



Case study

PepsiCo machine vision: Shelf intelligence case study

Modernizing retail merchandising with
smart technology

www.smartlook-ai.com

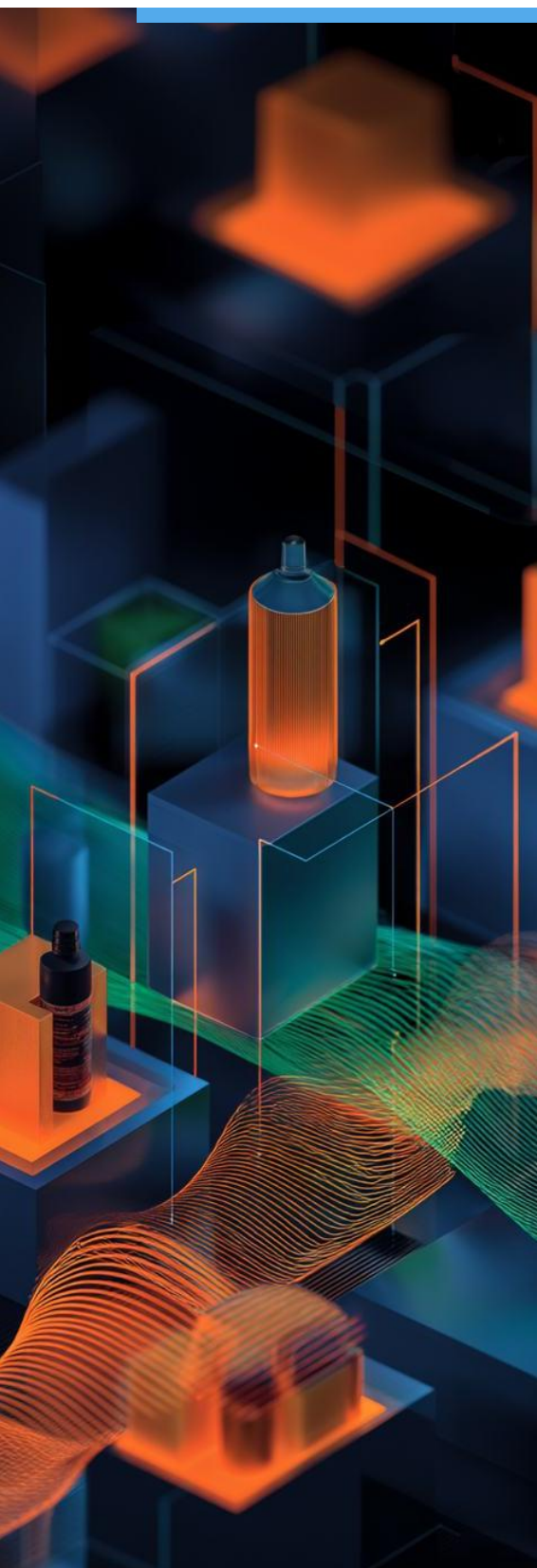
SMARTLOOK



Grid Dynamics

Contents

Introduction	3
The challenge	4
The solution	5
The results	7
About SmartLook	8



Introduction

One of the largest food and beverage companies in the world, PepsiCo, generated more than \$92 billion in net revenue in 2024. Its iconic brands, such as Pepsi, Lay's, and Gatorade, are enjoyed by consumers a billion times a day.

Navigating the intricate realm of retail, PepsiCo is committed to delivering top-tier products to consumers worldwide. With a deeply customer-centric approach, PepsiCo understands that strategic product displays, the Share of Shelf concerning competitors, maintaining optimal stock levels, and delving into crucial business intelligence, analytics, and metrics are paramount in shaping the customer experience.

To meet and exceed these experience objectives, PepsiCo embarked on a transformation journey in 2021, seeking an innovative Shelf Intelligence solution to revolutionize its retail operations.

Collaborating with industry leaders Smartlook and Grid Dynamics, PepsiCo aimed to not only overcome existing challenges but also to set a new standard for retail excellence. The primary objective of Shelf Intelligence is to go beyond traditional retail strategies. It aims to provide PepsiCo with actionable insights into Share of Shelf compared to competitors, ensuring optimal stock levels, and leveraging business intelligence and analytics to drive informed decision-making. The ultimate goal is not just a well-organized display but a comprehensive strategy to enhance the overall shopping experience for consumers globally.

This case study tells PepsiCo's compelling innovation story, outlining the strategic collaboration with Smartlook and Grid Dynamics, and the outcomes that have reshaped the landscape of retail excellence.

The challenge: Enhancing retail processes at PepsiCo

PepsiCo faced a challenge in optimizing its retail processes to significantly boost productivity and elevate the quality of product sales. The existing methodologies for managing shelf inventory, ensuring brand revenue growth, and monitoring instore order fulfillment were deemed insufficient.

Challenges included:

- Inappropriate item placement;
- Costly and sub-optimal merchandising in locations like LatAm; and
- Lack of a convenient, automatic solution for planogram compliance across multiple stores.

