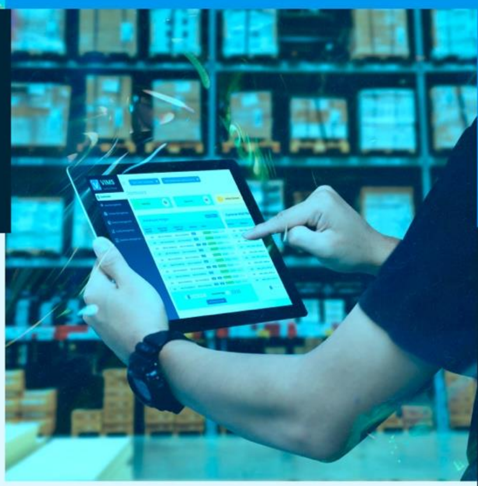
VIMS
Visual Inventory
Management System

RETAIL WHITE PAPER



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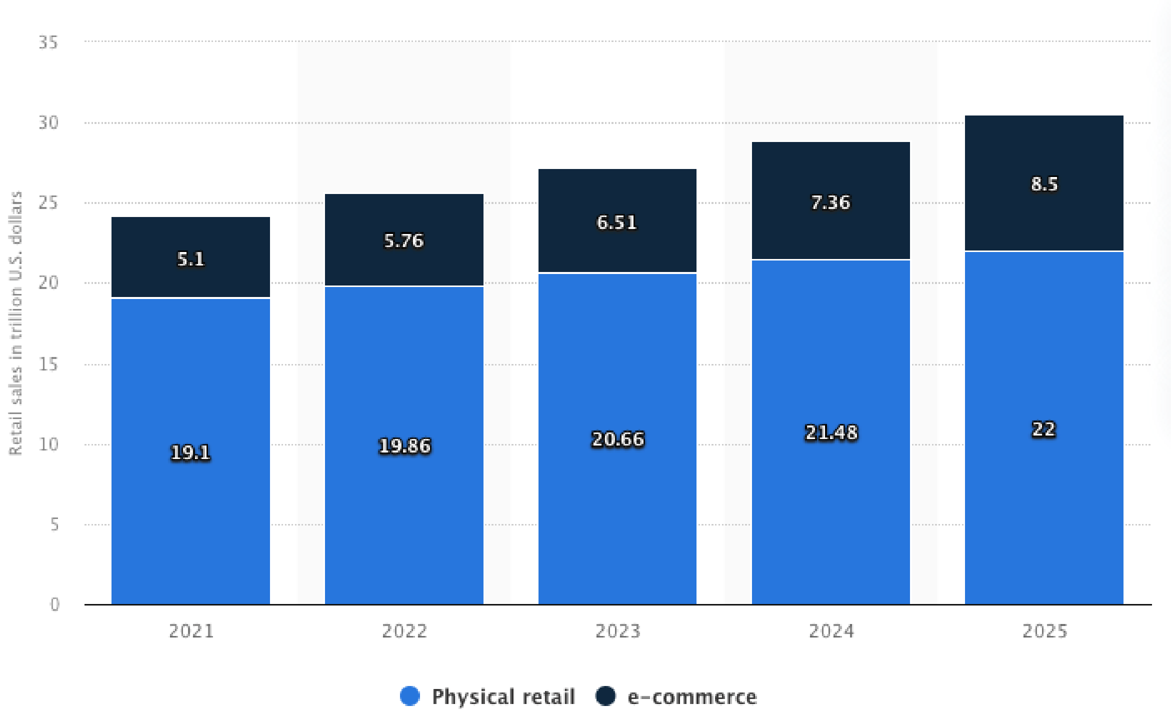
Traditional In-store Purchases Is Still a Preferred Choice Among Shoppers

