In-Store Technology
Customer-Facing Retail Tech Report:
Grocery Edition

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Source: Cooler Screens

We have all been part of the digital revolution in some way or another over the last several years. Whether it's the transformation of mobile apps, introduction of self-checkout lines, or most recently the influx of smart technology and AI, digitalization has and continues to transform the value chain in every industry—and retail is no exception.

As in-store shopping surges back to relevance three years after the pandemic, retailers are renewing focus on the in-store experience to address fundamental pain points and enhance the shopping experience, all while finding new and innovative ways to manage cost and optimize operations.

So why do retailers invest in any particular tech? We at CRG have created a simple **three-point framework** to synthesize why retailers make in-store investments:

| THREE-POINT FRAMEWORK GUIDING TECH INVESTMENT DECISIONS | Operational Excellence | Customer Experience | Top-line Enhancement |

This framework highlights the three strategic areas a technology can address and create meaningful ROI. Through Operational Excellence, a retailer can create efficiencies and enhance margin. Improving Customer Experience helps differentiate as a retailer. And by way of Top-line Enhancement, a retailer can, of course, sell more goods and services. As these principles do not change, we will use this framework in future editions of this report.

In the first segment of this ongoing series, our retail and tech experts dive deep into three distinct technologies—Electronic Shelf Labels, Dynamic Digital Merchandising Screens, and Smart Carts—to understand how they perform against this framework and add value for retail operators.

ELECTRONIC SHELF LABELS

Depending on its size, a full-format grocery store can have anywhere between 15,000-60,000 SKUs. As a result, retail workers typically change thousands of labels each week to keep prices and product details up-to-date.

Electronic Shelf Labels (ESLs) replace traditional paper labels that need to be regularly swapped out. As labor costs continue to remain high, more and more retailers are focused on optimizing their workforce, and ESLs are emerging as a tool to boost cost efficiencies. Labor shortages of today are real and affecting grocers' store operations. ESLs will save tremendous labor hours in manual label changes.
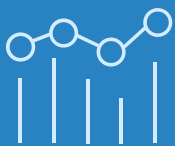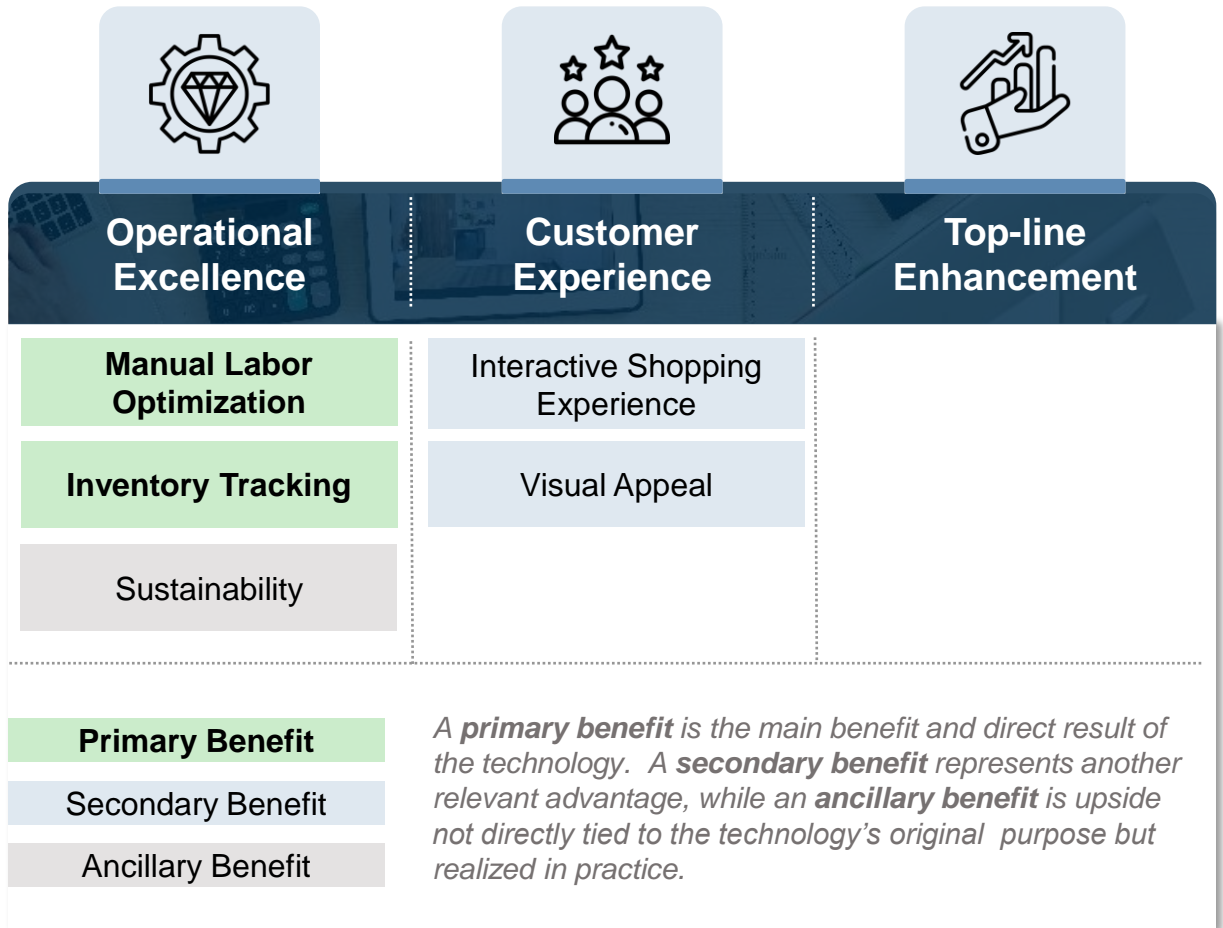

