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From Blind Spots to Breakthroughs:

The Store Intelligence Imperative

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The Urgency of Retail Transformation

The retail battleground has shifted. While e-commerce giants have focused on mastering their supply chains and digital shopper experiences, physical stores have quietly become retail's most vulnerable point—and its most untapped opportunity for real-time insight.

Despite being rich in operational and shopper data, most stores still run on outdated technology, creating a glaring paradox: the area with the greatest potential for visibility remains its biggest blind spot.

By 2028, the divide will be clear. Retailers that invest in shelf intelligence will have turned their stores into high-performing, insight-generating environments. Those that don't will remain stuck—losing 4–8% of revenue annually to inventory distortion, relying on static planograms, and forcing store associates into cycles of low-value tasks that drive dissatisfaction and turnover. Margin pressures, evolving

shopper expectations, and persistent labor shortages aren't temporary hurdles—they're the new normal. And they're exposing a critical vulnerability: while technology in supply chain and e-commerce has advanced rapidly, in-store systems have largely stood still creating what we call "retail's last information desert", an environment paradoxically starved of insight, despite being surrounded by valuable data.

The time for incremental improvements has passed. Automated shelf intelligence has moved from innovation to necessity. Retailers who fail to harness this technology will struggle to compete on both cost and shopper experience. This isn't about future-proofing; it's about present-proofing in a market where the gap between leaders and laggards grows wider by the day.

This guide explores how transformative technology investments—particularly in shelf intelligence—are establishing the new foundation for modern retail operations, and why the choices retail executives make in the next 12-24 months will determine their competitive standing for the next decade.