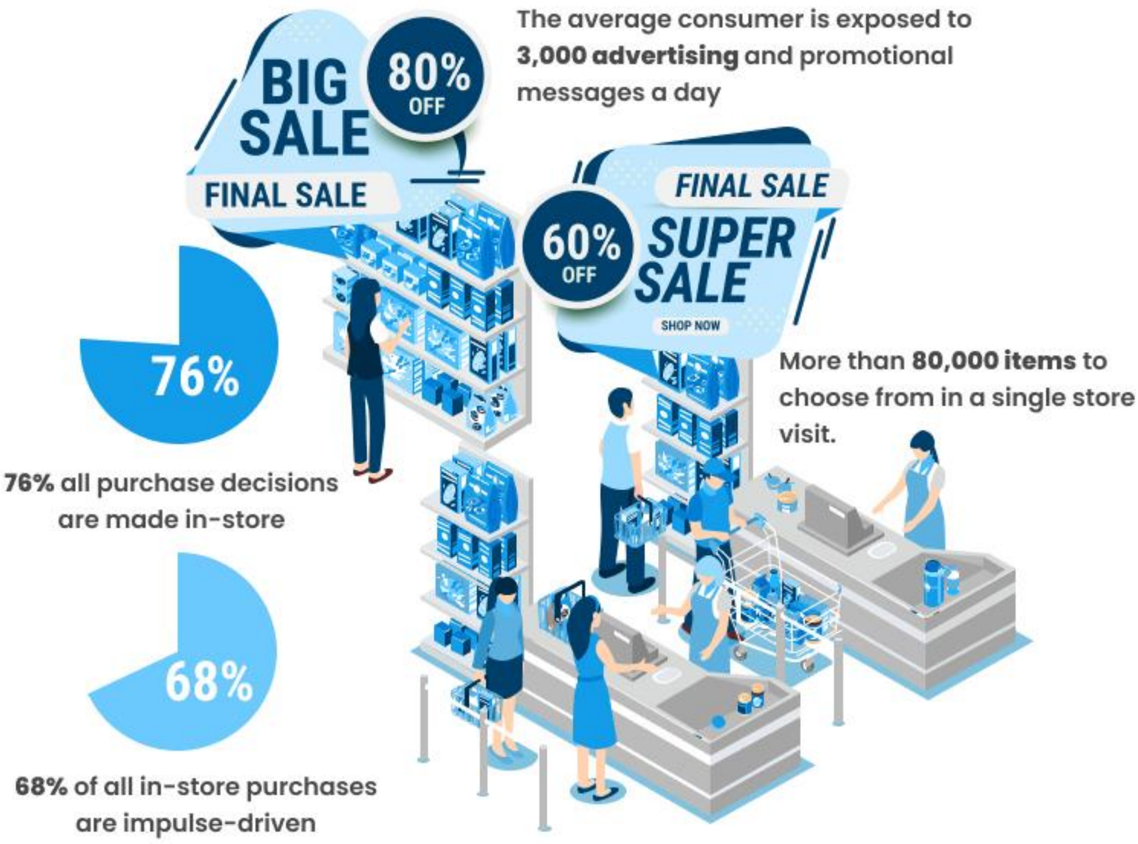
Despite the proliferation of online sales and the growing eCommerce industry, in-store sales are still and will continue to be the largest outlet for moving products.



Source: Statista[1]