THE GLOBAL ESL MARKET IS PROJECTED TO REACH $3.5 BILLION BY 2031 AT A 15.5% CAGR

The global ESL market is projected to reach $3.5 billion by 2031 at a 15.5% CAGR, and it's easy to see why. Although widely used in Europe, the technology has recently piqued interest in the U.S. market with the partnership between Walmart and SES-Imagotag, who together will deploy 60 million tags across 500 stores in a Phase 1 rollout. We expect to see more retailers adopt this technology since it addresses several pain points for retailers and consumers alike.

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BENEFITS WE SEE TODAY

Operational Excellence	Customer Experience	Top-line Enhancement
Manual Labor Optimization	Interactive Shopping Experience	
Inventory Tracking	Visual Appeal	
Sustainability		

Primary Benefit	A ***primary benefit*** *is the main benefit and direct result of the technology. A **secondary benefit** represents another relevant advantage, while an **ancillary benefit** is upside not directly tied to the technology's original purpose but realized in practice.*
Secondary Benefit	
Ancillary Benefit	

Future Potential

In addition to benefits that exist today, there is potential for this technology to be combined with cameras / computer vision to allow retailers and brands to learn shopper behavior (e.g., dwell time) and ultimately better serve their customers. There is also potential for dynamic pricing which will enable timely and consistent price and promotional changes across store fleets, enhancing sale productivity and reaction to market changes.

BENEFITS WE SEE TODAY

Manual Labor Optimization

ESLs can be updated remotely in real-time, significantly reducing the time and cost associated with manual label changes related to pricing, promotions, new planogram placements and changes in SKUs.

Inventory Tracking

LED lights and "Temporarily Out-of-Stock" messaging indicate when to stock, making the replenishment process quicker and easier for store associates. Add-on software such as RFID can be used to prevent stock-outs by providing restock alerts before stockouts occur.

Interactive Shopping Experience

Depending on the size and features of the device, it can display additional product information such as nutritional data, product features, and customer reviews, allowing customers to make informed purchasing decisions in the moment.

Visual Appeal

These sleek and modern displays can enhance the aesthetics of the store and create eye-catching visuals and dynamic displays, thereby cultivating an engaging shopping experience.

Sustainability

ESLs also can have a material sustainability impact. Drastically reducing re-printed paper labels in favor of electronic labels across a retail network helps reduce waste.

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BE AWARE:

To maintain and constantly service this infrastructure, a dedicated in-house team or a 3rd party is necessary, and the costs can add up.

Though there are several benefits to ESLs, there are also activities that need to be performed regularly in order to maintain a sophisticated network of such devices, including maintaining connected inventory tracking systems, keeping pricing databases updated, monitoring connectivity, and troubleshooting technical issues.

As such, the feasibility of this tech can vary greatly depending on the size of the retailer and specific requirements (e.g., number of devices and frequency of updates). That said, we believe more and more retailers will turn to it because of the inherently high ROI potential despite the additional implementation and support costs.

