



MAXIMIZING THE VALUE OF RETAIL AUDIO

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Retailers have long faced many challenges when implementing audio in their in-store messaging campaigns. This white paper summarizes those challenges and discusses how the emerging technology of directional audio can surmount them, helping retailers gain maximum value from omnichannel commercial environments.

Key advantages of directional audio at retail:

- Beams audio to intended individuals only
- Enables multiple audio zones
- Creates immersive, engaging experiences
- Increases dwell time
- Improves advertising effectiveness
- Boosts in-store sales



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INTRODUCTION

RETAIL DIGITAL SIGNAGE AND IN-STORE AUDIO

Over the last several years, retailers have seen a major paradigm shift toward improved omnichannel in-store environments. As a result, retail digital signage is now everywhere. What was once a rare experience—the occasional video wall within a tech-savvy flagship store—is now a ubiquitous fixture of today’s mainstream retail landscape.

From interactive kiosks and touchscreen tablets to projection mapping and digital billboards, your brick-and-mortar store probably has some combination of these systems already in place. In fact, you may have already established digital signage as a core component of your in-store marketing strategy.

And why wouldn’t you? The retail market is inundated with reports and articles uncovering the positive effects of multisensory environments on shopper engagement and purchasing behavior. What is less discussed, however, is that auditory perception can be a major factor in engagement, memory, and message assimilation.¹ So why is this often overlooked?

The answer is not as simple as you might think. Digital signage alone won’t transform a particular retail store or chain. A thoughtful approach must accompany any audio system deployment. Audio content, location, and the ways the retailer engages with customers are important considerations.



Technology has been used in retail environments to increase customer engagement.

Having an understanding of how the use of sound zones in retail differs from other vertical markets also can help align various retail interests. Lastly, knowing how to measure the success of the directed audio system is paramount in order to understand the ROI of the system.

This publication outlines the business potential of a directed audio system within retail digital signage applications and suggests factors to consider when calculating return on investment.

40% recall hearing retail audio during their most recent grocery store visit

57% think ad-supported retail audio is an acceptable form of advertising

18% recall hearing retail audio commercials and promotional announcements in a grocery store

25% think that retail audio advertising would influence their buying decisions

- The Arbitron Retail Media Study²

1. Wolvin, Andrew D. (2012). Listening, Understanding, and Misunderstanding. 21st Century Communication: A Reference Handbook. Retrieved from http://www.sagepub.com/edwards/study/materials/reference/77593_5.1ref.pdf.

2. Williams, Diane. (2005). The Arbitron Retail Media Study : The Impact of Retail Audio Broadcasting in Grocery and Drugstores. Retrieved from <http://www.bestbusinessmusic.com/ArbitronRetailMediaStudy.pdf>.

THE CHALLENGES

CURRENT CHALLENGES FACING AUDIO IMPLEMENTATION

The world is full of acoustically complex commercial spaces. This is perhaps most apparent in crowded department stores, where the unwanted cacophony of background noise becomes even more difficult to eliminate, especially during peak shopping hours. Additionally, ceilings, walls, and floors are often highly reflective, allowing sound to bounce around haphazardly.

Daunted by the challenges of adding sound to these settings, audio engineers and integrators often resort to eliminating audio in settings like retail, museums, and trade shows. They're frustrated with the limitations of commercial loudspeakers, whose audio bleeds and reflects in unintended directions.³

Wayfinding kiosks or looping promotional displays, for example, are typically kept silent because conventional loudspeakers produce audio at uncomfortable levels—and allow sound to spread in all directions. This type of audio tends to be perceived as intrusive noise by retail customers. It also frustrates employees, who struggle to ignore audio that bleeds into their workspace all day long.

Top 5 Reasons Audio Fails at Retail:

- Employee distraction
- Poor audio content
- Unwanted sound bleed
- Negative effect on ambiance
- Intended placement not possible



Although background messaging played over a store's sound system has been used to add audio to retailers' branding efforts, such messaging generally is confined to the most basic information and usually is limited to a single message played throughout the entire store.

3. Miranda, J. (2013). Directional Sound: An Underused but Highly Valued Audio Tool. Commercial Integrator Solution Series. Pg. 2. Retrieved from http://www.commercialintegrator.com/whitepaper/directional_sound_an_underused_but_highly_valued_audio_tool