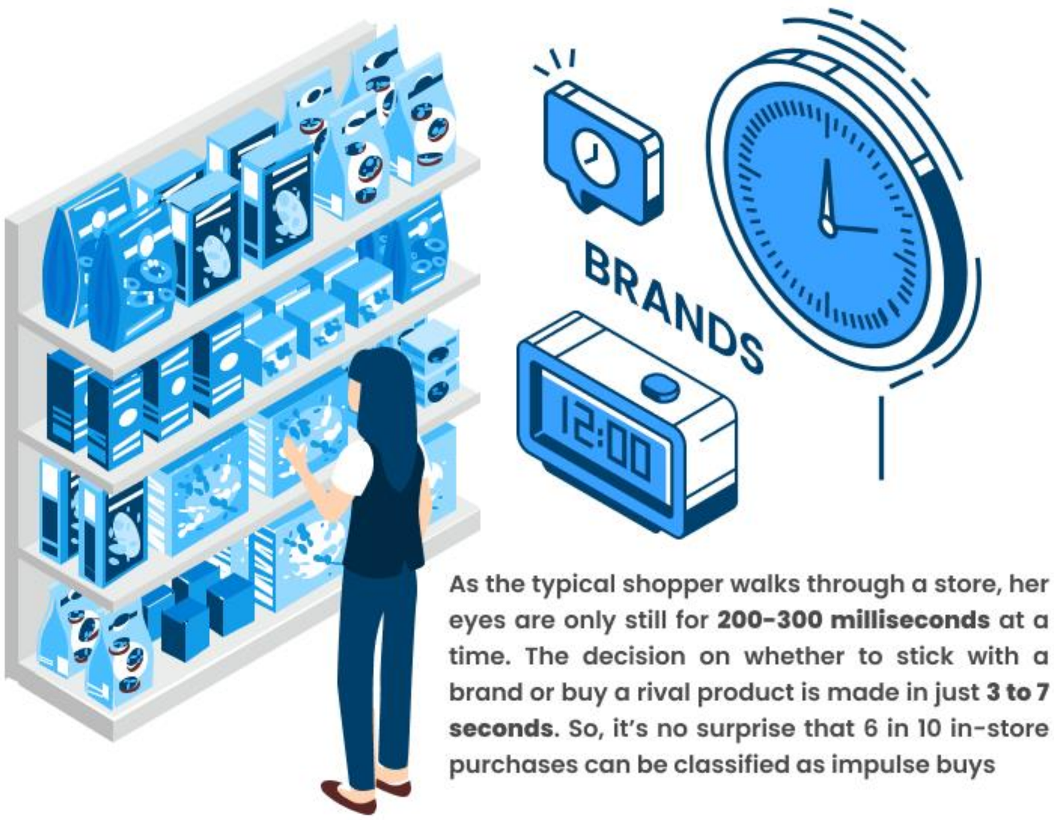
Competition for attention is significant. Especially in light of the fact that 76% of all purchase decisions are made in-store, and 68% of all in-store purchases are impulse-driven.

1 Source: https://www.statista.com/statistics/1095969/retail-sales-by-channel-worldwide/



So a shopper's intentions can and do change in a split second.

Importance of Display Compliance



Maximizing impact while the shelf has the shopper's attention is key to driving sales and increasing revenue.

The COVID-19 pandemic has further pressed the importance of display compliance for retail storefronts. Consumers in the US are dynamically shifting their shopping habits. An astonishing 75% of consumers in the United States are trying a new shopping behavior in response to economic pressures, store closings, and changing priorities. This general change in behavior has also been reflected in a shattering of brand loyalties, with 36% of consumers trying a new product brand and 25% incorporating a new private-label brand. Of consumers who have tried different brands, 73% intend to continue to incorporate the new brands into their routine. Gen Z and high earners are most prone to switching brands.

Shifting Consumer Behaviour

Shoppers have cited a number of reasons for switching brands, with availability (in-store and online), convenience, and value leading the pack. This highlights the need to quickly become aware of when shoppers are migrating brands or retailers and then manage the logistics to ensure product and service availability.

Source: McKinsey & Company Consumer Plus Survey[2]

The shift in shopping behavior can become detrimental to the sales of retailers. Historically, consumers have never been loyal to retail banners. The FMI, The Food Industry Association's[3] yearly report, suggests that a consumer visits over four different retail banners each month. In fact, only 13% of consumers are loyal to just one retailer. The fickle nature of consumers is noticed to be even more pronounced in Gen Z and millennials, who visit over six different retail stores for their primary shopping needs each month[4].

