadian content creation house Arsenal Media, "in the sense that we're at a point where both from the consumer's perspective and the brand's perspective, there's a few key issues that matter more and more, like the size and impact, the creativity in how it fits in with the space, and the quality of the image."

"From a creative perspective, one of the most important impacts of this technology is that not only will it allow us to produce a creative installation, with great colors, but it will allow us to do it while introducing a new visual texture," adds Lavigne. "This is unique."

These displays also need to have a real business case to go beyond "money is no object" installations and make them part of standard store builds and facility designs. That demands digital display installations that have a lasting, measurable impact and a technical design that controls energy costs, has a long operating life, minimizes costly service and replacement costs, and delivers a visual experience that gets stakeholders like retailers and brands excited, instead of wishing there weren't so many compromises made just to make the display happen.

Going Big has been a huge challenge so far in the digital signage and digital out of home sectors. At Christie, we believe we've come up with a compelling and viable solution.

*Bob Rushby is the Chief Technology Officer and Vice-President of Research and Development at Christie Digital Systems. A wholly-owned subsidiary of Japan's Ushio, Inc., Christie is a global leader in visual solutions for world-class organizations, offering diverse applications for business, entertainment and industry. A leading innovator in film projection since 1929 and a pioneer in digital projection systems since 1979, Christie® has established a worldwide reputation as a total service provider and the world's single source manufacturer of a variety of display technologies and solutions.*

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