THE SOLUTION

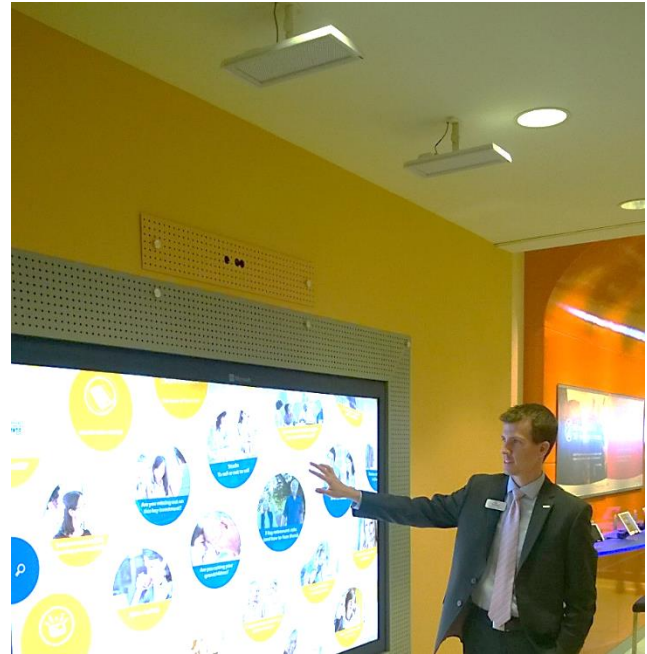
DIRECTED AUDIO AS A VIABLE AND PRACTICAL TOOL

Audio system designers are often forced to choose between precision and intelligibility. But retail environments require both. Imagine walking past a department store swimsuit display and suddenly hearing children playing on the beach. Step toward the sweatshirt rack and the laughter disappears. This sounds futuristic, but the technology is already on the market. It's called directed audio.

The success of customers' audio experiences comes down to sound directivity—creating isolated audio zones that target the right listeners and minimize the negative effects of audio bleed. An answer to sound engineers' frustrations has recently arrived in an emerging technology called directional audio.

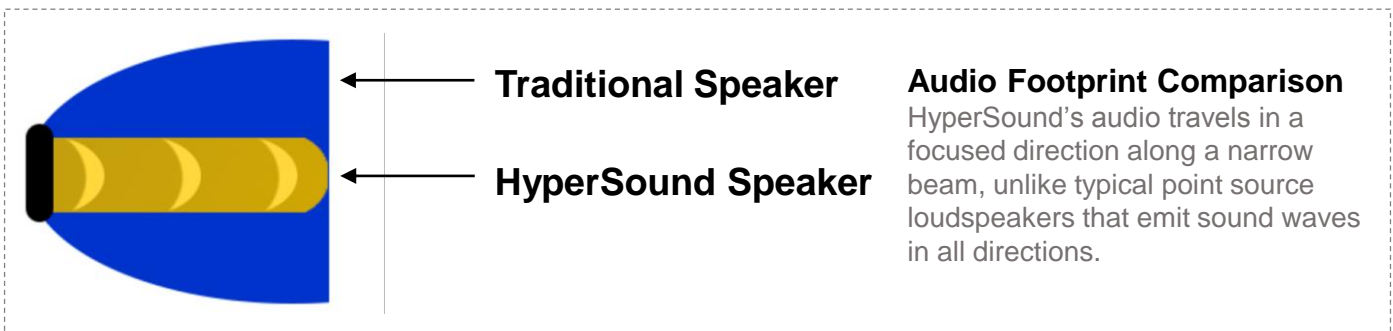
When sound is directional, it travels along a specific path with minimal dispersion. Think of it in terms of light: a traditional loudspeaker is like a bare light bulb, radiating sound in all directions around the room. Directional audio is like a flashlight, emitting sound in a highly controlled, narrow beam. Solutions currently on the market vary in their level of audio directivity, with parametric (ultrasonic) loudspeakers being the most precise.

Designers can use parametric speakers to project a sound beam to a precisely targeted location, creating a private listening zone in a public place.⁴



Directional speakers used at SunTrust Bank isolates sound to a confined area surrounding a promotional display.

The effect is completely immersive, almost like wearing headphones. With one step a listener can enter or exit a zone of fully intelligible sound, experiencing a difference in aural perception as abrupt as if they'd flipped on a power switch.



4. Woon-Seng Gan, Ee-Leng Tan, and Sen M. Kuo (2011, January). Audio Projection: Directional sound and its application in immersive communication. IEEE Signal Processing Magazine, 43–57.

CONSIDERATION #1

ENHANCING CUSTOMER EXPERIENCE

Well-designed audio content doesn't just go in one ear and out the other. When you pair it with visuals, you enhance overall perception— together, the two make the message more attention grabbing and more informative.⁵ That's because our senses play critical roles in memories and emotions.⁶

For example, think of a song that instantly reminds you of that summer in high school, or a scent that brings you back to your family's kitchen. A carefully crafted multimedia application connects with its audience on multiple levels, building strong brand connections. As we mentioned in the previous section, the absence of audio in multimedia systems has traditionally stemmed from a lack of overall audio control and the inability to personalize, surround, and isolate sound to specific applications.