Shelf intelligence isn't optional— it's the new standard.
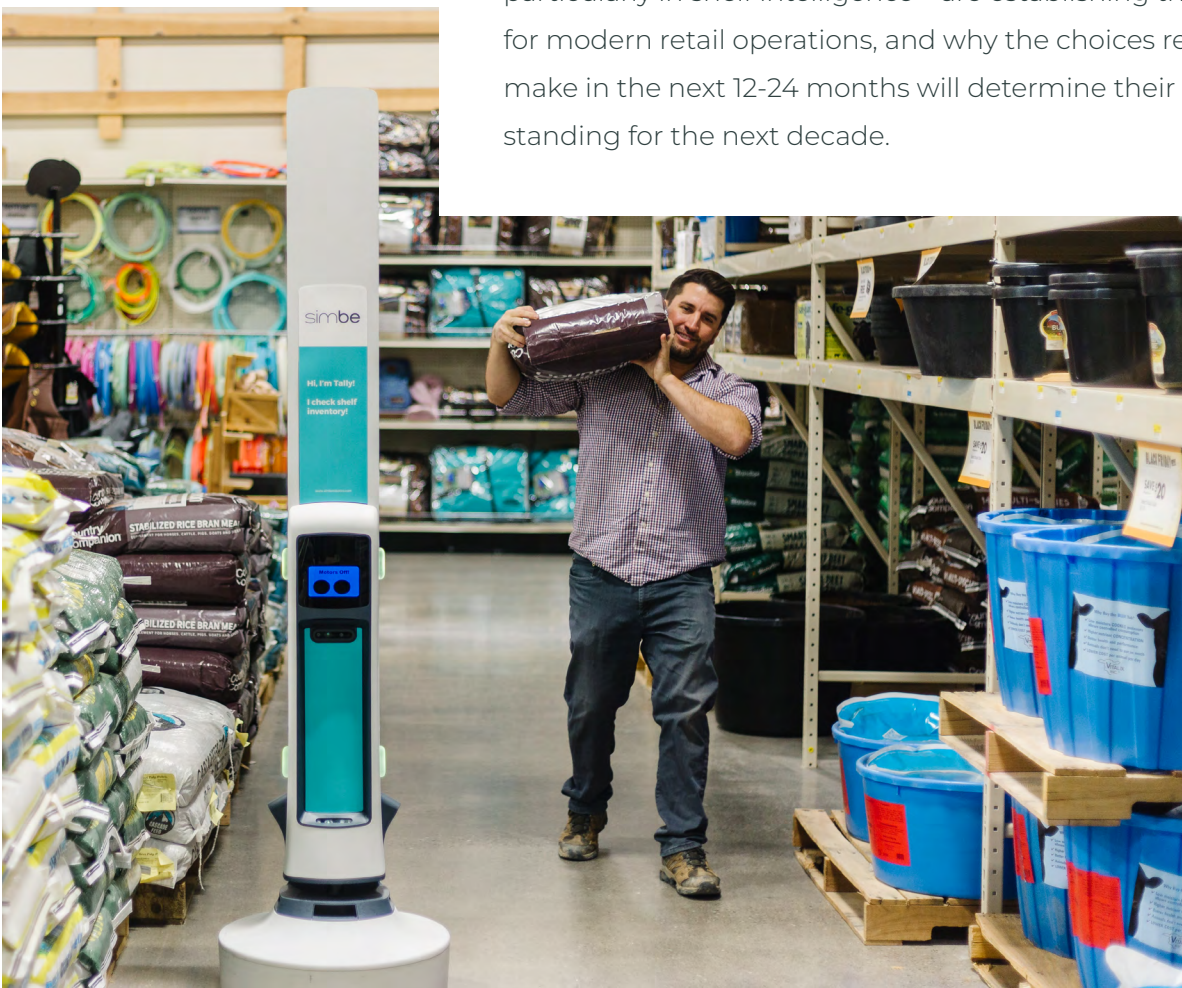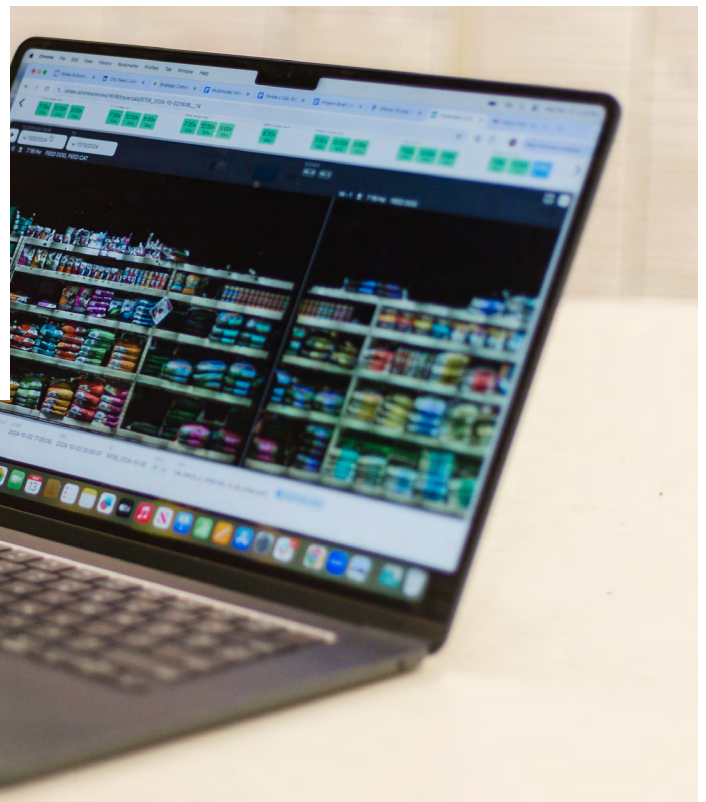
Strategic Technology Investments

Staying competitive in today's fast-moving retail environment depends on making smart, strategic technology investments. To lead in the years ahead, retailers must streamline operations, elevate the shopper experience across channels, and drive sustainable, profitable growth.