Source: Retail Customer Experience

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DYNAMIC DIGITAL MERCHANDISING SCREENS

Dynamic Digital Merchandising screens are typically LCD or LED displays that that can be mounted at various points of the store and mainly found on the front of coolers or refrigerators today. On a cooler, retailers most often choose to display a digital plan-o-gram and use a connected media player to manage additional content displayed on the screen, including advertisements, promotional messages, and product information, allowing retailers to alter the content displayed at will.

Digital screens have become increasingly popular in retail environments to engage with customers and promote products, with the primary goal of top-line growth and shopper convenience. Whereas retail media networks are primarily leveraged online today, digital screens can bring those unique benefits in-store and serve as a marketing vehicle for CPG partnerships.
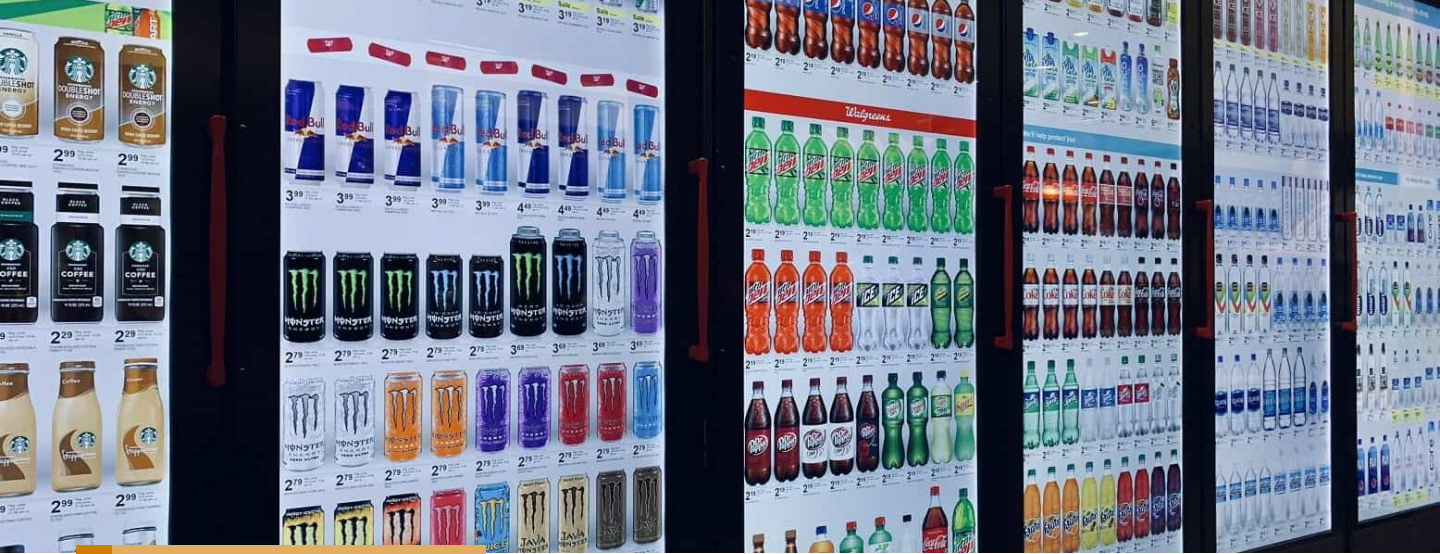
After a 3-year pilot, Kroger recently announced it will implement cooler screens in 500 stores, making it the technology's largest adoption to-date. Clearly, Kroger saw the benefit and concluded the investment to be worthwhile. And it's not just retailers that are beginning to see the advantages of this technology. Arguably, brands have been reaping much of the benefits – per the Cooler Screens website, "Vita Coco," a popular coconut water brand, achieved a 16% sales lift over a 20-day marketing campaign on these screens, delivering **14 million** impressions over the same period.
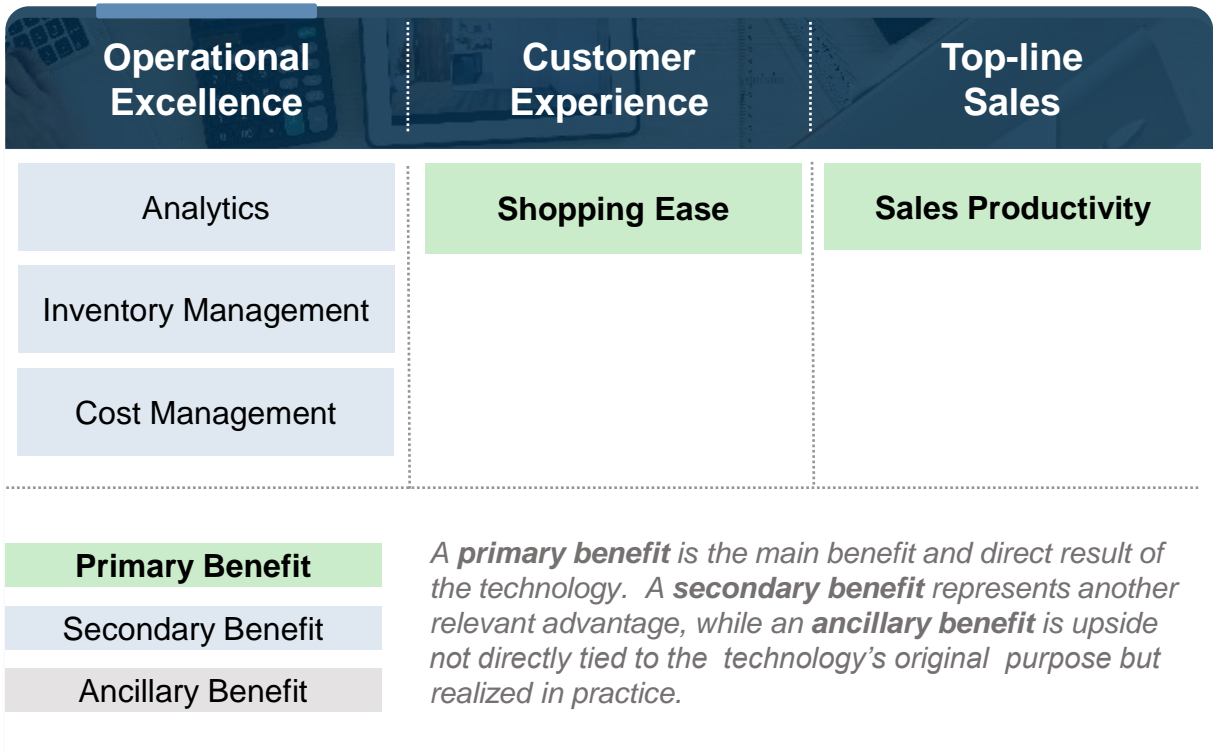

