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CYREEN PAPER SUMMARY:

In-Store Advertising with Digital Signage

(Herhausen et al., 2025)

CYREEN

Digital signage is a rising in-store advertising format that has become a strategic priority for both retailers and manufacturers.

While online advertising effectiveness has been rigorously studied, far less empirical work exists regarding in-store digital signage, especially at the point of sale (POS) where consumer decisions are made. This study addresses that gap through a comprehensive analysis of 237 campaigns and nearly 30 million shopping trips conducted across 10 large retail stores in a Western European country.

Using RFID-enabled shopping carts that triggered dynamic video ads as shoppers passed by ceiling-mounted screens, the researchers could precisely track which shoppers saw which ads and what they subsequently purchased. This design provided a robust framework for understanding how digital signage influences real-world shopping behavior.

Retailers benefit from this advertising format as it generates high-margin revenue (up to 90%) by selling screen time to manufacturers. For brands, it provides a unique opportunity to reach consumers in a high-attention, low-distraction setting—right in the store and close to the product shelf. Compared to traditional signage or price cuts, digital signage adds dynamic, audio-visual stimulation, making it a powerful tool for product promotion.

KEY FINDINGS

Main Effect:

Digital signage increases the probability of purchasing a featured product by 8.1% on average.

Incremental Sales:

Unlike price promotions, which often lead to stockpiling or timing shifts, digital signage leads to genuinely new purchases.

Halo Effects:

Beyond boosting sales of the featured product, digital signage increases sales of other products from the same brand or category, suggesting enhanced brand recognition and cross-category impact.

Spending Behavior:

Although digital signage increases the likelihood of purchase, it does not alter how much shoppers spend per product—indicating that it promotes volume, not discounts.

Overall, 87% of the tested campaigns yielded positive results, demonstrating the consistent effectiveness of in-store digital signage across diverse retail settings.

WHEN DIGITAL SIGNAGE WORKS BEST

The effectiveness of digital signage is influenced by a range of product, timing, and campaign-related factors.

Product Characteristics

- **Hedonic products** (e.g., snacks, cosmetics) benefit more than utilitarian ones, as they tend to trigger impulse buying.
- **New or novel products** perform better due to the curiosity and discovery effect.
- **Lower-priced items** see greater conversion, likely because they involve less deliberation.
- **Popular brands** perform better, as shoppers require less effort to trust and select them.

Timing Conditions

- Digital signage performs better on **weekends**, when shoppers are more relaxed and likely to browse.
- **Afternoon and evening hours** show stronger effects due to reduced self-control later in the day.
- **Good weather** increases receptivity by putting shoppers in a better mood.
- **Crowded stores** enhance the visibility and social validation of ads, boosting impact.

Campaign Features

- **Emotional advertising appeals** significantly outperform informational ones by connecting with the shopper on a psychological level.
- Ads are **less effective when accompanied by additional promotional cues**, such as price discounts or shelf tags, possibly due to cognitive overload.
- The **physical proximity of the screen to the featured product** enhances attention and increases effectiveness.

PRACTICAL IMPLICATIONS

For Brand Manufacturers

- Prioritize digital signage for **hedonic, low-cost, and novel products** where impulse buying is common.
- Run **emotionally engaging campaigns**, especially during **weekends and later in the day.**
- Place ads **close to the featured product** and **avoid mixing with other in-store promotions** to maintain message clarity.

For Retailers

- Use digital signage as a **high-margin revenue stream** by selling advertising space to brands.
- Apply insights from this study to optimize **ad pricing, placement, and scheduling.**
- Track performance of ad slots and tailor offerings to peak traffic times, popular products, and responsive shopper segments.

METHODOLOGY

The research design was a **field-based randomized controlled trial** using RFID-equipped carts to track exposure. Ads were played only when a shopper came within proximity, ensuring a controlled exposure condition. Purchases were tracked anonymously via the linked shopping receipt.

To account for potential biases (e.g., longer shopping trips leading to more exposure), the researchers employed **logistic regression models with Heckman correction**. They also controlled for confounding variables like time of day, store crowdedness, weather, campaign wear-out, and the type of content shown in the ad.

This methodology enabled the researchers to isolate the specific impact of digital signage while ensuring that results were generalizable and ecologically valid.

CONCLUSION

Digital signage is not just a novel retail trend—it's a scientifically validated tool for influencing in-store behavior.

With well-timed, emotionally rich content shown in the right context, it can measurably boost product sales, brand visibility, and cross-category engagement. This study equips both retailers and manufacturers with actionable insights and a roadmap to optimize their in-store advertising strategies.

By leveraging real-world data and rigorous analysis, the authors bridge the gap between digital marketing theory and physical retail practice, setting a new benchmark for how advertising should be studied and implemented in brick-and-mortar environments.