From there, PepsiCo embarked on a mission to identify a transformative solution that could overcome the limitations of traditional approaches, automate the merchandising process, and optimize the cost of ownership.

Enter Smartlook and Grid Dynamics.

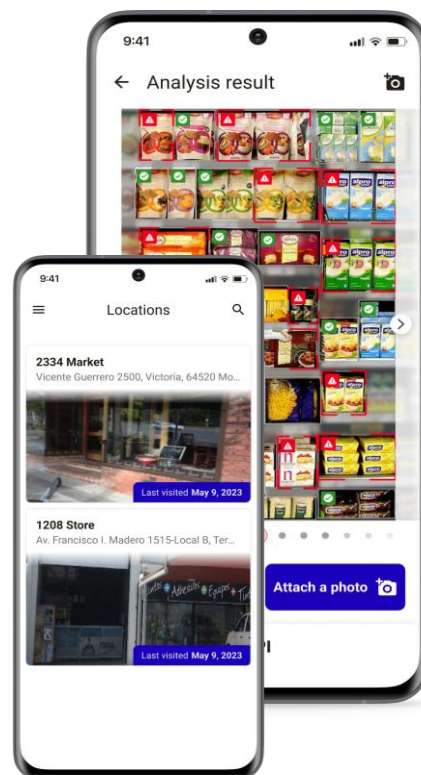


The solution: Smartlook and Grid Dynamics collaboration

With Smartlook and Grid Dynamics, PepsiCo introduced a system that not only addresses the challenges of managing shelf inventory but goes beyond, seamlessly integrating cutting-edge computer vision and artificial intelligence technologies with PepsiCo's in-house AI Platforms and solutions to leverage synergies across the supply chain.

Creating a game-changing application

Smartlook and Grid Dynamics joined forces to develop the shelf intelligence engine that can be deployed on the edge to enable in-store shelf analytics. Powered by Deep Learning Neural Networks, the shelf intelligence system excels in recognizing products and price tags on display shelves, converting real-time images into actionable data.



Key Shelf Intelligence features redefining retail excellence

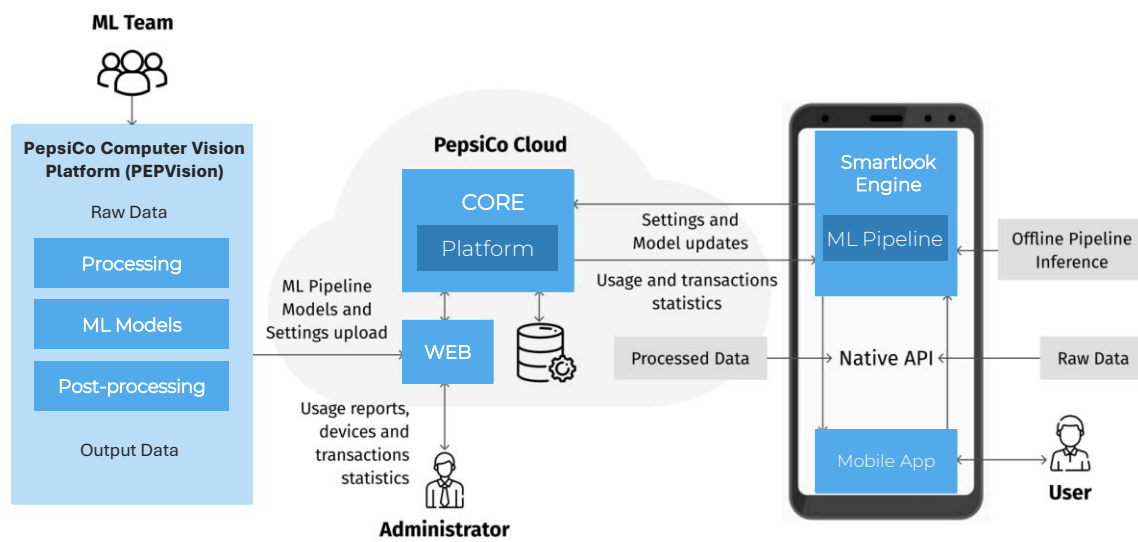
- **Retail space audit:** Instantly compare the actual display with the planogram.
- **Product range audit:** Detect inconsistencies in the product range and suggest corrective measures.
- **Shelf share analysis:** Dynamically analyze shelf share within the store.
- **Price monitoring:** Analyze price tags in real time.
- **Reporting:** Automate reports on selected metrics.
- **POPM audits:** Ensure the availability and relevance of point-of-purchase materials.
- **Representation:** Analyze on-shelf product availability within seconds.

Mobile-centric recognition

What sets this solution apart is its unique ability to execute the entire recognition process directly on a mobile device. By eliminating the need to send photos to servers, this comprehensive solution captures the shelf's state down to the SKU level, compares it with the planogram, and offers real-time instructions to align the layout with current standards.