“The ability to target audio directly to guests in front of our product kiosks provides an immersive experience that has been very popular at the Microsoft Experience Center. HyperSound's innovative virtual reality audio is a tremendous value-add for retailers wanting to create a personal sound environment on the sales floor.”

- Marty Ramos, CTO, Retail, Consumer Products & Services, Microsoft

60%

In 2012, a study conducted by Lexter Technology & Sound investigated the effectiveness of directional audio on selected beverage products in ICA stores. Sales of two well-known beverage products rose nearly 60 percent during an advertising campaign incorporating directional audio, compared to non-campaigned beverages.

25%

There was also a 25% increase in brand evaluation when directional audio content for the campaigned beverage was played within the store.

15

In another 2012 study, researchers examined the effects of directional audio on shopper behavior when played in a grocery store dairy department. Investigators found that shoppers exposed to directional audio stayed in the dairy section 15 seconds longer than those not exposed to directional audio.

10%

Results also showed that product sales for the campaigned organic dairy products rose nearly 10 percent with directional audio compared with sales of those same products prior to installation of the system.

87%

Additionally, there was a 87% increase in the number of shoppers who purchased a new organic dairy product that they previously were not aware of.

- Lexter Technology & Sound, 2012⁷

This is now possible—parametric loudspeakers give today's designers the unique ability to control the footprint of audio.

Sound can be focused directly at the listening audience, and nowhere else. This enables clear sound delivery to the target audience with a virtual reality “headphones” effect, even in high ambient noise environments like shopping malls.

5. Malnar, J. M., & Vodvarka, F. (2004). *Sensory Design*. Minneapolis: University of Minnesota Press.

6. Song, J. (2010). *Retail Design and Sensory Experience: Design Inquiry of Complex Reality*. Paper presented at the annual conference of the Design Research Society. Retrieved from <http://www.dr2010.umontreal.ca/data/PDF/111.pdf>

7. Lexter Technology & Sound, Panphonics. (2012). *Directional audio proven to be highly effective in improving sales in retail*. Retrieved from http://www.panphonics.com/sites/default/files/Directional%20audio%20research%20in%20retail%20%28Lexter%29%20SCREEN_0.pdf

CONSIDERATION #2

SIMPLIFYING SYSTEMS INTEGRATION AND DEPLOYMENT

Installing directional sound systems requires creativity and precision. Look for a system that is small and lightweight; a thin form factor makes integration into applications easy. Mounting and positioning can be more precise, without detracting from the overall design. Keep in mind the system's main objective is to improve the listener experience without sound bleed and without adding to distracting background noise.

Directional audio is a uniquely effective solution for environments that call for:

- Sound zones or sound isolation
- Clear, intelligible audio
- Immersive listener experiences

It's important to choose media that can be heard clearly over ambient noise. For the best results, select audio files that:

- Stay within human speech frequencies (300-7000 Hz)
- Avoid highly dynamic contrast and extreme variation between loud and soft volume

Be sure to consider the overall way the room is structured—note the reflective properties of hard materials like floors and windows. For example, picture a national electronics retailer with a tile floor and high, raftered ceilings. In this setting, you might install the audio on the ground and face it upward to maintain an isolated sound zone without reflection problems.

Options for orientation include:

- Point the sound directly at the target listener (from above or below)
- Intentionally bounce sound off a surface or object to create a virtual loudspeaker
- Create 3D “surround sound” audio experiences by directing stereo speakers at each ear



Ceiling-mounted directional audio speakers beam sound to interactive workstations throughout a Build-a-Bear Workshop.

When designing for applications with multiple components across a variety of media platforms, it is easy to understand why ease of integration and system compatibility are two of the most important considerations for store designers, especially with new systems or technologies. That's why a major value-add for parametric loudspeakers is their relatively simple installation, including their compatibility with most media players, displays, and other digital signage components.



Multiple configurations and ease of install make directional audio speakers uniquely effective for in-store retail environments.

CONSIDERATION #3

MEASURING THE ROI OF DIRECTED AUDIO

Directional audio changes the relationship between customers and in-store promotions. When you step into an audio zone, it's personal. You feel as though the message is spoken directly in your ear.