Source: CNN

"VITA COCO,"
A POPULAR COCONUT WATER BRAND, ACHIEVED A 16% SALES LIFT OVER A 20-DAY MARKETING CAMPAIGN LEVERAGING THESE SCREENS

BENEFITS WE SEE TODAY

Operational Excellence	Customer Experience	Top-line Sales
Analytics	**Shopping Ease**	**Sales Productivity**
Inventory Management		
Cost Management		

Primary Benefit	*A **primary benefit** is the main benefit and direct result of the technology. A **secondary benefit** represents another relevant advantage, while an **ancillary benefit** is upside not directly tied to the technology's original purpose but realized in practice.*
Secondary Benefit	
Ancillary Benefit	

Future Potential

While digital merchandising screens today display ads and promos to the general population, this tech has the potential to create highly personalized marketing content. Mimicking a more online experience, digital screens can become a conduit to share personalized ads and promos at-shelf once retail tech is able to identify individual customer profiles walking around the store, and couples that information with its retail media network's advanced analytical and personalization engine.

BENEFITS WE SEE TODAY

Sales Productivity

Serving up ads and promos to consumers at a moment of truth, digital merchandising screens can help drive impulse buys. With sensors built in that know when consumers are in front of the screen, upon approach, the screen can play an ad or promo with exciting content to drive conversion.

Shopping Ease

Screens can make information like "Gluten Free" bigger than typically printed on paper tags, ensuring impactful messages are clear and legible.
Cooler Screens says this tech also tailors to consumers' digital interests, with **>90% consumers** saying they prefer digital screens over traditional ones.

Analytics

Digital merchandising screens can add to a retailers' robust set of in-store consumer behavior data. For instance, the cooler screens can process dwell time in front of the cooler as well as track ad effectiveness, which can provide both retailers and CPGs with valuable real-time insights to adjust campaigns.

Inventory Management

When placed in front of a cooler with product behind, these screens can track product availability and can trigger low-stock alerts for associates to replenish, which can help limit long-term out-of-stocks, prevent over-ordering and keep customer complaints at bay.