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[2] Source: https://www.mckinsey.com/business-functions/growth-marketing-and-sales/our-insights/the-great-consumer-shift-ten-charts-that-show-how-us-shopping-behavior-is-changing
[3] Source: https://www.fmi.org/about-us/about-us
[4] Source: https://www.foodnavigator-usa.com/Article/2019/07/19/FMI-US-grocery-shoppers-frequent-more-stores-per-month

In the United States, profit margins for supermarkets are between 1% and 3%, depending on the item. It is not unusual for a grocery store to make just a few cents per item. Grocery stores make money on volume. They generally count on customers to buy many items per shopping trip, driving up volume sales. However, if the store consistently faces out-of-stock situations and losses due to inefficient communication between the backroom and store floor, these margins are at the risk of being squeezed further. This, combined with the shifting consumer behavior, has put pressure on retail stores slowing the overall industry growth.

Where are Retailers Going Wrong

Retailers have always taken a traditional approach to stockouts. Instead of fixing the problem, which is deemed expensive, they assume the consumers will settle for a substitute. However, the data demonstrate a contrary behavior. Depending on the product category, 7% to 25% of consumers faced with a stock-out will continue shopping but will not buy a substitute for their desired item at the store; 21% to 43% will actually go to another store to buy the item.

Overall, our study suggests that retailers can lose nearly half of intended purchases when customers encounter stock-outs.

Those abandoned purchases translate into sales losses of about 4% for a typical retailer. For a billion-dollar retailer, that could mean $40 million a year in lost sales[5].

According to a study, 72% of stock-outs were due to faulty in-store ordering and replenishing practices—retailers ordering too little or too late, generating inaccurate demand forecasts, or otherwise mismanaging inventory. These

[5] Source: https://hbr.org/2004/05/stock-outs-cause-walkouts

included category planners who mismanaged shelf space, promotions, or new product introductions; or supply chain managers who misjudged long-term demand.

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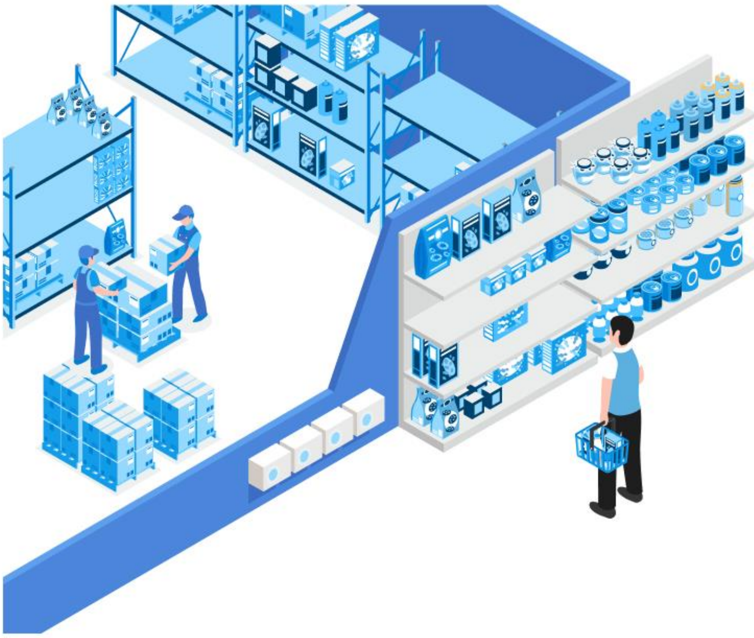

When the problem with stockouts and inventory extends to promotional displays, the damage can have a two-pronged impact on CPG manufacturers who spend billions every year on displays and other forms of P.O.P. (point of purchase) marketing in retail stores. Furthermore, at discounted prices, the store not only loses out on margins but also volumes which tend to be higher for promotions than normal shelf sales. A study found that 60% of the promotional displays are either set up incorrectly, in the wrong location, with the wrong product, or not at all by retail stores[6].