Though customer experience isn't as easy to quantify as something like sales from pay-per-click advertising, there's a strong business case for its power. Customer audio experience impacts metrics such as engagement, retention, and willingness to recommend. A high-quality experience is critical to attracting and retaining customers—and driving revenue.⁸ Research shows that directional audio:

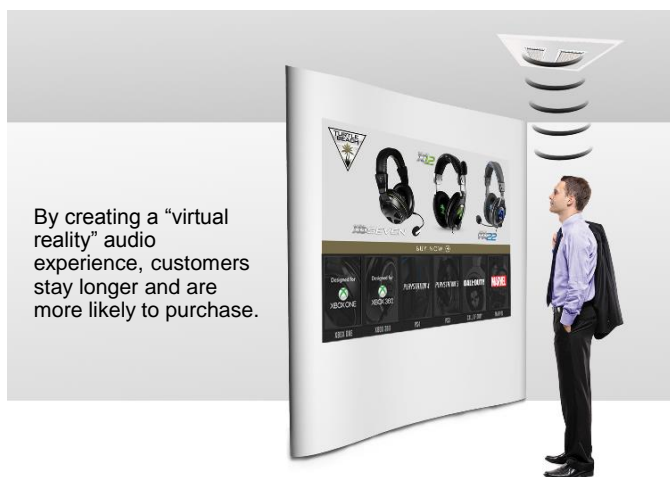
Increases initial interaction: Your message reaches a bigger audience when high-quality media brings in more foot traffic.

Imagine yourself browsing the aisles of a store, absently reviewing the shelves, when you're suddenly plunged into a zone of crystal-clear sound. This abrupt transition grabs people's attention and draws them in.⁹

Increases engagement: The richer the media, the longer it holds people's attention. Research conducted by OTX, a global consumer research and consulting firm, shows that 63% of adults say advertising on digital media grabs their attention more than on any other media, even television.¹⁰ And it's more than just stopping power. People also consider this advertising to be more unique, interesting, and entertaining, and less annoying than traditional and online media.

Increases message retention: Audio pairs with visuals to build sensory branding¹¹—a rich virtual reality that enhances message assimilation and recall. Advertisers have taken advantage of this for years through TV ads with jingles. But even more subtle sensory cues have the power to evoke brands. For instance, what company do you think of when you combine the color green with the sound of steaming milk? Or the color red with the pop-fizz sound of a can opening?

Increases purchasing behavior: When brands use multisensory messages to encourage these vivid emotional ties, their messages are more compelling because they appeal more strongly to both the emotional and rational sides of decision-making. Prospective customers become buyers when their hearts and minds align.



By creating a "virtual reality" audio experience, customers stay longer and are more likely to purchase.

8. Peppers & Rogers Group (2012). The ROI of Customer Experience: A New Economy Approach to Growth and Profitability.

9. Woon-Seng Gan, Ee-Leng Tan, and Sen M. Kuo (2011, January). Audio Projection: Directional sound and its application in immersive communication. IEEE Signal Processing Magazine, 43–57.

10. SeeSaw Networks, Inc. and OTX (2007). Digital Out-of-Home Media Awareness & Attitude Study, United States.

11. Song, J. (2010). Retail Design and Sensory Experience: Design Inquiry of Complex Reality. Paper presented at the annual conference of the Design Research Society. Retrieved from <http://www.dr2010.umontreal.ca/data/PDF/111.pdf>

DISCUSSION

KEY TAKEAWAYS



Parametric speakers can be used to enhance retail digital signage by creating targeted, immersive audio experiences within “virtual reality audio” zones.

Directional audio is a highly precise technology that works best in specific environments. It excels with audio content within the range of natural human speech. Advertising and informational content is the most effective.

For example, you might show video of a fashion runway accompanied by a voice describing the trends for fall. Directional audio creates a virtual audio zone that is fundamentally immersive and intelligible. This vivid audio experience will help you inform your customers while creating emotional ties between them and your brand, motivating their purchasing behavior.

Before designing a parametric loudspeaker system into your retail environment, make sure you determine the metrics for success and how to measure them.

Key advantages of directional audio at retail:

- Beams audio to intended individuals only
- Enables multiple audio zones
- Creates immersive, engaging experiences
- Increases dwell time
- Improves advertising effectiveness
- Boosts in-store sales

“HyperSound’s highly directional audio gives systems integrators the ability to add audio to visual displays without sound bleed, which is crucial, especially in acoustically challenging environments.”

- Todd Savitt, VP HyperSound Sales and Marketing, Turtle Beach Corp.

Then consider your physical space and begin to imagine how personal sound zones can surprise, delight, and influence your customers.

For advice on whether directional audio is the perfect choice for your situation, contact the team at Turtle Beach—we’ll help you choose a solution that will yield the best results for your business.

ABOUT HYPER SOUND BY TURTLE BEACH CORPORATION

Turtle Beach Corporation (turtlebeachcorp.com) designs audio products for consumer, commercial and healthcare markets. Under the brand Turtle Beach (turtlebeach.com), the company markets premium headsets for use with video game consoles, including officially-licensed headsets for the next-generation Xbox One and PlayStation®4, personal computers and mobile devices.

Under the brand HyperSound (hypersound.com), the company markets pioneering directed audio solutions that have applications in digital signage and kiosks, consumer electronics and healthcare. The Company's shares are traded on the NASDAQ Exchange under the symbol NASDAQ:HEAR.



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