Cost Management

The digital nature of this equipment gives operators the flexibility to nimbly adjust ads based on ROI and POS metrics while not needing to print as much physical signage and invest in its production, shipping, and installation costs.

BE AWARE:

Retailers need to assess key considerations, such as accuracy, capacity for disrupting the shopping experience, and concerns over data privacy. All these potential cons work directly against the ultimate goal – improved Customer Experience.

As with any technology, there are a host of new challenges that come with the adoption of dynamic digital merchandising screens.

Consumers have expressed a level of concern over data privacy due to the sensors and cameras built into the systems. Because digital cooler screens are connected to a wireless network, they can be vulnerable to cyber attacks. Retailers need to make sure their network is secure and take measures to protect against potential data breaches.

There are additional operational factors to consider with the use of these digital screens. They may break down, the system used to monitor inventory may fault, and the ads may freeze on a static graphic. While these issues may not happen frequently, they are important to consider as retailers evaluate the use of this technology in their stores.

Source: Cooler Screens

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SMART CARTS

A leading alternative to other cashier-less technologies, such as complete Just Walk Out (JWO) technology, smart carts are a type of shopping cart equipped with technology such as computer vision, sensors, and AI to provide a more convenient, if not more personalized, shopping experience.

This technology offers two distinct advantages. First, smart carts carry a convenience factor analogous to JWO and, in most newer versions, do not even require customers to scan individual items. Additionally, when paired with a retailer member/loyalty program, once a customer signs into the cart, the retailer can provide personalization in its many forms. Thus, its ROI is in the real-time, personalized customer communications with the customer.
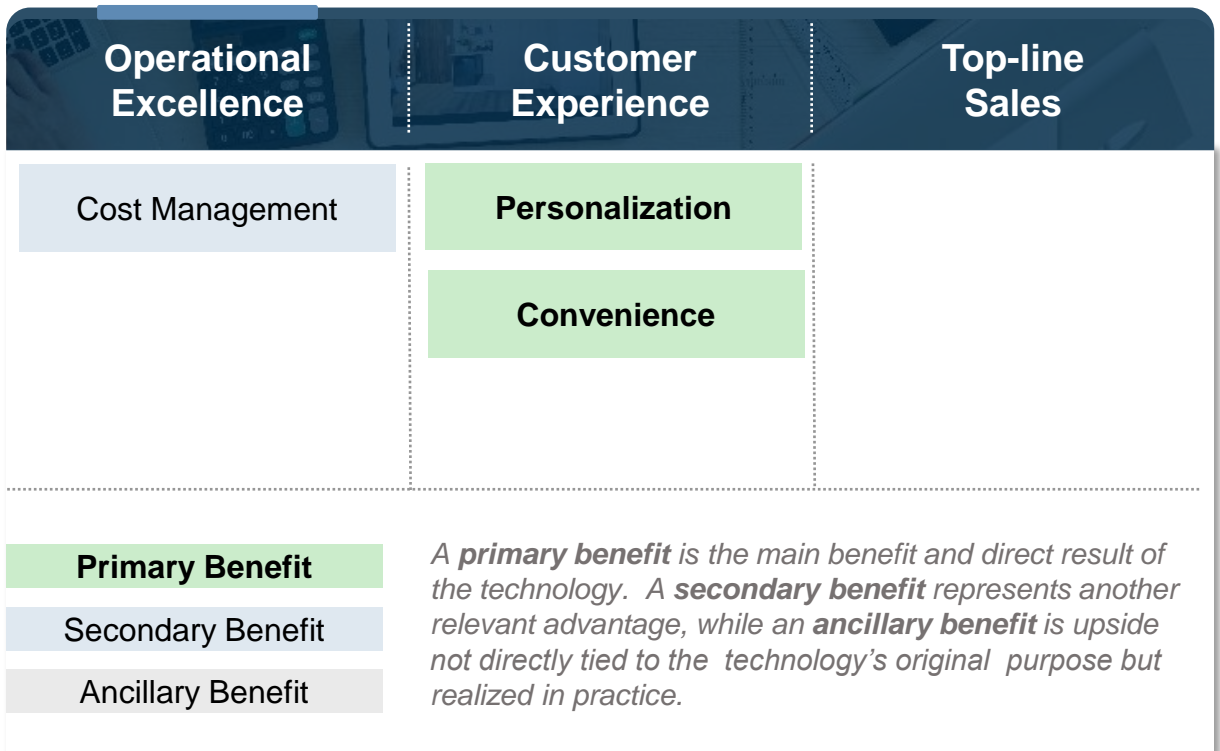