According to Harvard Business Review, more than half of all promotions fail to have any impact on sales. In 2019, overwhelmingly, 70% of companies reported that they struggle with compliance and in-store execution on retailer-aligned promotions. There is a severe disconnect between expectations and reality surrounding promotions, as CPGs had a perceived compliance rate upwards of 70% when compliance was actually closer to 40%. Furthermore, temporary POP displays or shippers are the most common type of promotional displays used by CPG manufacturers, and these vehicles exhibit the highest rate of non-compliance by retailers.

[6] Source: http://www.shopassociation.org/wp-content/uploads/2016/07/POP-Compliance_2016_whitePaper_SM_FINAL.pdf

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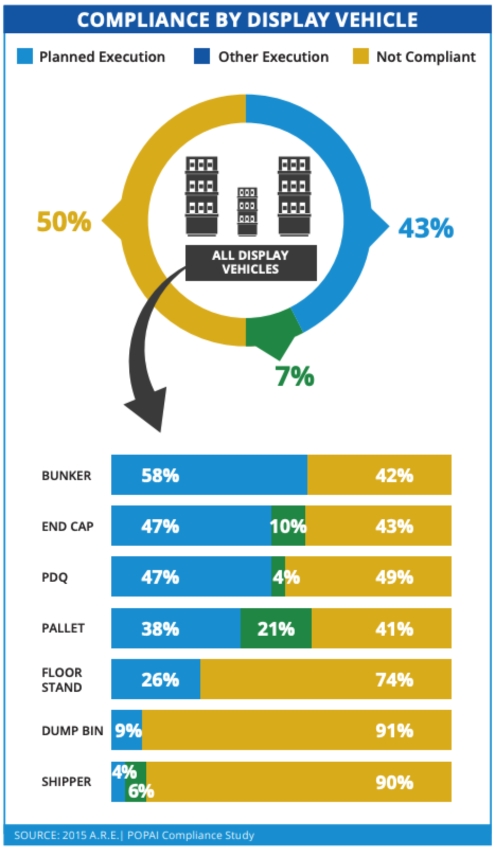


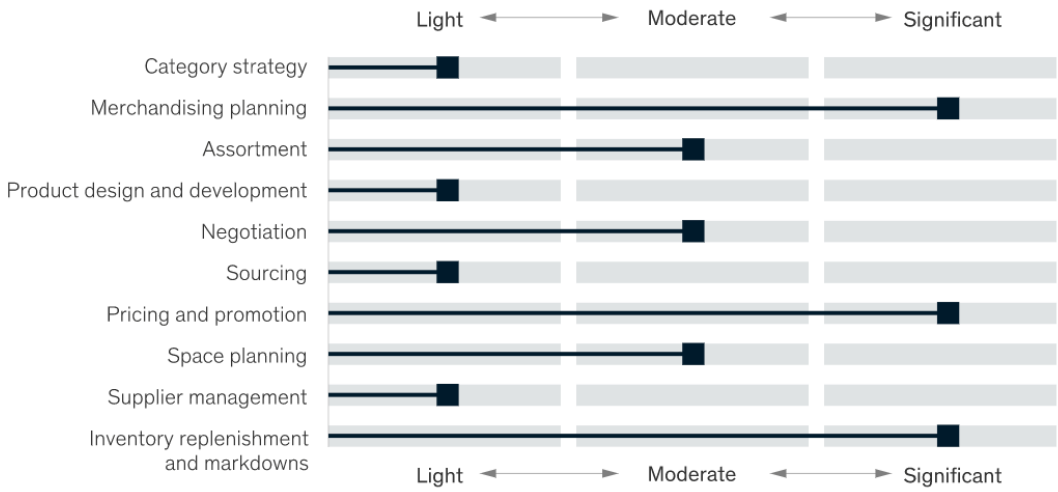
Feature and display compliance is thus a shared goal among both CPG (Consumer Packaged Goods) manufacturers and retailers. It is, however, common knowledge that compliance falls way below the estimated expectations of either party.