AI at your fingertips

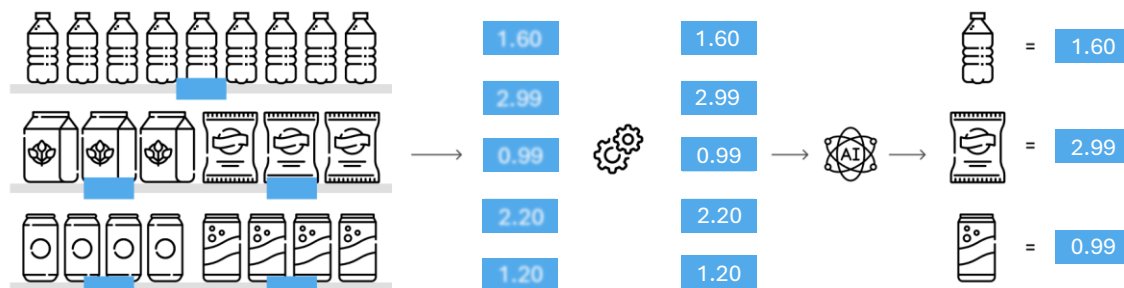
The brilliance of this technology lies in its deployment on edge devices, enabling offline work in remote locations without relying on broadband connections. The recognition process outshines cloud-based solutions, operating at lightning speed—up to 10 times faster—and scales seamlessly without incurring additional costs.



Data-flow explained

Precision in price detection

The system employs a combination of object detection, OCR (Optical Character Recognition), and Aldriven algorithms to accurately determine product prices based on their proximity to price displays.



Object Detection

Single pass detection for products and pricing tags

OCR Phase

OCR Engine comprehending price display

Product to price mapping

AI layer attributing price to product depending on proximity to price display

Image recognition for price detection

The results: Projected outcomes

Based on the recognition results gathered on test/acceptance data, the With Smartlook and Grid Dynamics solution is primed to bring about a host of transformative outcomes:



Cost savings and operational efficiency

- **Eliminated cloud computing and server infrastructure costs** through on-device processing.
- **Reduced network traffic and disk space usage** via direct mobile-to-system data transfer.
- **Accelerated results and lowered costs** by avoiding extensive multimedia processing.
- **Immediate access to audit data** and key indicators at point of sale for sales representatives.
- **Increased store visits per day** due to efficient recognition cycle, even on older mobile devices.



Integration and security

- **Seamless integration** into existing and new PepsiCo applications.
- **Enhanced security** with data and modules residing within PepsiCo's infrastructure.
- **Decentralized processing** and real-time capabilities:
 - **Daily statistical reports** for individual regions, regardless of time zones.
 - **Real-time implementation of business scenarios** at point of sale, driving sales and profits.



Recognition accuracy and performance

- **High recognition accuracy**, instilling confidence in obtained data.
- **Swift performance on mobile devices**, with recognition completed in seconds.



Measurable success and expansion

- **Substantial financial benefits and sales growth** projected.
- **Successful Latin American pilot** led to adoption as a mainstay for retail operations.
- **Ongoing projects in multiple countries** with continued Smartlook and Grid Dynamics collaboration.



Technical improvements

- **Reduced loading times** through on-demand functionality for recognition libraries.
- Development of a robust, **tech-debt-free application**.

This case study exemplifies the marriage of technological innovation and project execution clarity, providing PepsiCo with a scalable and effective solution for managing inventory and monitoring order fulfillment in stores.

About SmartLook

SmartLook helps consumer brands and retailers drive growth, boost field efficiency, and harden shelf-level compliance with edge AI that runs directly on mobile devices - no cloud dependency, full data control. Our on-device recognition engine turns shelf photos into instant execution insight (OSA, price, promo, planogram) providing capabilities for next-best action while the field member is still in the store and plugs seamlessly into your SFA/DMS/ERP stack.

Blending deep computer vision expertise with practical commercial outcomes, SmartLook enables real-time, offline shelf recognition via a lightweight iOS/Android SDK, designed for privacy-resilient deployments in low-connectivity markets and compliant by design (no image transfer). The modular SDK integrates quickly, reduces backend data movement, and supports centralized model updates.

Beyond the engine, we provide enterprise-grade data annotation and model lifecycle governance. Our labeling teams deliver 98%+ quality with multi-layer QA and gold-set controls, while our Model Continuous Delivery (MCD) process continuously retrains and redeploys models from fresh field data to keep accuracy high as shelves, assortments, and packaging change.

What this means for operators and revenue teams: faster audits and broader coverage with measurable impact. Customers typically see a 3–5% sales uplift, 25% more stores reached per rep, 20% planogram-compliance improvement, and up to 80% audit-time reduction—alongside ~10% savings in mobile data transfer from offline operation.

Headquartered in Sheridan, Wyoming, SmartLook supports global deployments with a co-innovation mindset, rapid spin-up, and a “whatever-it-takes” commitment to execution excellence at the shelf.

[LEARN MORE AT SMARTLOOK-AI.COM](https://www.smartlook-ai.com)





Built For The Field

SmartLook Inc.

30 N Gould St, STE R

Sheridan, Wyoming

+1 (307) 381-8483

www.smartlook-ai.com