

Autonomous Perception for Retail Inventory Visibility

Pensa

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The \$1T Retail Inventory Visibility Problem

Inventory visibility on the store shelf is an age-old problem for CPG brands and retailers – and it's only getting worse as e-commerce and physical store shopping combine. Retailers alone miss out on \$1T every year due to not having what customers want on the shelves.

The problem boils down to a lack of visibility—you can't re-stock what you can't see. Manual checks are expensive, spotty and incomplete. Newer technology solutions, such as ground robots, fixed cameras and smart shelving, are proving themselves overly expensive, complex, brittle and/or limited in accuracy. Pensa represents a real breakthrough, offering brands and retailers a powerful new tool to boost revenues, profitability and customer satisfaction at a critical time in the industry.

Pensa's Breakthrough Approach

Pensa collects data faster, more frequently, with greater accuracy and at a lower cost per location than any other approach, whether manual or automated.

Pensa's system is uniquely effective at understanding real product and shelf conditions because:

- **It combines drone-based computer vision with patent-pending AI** in the cloud to rapidly scan and automatically sense shelf conditions with extremely high accuracy
- **It sees every individual product**, recognizes missing items and spots misplacements and other planogram misalignments
- **It learns, evolves and gets more accurate as it goes**—across all locations and ongoing packaging changes
- **Its automated visual audit is real-time**, comprehensive and actionable
- **It offers conclusions and makes predictions** about stockouts

In other words, Pensa gives retailers and brands a common, zero-lag view of what is actually happening on shelves – across all stores, any product category, at any point in time. It is uniquely able to eliminate the \$1T retail inventory visibility blind spot, so brands and retailers can minimize stockouts, optimize product planning and increase revenue.



Pensa's lightweight, autonomous drones quietly scan store shelves with great agility and accuracy, feeding data to Pensa's AI-powered cloud for analysis and reporting.



¹<https://www.retaildive.com/news/out-of-stocks-could-be-costing-retailers-1t/526327/>

Low Friction Deployment for Rapid Scalability

Pensa operates as a service, providing real-time shelf inventory data as a subscription so brands and retailers can optimize shelf inventory at scale. As such, it is the first company to deliver a dramatically lower cost, highly accurate inventory visibility solution that requires minimal investment or integration at retail, so it can quickly scale across all stores, all shelves and all product categories. A live view of the world's retail shelves is now possible with Pensa.

A Common View, with Powerful Analytics

Retail has never been more complex or more competitive. More store layouts, more products, and more sales channels using the same inventory.

Shelf space is finite, and brands pay big money to plan it. They need data to manage their retail presence, and retailers need data to track items, manage inventory and optimize execution.

Pensa cloud-based services deliver complete, real-time and actionable data to each stakeholder. Pensa flags and reports on stockouts and predicts low stock in the future. Using its advanced artificial intelligence, it truly recognizes products on the shelf and how they are managed. It can compare shelf performance of a major brand against a competitor for stockouts, share of shelf and other shelf conditions impacting revenue.

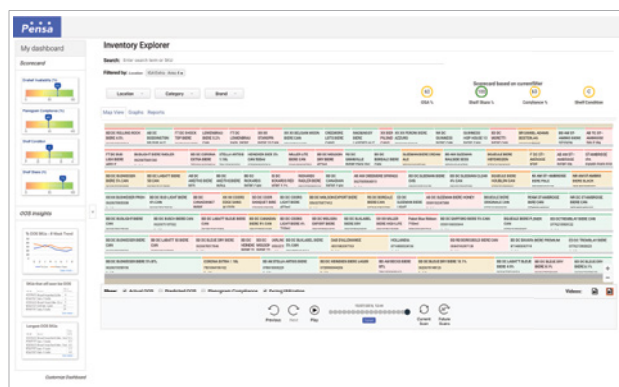
Proven in Live Store Trials

Pensa has performed a series of live trials of its system, working with major consumer brand manufacturers and retailers. The system has been piloted in multiple countries on multiple product categories and SKU formats in a variety of shelf conditions, including dry shelf, open and closed-air coolers, in a variety of store formats.

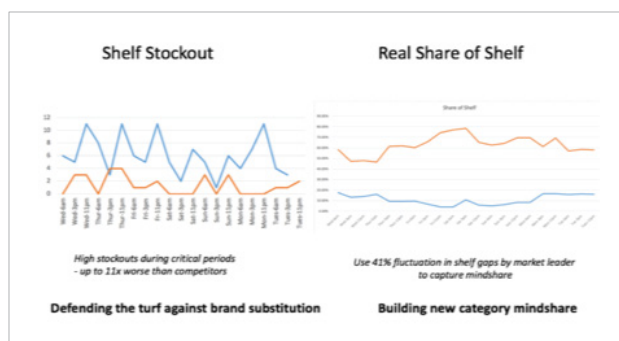
Pensa recently completed a trial with global beverage giant Anheuser-Busch InBev (AB InBev) in the heavily trafficked store of retail partner IGA Extra Beck in Montreal, Canada. With less than 90 minutes of set-up time, Pensa's drone-based system collected hourly and daily data on out-of-stocks and real share-of-shelf for AB InBev products. Over a period of two weeks, Pensa's system scanned dry shelves and coolers with multiple product types (i.e., cans, bottles, packs), capturing 15.9M SKU images during 200 flights (totaling 2 miles of travel), with its continuous-learning accuracy reaching 98 percent for out-of-stock detection.

"We're very enthusiastic about Pensa's new innovative approach to retail inventory visibility and look forward to testing in further commercial environments"

Andrew Green, Global Director of Innovation
Anheuser-Busch InBev



Retailers and brands throughout all trials reported positively on the system's tangible benefits—e.g., improving stockouts, ensuring planogram compliance, protecting shelf integrity—as well as how smoothly it deployed and operated in a store environment. Shoppers were overwhelmingly positive when they noticed the drone at work and wanted to learn more.



About Pensa

Pensa is a leading innovator in autonomous perception systems for retail inventory visibility. Its system uses breakthrough technology – including artificial intelligence, autonomous drones and computer vision – to see and understand what's on store shelves, providing crucial data to minimize stockouts, optimize product planning, and boost revenues and profitability. Pensa partners with top retailers and CPG brands globally to address a trillion-dollar "blind spot" at a critical time for the retail industry.

For more information

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