Reducing out-of-stocks and display errors can be difficult and expensive. But the cost of assuming that little can be done, or it does not matter, may be higher still, in both dollars and customer loyalty. In a business with perilously thin margins which predominantly relies on volumes, ignoring bare shelf space is not an option.

Technology Adoption Among Retail Store Owners

Automation and advanced technology have eased many areas of business processes. The role of automation is just as important on the retail front. While technology can have an impact on all functional areas of the retail operations, it can have a significantly high impact on merchandising planning, pricing and promotion, and inventory replenishments and markdowns.

Projected impact of automation by core merchandising activity



McKinsey & Company

Technologies such as computer vision, machine learning, and predictive analytics can help retailers improve compliance and sales while reducing out-of-stock situations.

However, while technology adoption among retail stores is growing, the focus has been on optimizing store operations in a bid to make brick and mortar establishments into Amazon-like warehouses. While some stores are deploying handheld gadgets that direct workers to the fastest route through the store, some have optimized operations through standard packaging where the staff does not have to waste time weighing produce. So, grocery stores are trying to do double duty as places for in-person shopping and online-order assembly lines. This further adds stress on the in-store staff. Employees often felt ground down by how much of their work was guided by automated systems and measured by how fast they assembled orders.

While this trend makes online order fulfillment efficient, it should not be the focus of cash-pressed retailers who are merely making ends meet. Before the pandemic, nearly 98% of U.S. grocery sales were in the stores, according to McKinsey & Company. Even with the gains in a curbside pickup and home delivery, 85% of sales were still in stores at the peak of Covid-19.

In terms of in-store technologies, the focus has been on customer experience. Self-checkout apps and cashier-less payments. Many legacy grocers have held back on rolling out or promoting flashy technology. The investments could be hard to justify in a notoriously low-margin business — especially when it's unclear if customers will download smartphone apps or embrace innovation.

Adoption of technology that focuses on display compliance, out-of-stock situations, promotional display tracking, and floor-to-system inventory alignment is fairly low. Computer vision technology has made significant strides on the inventory management front. However, the high investment required to integrate expensive hardware that facilitates the technology has deterred many retail store owners.

Available Solutions

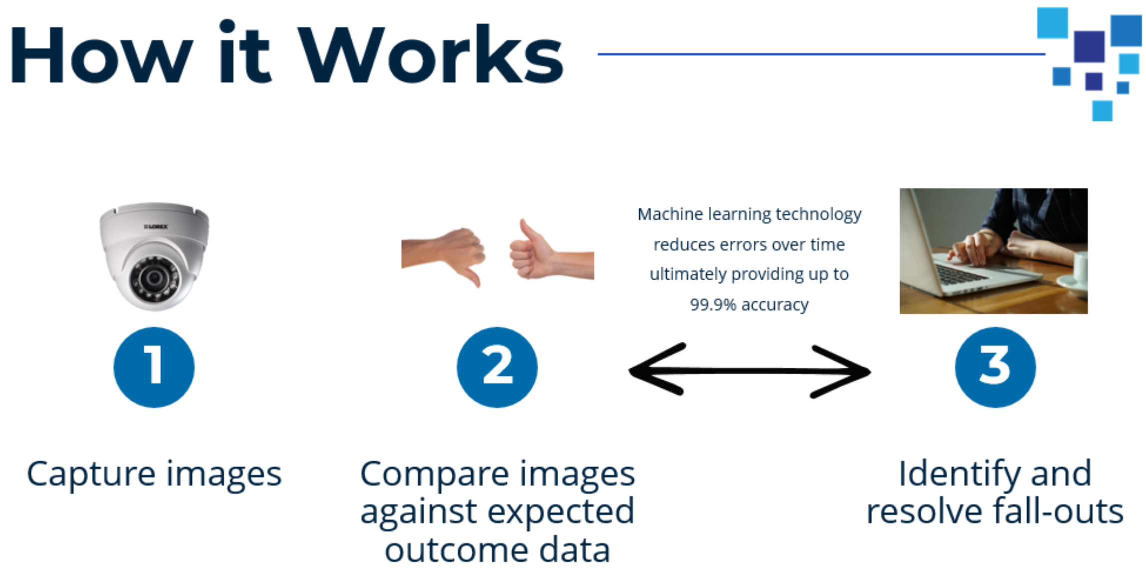
Many solutions are now available in the market that offers assistive technologies for optimizing inventory management. However, these require heavy investments and may not always perform as expected. For instance, computer vision is facilitated using shelf-monitoring robots or drones. However, while the former takes time to move up and down the aisle, tends to intrude in shopper's space, and costs nearly $80 million to integrate, the latter is still a nascent stage technology with an underdeveloped self-awareness mechanism which may lead to a collision or damaged equipment. Walmart, one of the first adopters of computer vision technology, has ended its effort to use roving robots in store aisles to keep track of its inventory, reversing a years-long push to automate the task with the hulking machines after finding during the coronavirus pandemic that humans can achieve similar results.

