

Thinking Small

Ever since pico projectors hit the retail market in mid-2008, awareness has grown about the promise of these tiny handheld, pocket-sized devices. The interest in pico (pronounced "pee-co") projectors reflects the world's increasingly mobile workforce and the desire to share content with anyone at any time. However, first generation picos didn't quite live up to the hype.

"Performance was marginal; they had low lumen output (in the 7 ANSI lumen range) and less than VGA resolution. They were expensive relative to performance with price tags of \$350 or more, but it did fit in your pocket," says Matthew S. Brennesholtz of Insight Media, a research firm that focuses on emerging display technologies. He is also the author of the 2009 Insight Media Pico Projector Report.

Brennesholtz notes that the current generation of pico projectors has better performance and price than previous picos. "Manufacturers are beginning to add more features. Most have built-in media players and light output is improving to 10-12 ANSI lumens," he adds. "Now, there is a pico projector with Windows CE built into it that will accept an external keyboard and mouse."

AV pros may scoff at 12 ANSI lumens as improved performance but with pico projectors, as with any emerging technology, the focus is on the potential of future technology improvements. "They produce a relatively large image from a small device. On an iPhone or iPod Touch, you are limited to a small 2" or 3" screen but if you have a pico, you can project a 20" to 30" image," explains Brennesholtz.

Gabe Wiebenga, marketing and product manager for 3M's MPro line of pico projectors, says that picos are part of the drive to a single-use device. The company recently launched their second generation of picos that offer better color saturation and light output than the previous generation, a four hour battery, and integrated speakers. "Because they are handheld, they are designed to a more rugged standard than a traditional tabletop projector. LEDs generate less heat and have a longer lifespan than traditional bulb-based projectors," he adds.

3M's LCoS pico optical engine was originally created in their development labs to embed in other devices, but "we realized the need and potential for handheld projection devices so we developed our own line," says Wiebenga. The company also sells their LCoS pico optical technology to other manufacturers.

Who are Current Users?

According to Insight Media's pico projectors end user survey, the majority of respondents were middle-aged men (across the U.S., Asia, and Europe) who purchased the projector for both entertainment and professional applications. When asked about their expectations of use prior to the purchase, the respondents expected to use it more for professional applications than personal entertainment.

"I see pico projector technology use in the corporate market, like a venture capitalist I spoke with recently who always keeps his pitch in his pocket," says Brennesholtz.

Similarly, 3M conducted a user survey and found that there is no majority demographic that uses pico projectors. "The MPro projectors are used for all different purposes and not one group stands out," says Wiebenga.

Impact on Digital Signage Market

Perhaps the biggest impact that picos will have on professional AV is in the digital signage market. Chris Riegel, CEO of STRATACACHE, a digital signage solutions company, takes a very bullish stance. "Picos will decimate the traditional LCD digital signage in the next few years. Picos offer much less cost, need less power, and have a longer lifespan than LCDs in most environments," he says.

STRATACACHE has worked on developing pico optical engines with Texas Instruments (TI) for the past two years. TI manufactures the DLP pico chip set, the competing technology to 3M's LCoS chip set.

Riegel also adds that, due to reliability and maintenance issues, projectors have always been a four-letter word to digital signage installers. "However, picos have the same reliability as IT network devices but not the same faults and limitations as traditional projectors," he says.

Pico projectors can be used in both traditional and non-traditional means of digital signage. They can save space in more traditional "point of presence" messaging like an 8.5" by 11" advert at a bank teller window or the day's specials projected into a restaurant tabletop. But because LEDs are less temperature sensitive than bulb-based projectors, pico projectors can also be installed in a grocery store's beer cooler for rear projection onto the cooler door.

"We've built a pico optical engine into our media player and added a 3G wireless connection for content updates, so we can put a pico literally anywhere as long as there is a power outlet," says Riegel.

Where Is It Going?

So, let's be clear. Pico projectors are not poised to overtake or replace traditional bulb-based projection systems any time soon. But as the technology advances, pico projectors will be hard to ignore. "People see picos built into cell phones like cameras are built into them

now. It is an optimistic forecast for 1 to 2 billion sold (one for every cell phone)," says Brennesholtz. "I think there will be hundreds of millions on the market by 2015. "

Brennesholtz says that the first pico projector integrated into children's' toys is expected to hit the market this Christmas and will retail for around \$100. "If they are reasonably successful, they will sell 250,000 units and will double the pico projector market in unit volume in a few months," he says.

Online resources:

- [3M Mpro](#) Line of Pico Projectors
- [Insight Media's Pico End User Survey](#)

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