The retailers best positioned to lead the next decade will be those who deploy technology with precision, focusing their resources on the solutions that solve immediate challenges while enabling long-term innovation and agility.
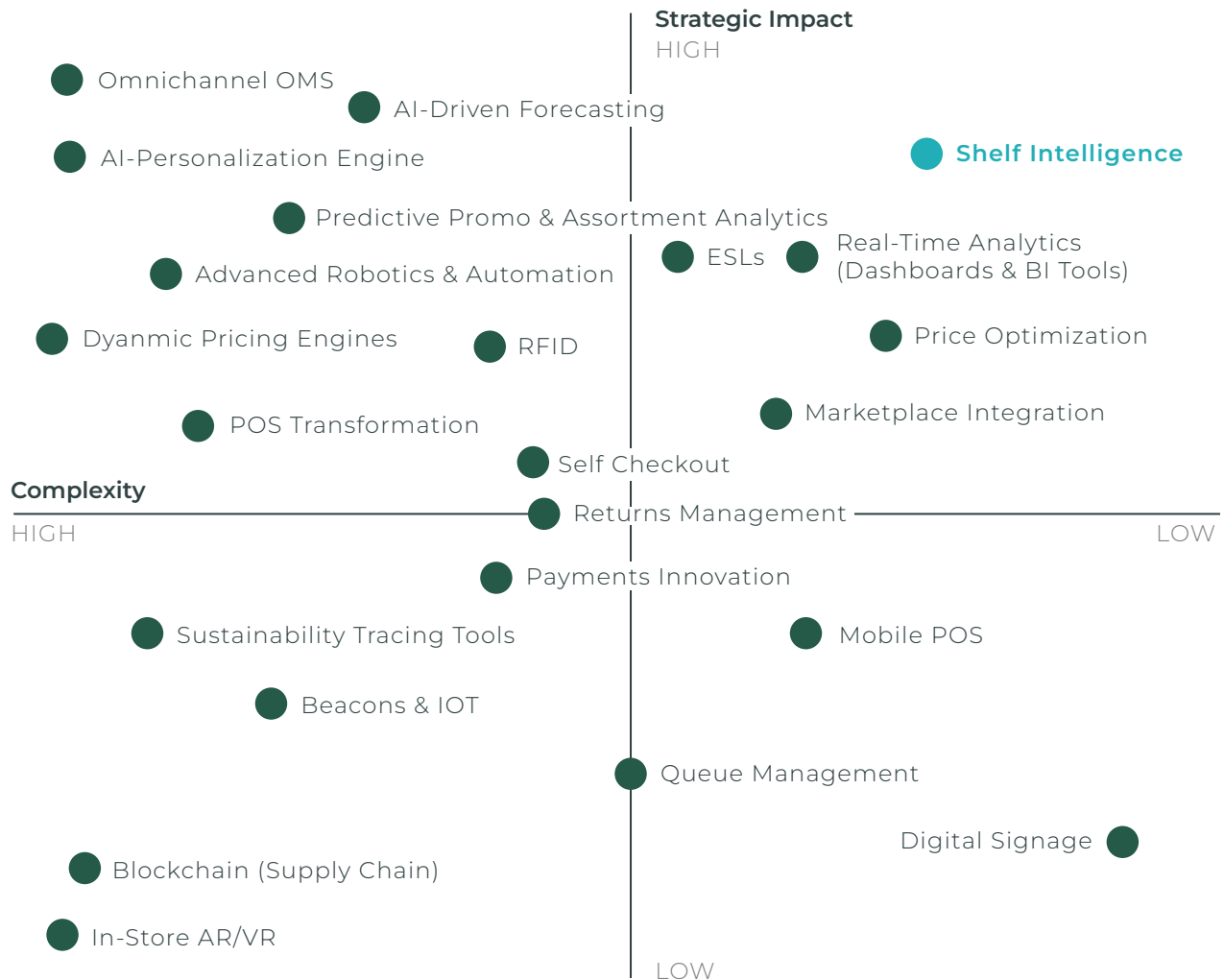
The landscape of technology where retailers can invest is broad, from foundational upgrades to core system implementations like ERP, CRM, and POS, to cutting-edge, AI-driven solutions. However, not all technology investments yield the same return. Many retailers have invested heavily in digital transformation only to find themselves with fragmented execution and minimal improvements

in visibility, efficiency, or shopper engagement. The problem isn't a lack of solutions, it's a failure to prioritize the right ones. To drive measurable results, retailers must focus on technologies that offer both high strategic value and manageable implementation complexity. Shelf intelligence solutions stand out in this regard.

They directly address key operational pain points—such as inventory distortion, pricing errors, and inconsistent merchandising—without requiring a complete infrastructure overhaul. Unlike more complex and resource-intensive initiatives, shelf intelligence delivers immediate, actionable insights that improve both operational efficiency and the shopper experience.