Most grocery stores can't spend what Walmart or Amazon do to invest in new technologies. And some of the technology that promises to help grocers or store workers perfect the process of inventory management might be hogwash. It may seem there isn't an ideal future for shoppers, supermarkets, and grocery workers. However, VIMS (vision-based inventory management solutions) by TEMPO makes this ideal future possible.

VIMS by TEMPO

TEMPO Process Automation is a Florida-based software technology firm that specializes in providing technology-based solutions to operational problems. While the experts at TEMPO concurred computer vision is the 'next big thing' in the inventory management sector, its present high-cost deployment through the use of high-tech hardware seemed to be a barrier to its adoption. Breaking down the need for such equipment, it was found that computer vision required 'eyes' on the floor to become effective. The 'eyes' are presently provided by drones and robots; however, the same can be facilitated through fixed-mounted camera systems like CCTV. Retail store facilities already have such a system in place, which can easily be repurposed for becoming the 'eyes' on the floor with minimal investment. TEMPO provides an easy-to-implement, low investment, and quick-to-value automated solution for your retail environment. It leverages advanced technologies such as image processing, computer vision, artificial intelligence, and machine learning.

VIMS combines extensive expertise in computer vision with the machine and deep learning models that compare photographs against display requirements. VIMS then provides an analysis of whether the store's display, as presented in the photographs, is compliant with brand guidelines. With appropriate guidance from the software's expert human trainers, the AI system continually improves at identifying non-compliant displays and placement of the brand's promotional items and advertising banners.



VIMS for CPG Providers

Similarly, CPG providers spend millions on device promotional strategies, and matching in-store actuals with expectations can add to this cost. Furthermore, blanket coverage of every retail store with individual store visits to assure promotional compliance and execution can take weeks and may outrun the promotion.

With the strong reporting capabilities of VIMS, individual store visits to find out about display non-compliance are not required. One of the most effective approaches to revealing display errors that are dragging down promotional goals is to monitor POS data.

By augmenting display execution reporting with automated alerts that can highlight stores with display errors, if there is a sales lift in all stores running a promotion except one, store personnel and/or vendors can quickly be dispatched to investigate and rectify the problem. On the other hand, getting a visual of the promotional display can allow store personnel and/or vendors to identify defaults in-display remotely and initiate correction measures before the promotion has ended.

Hence, the same camera system that helped retailers make display compliance easy can become a store floor auditing tool for CPG providers making analytics and reporting easy and bridging the gap between in-store actuals and expectations.

With VIMS, CPG manufacturers and retailers can expect an increase in sales and profitability and enhanced performance and customer satisfaction.

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