Source: Amazon

FOR NOW, IT APPEARS THE GROCERY INDUSTRY IS SET TO BECOME AN EARLY ADOPTER OF THIS TECHNOLOGY IN THE U.S., WHICH MAKES SENSE GIVEN IT IS THE WIDEST SHOPPING CART APPLICATION

Furthermore, various available features range from tallying items added-to-cart to personal grocery list integration to item locators within the store to pulling relevant product information. The feature add-ons continue to expand rapidly across smart cart manufacturers as the technology and adoption accelerate.

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BENEFITS WE SEE TODAY

Operational Excellence	Customer Experience	Top-line Sales
Cost Management	Personalization	
	Convenience	

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Secondary Benefit	
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Future Potential

Like dynamic digital merchandising screens, by leveraging location sensing tech, advanced analytics and CPG partnerships, this tech can help step-change the in-store customer experience, the use of in-store RMNs and personalization to reinvent how consumers shop.

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BENEFITS WE SEE TODAY

Personalization

Smart carts can provide personal recommendations for consumers. Specifically, the carts' databases can be configured to leverage shopper history to recommend products and promotions that may specifically interest the user. This can increase shopper engagement and spark sales for the retailer. In fact, because of their ability to dynamically make recommendations and offer promotions, smart carts have been shown to increase consumer basket sizes by up to 30%.

Convenience

One of the attributes of the in-person shopping experience that consumers value the most is convenience—hence the growth of in-store technologies like self-checkout. Smart carts enhance the customer experience by eliminating the need to check out, as the cart's systems can identify goods and charge the customer's stored payment method.

Cost Management

Since smart carts can process payments without needing a checkout register, this technology can help reduce labor costs associated with checkout kiosks, though most retailers who are piloting this technology are doing it as an option in addition to traditional cashiers and/or self-checkout.

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SELECT EXAMPLES OF RETAILERS INTRODUCING THEIR VERSIONS OF THIS TECH:

Kroger

KroGo carts, a collaboration between Kroger and tech firm Caper, are enhanced shopping carts that feature built-in food scales and cameras for quick shopping and checkouts.

Wegmans

Shopic, one of many tech firms in the smart cart space, is collaborating with Wegman's to test an AI-powered clip-on unit that can attach to an ordinary shopping cart and deploy computer vision to identify products and display pricing.

Albertsons

Albertsons has partnered with Veeve to pilot smart carts with Scan, Pay, and Go technology that combines bar code scanning, computer vision, and built-in food scales to allow customers flexibility and time savings.

amazon

Available at select Amazon Fresh Supermarkets and select Whole Foods, the Dash Cart helps customers bypass checkout lines using sensors and computer vision with the added benefit of being in the Amazon ecosystem (e.g., billing is automatic on the Cloud to an individual's Amazon account).

Schnucks

Schnucks recently announced it will expand its partnership with Instacart by introducing Caper Carts, Instacart's smart carts, into some stores this fall. The carts will use AI to allow customers to bag as they shop and checkout from anywhere in the store.

BE AWARE:

Benefits notwithstanding, retailers need to be wary of the enormous upfront cost of smart carts, which can range from $5,000 to $10,000 per cart, and pilot adoption to prove out ROI.

In addition to the upfront costs, concerns such as technical issues, user errors, charging capacity, theft/shrink, etc., are all challenges that come with the adoption of this technology and beg the question whether this tech is worth investing in long-term or is just a novel idea.

WHAT ARE WE KEEPING EYES ON?

It's an exciting time in retail. We are seeing numerous innovations in this space, and in-store tech is evolving at a rapid pace. In addition to those technologies detailed in this article, we have been keeping our eyes on pilot announcements for customer-facing retail technologies such as **Freeosks, AI-powered salad bars and other fresh categories, and a multitude of computer vision use cases.**

Investing in technology that can create Operational Efficiency, Improve Customer Experience and grow Top-Line is key for retailers to stay ahead in a super competitive space. We only expect technology investments to gain momentum going forward and will continue to keep our eyes on further innovation efforts.

Stay tuned for the next edition in this series as we continue our discussion of in-store tech innovations!

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