Retail Technology Investments Landscape

Strategic Impact
HIGH

- Omnichannel OMS
- AI-Driven Forecasting
- **Shelf Intelligence**
- AI-Personalization Engine
- Predictive Promo & Assortment Analytics
- ESLs
- Real-Time Analytics (Dashboards & BI Tools)
- Advanced Robotics & Automation
- Dyanmic Pricing Engines
- RFID
- Price Optimization
- POS Transformation
- Marketplace Integration
- Self Checkout

Complexity
HIGH

- Returns Management

LOW

- Payments Innovation
- Sustainability Tracing Tools
- Mobile POS
- Beacons & IOT
- Queue Management
- Digital Signage
- Blockchain (Supply Chain)
- In-Store AR/VR

LOW

"Other projects we were looking at required more hardware or a lot of different departments to integrate. While Tally touched a few, it was easy and a technology we were able to get in and see results quickly."
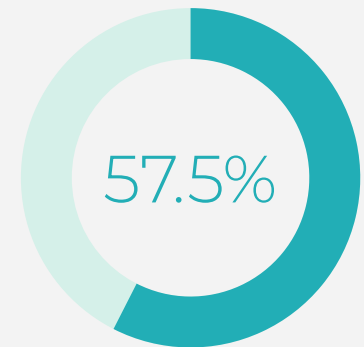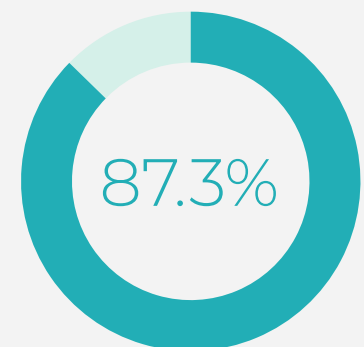
Tyler King
VP Finance, SpartanNash

SpartanNash

Decoding the Retail Tech ROI Landscape [1]

Point of Sale

TECHNOLOGY	INDIVIDUAL ROI
POS Transformation	1x (1-2 years)
Mobile POS Solutions	1x (1-2 years)
Self-Checkout Kiosk	50% (< 1 year)

Store Inventory Management

CV Loss-Prevention	2x (1-2 years)
Backroom Automation	1x (2-4 years)
Queue Management Systems	1x (1-2 years)
RFID Enablement	30% (2-3 years)

Store Digital Enablement

Electronic Shelf Labels (ESLs)	2x (2-3 years)
Digital Signage Systems	50% (1-3 years)
Beacons & IoT Sensors	20% (4-5 years)
AR/VR In-Store Experiences	10% (2-4 years)

Mechandising & Assortment

| TECHNOLOGY	INDIVIDUAL ROI
AI-Personalization Engine	2x (1-2 years)
Dynamic Pricing Engines	2x (1-2 years)
AI-Driven Demand Forecasting	2x (1-2 years)
Demand Forecasting Tools	1x (1-2 years)
Dynamic Pricing Engines	2x (1-2 years)
Predictive Promo & Assortment	1x (1-2 years)
Price Optimization Software	1x (1-2 years)

Channel & Fulfillment

TECHNOLOGY	INDIVIDUAL ROI
Omnichannel OMS	3x (1-2 years)
Warehouse Management	1x (1-3 years)
Marketplace Integration	1x (1-2 years)
Sustainability Tracking Tools	1x (2-4 years)
Returns Management Systems	1x (1-2 years)
Blockchain	50% (2-5 years)

Backoffice

CRM	2x (1-2 years)
ERP	1x (2-4 years)
Workforce Management	1x (2-3 years)
Payment Innovations	1x (1-2 years)
Real-Time Analytics	1x (1 year)

Where retailers plan to invest in 2025

57.5%

Plan to invest in store automation

87.3%

Plan to invest in omnichannel capabilities

63.3%
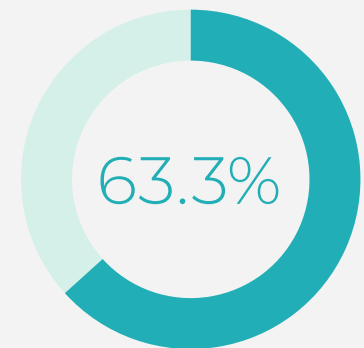
Will spend on RFID technology

The Data Blind Spot in Physical Stores

Store interiors are the most dynamic and data-rich environments in retail, holding critical insights into inventory availability, merchandising execution, and shopper behavior. Yet compared to other areas of the retail value chain, this information—particularly real-time shelf-level data on product availability and pricing—remains largely unmeasured and underutilized.
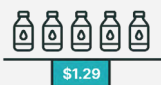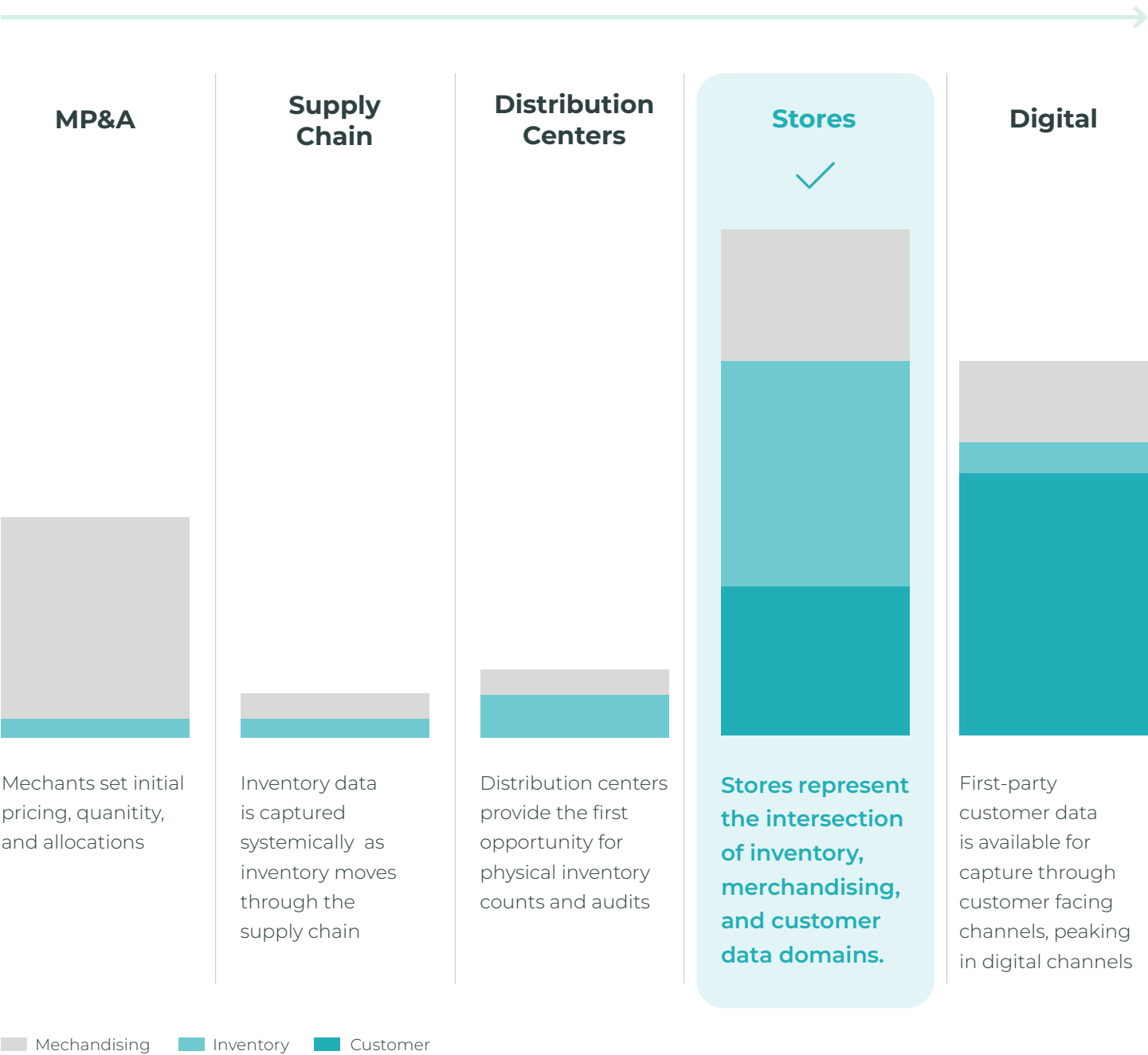

Most retailers still rely on incomplete, lagging indicators like POS data and periodic inventory audits, which fail to reflect the real-time state of the store. As a result, inventory and merchandising decisions are often made based on assumptions rather than actual conditions. Inventory systems may show products as in-stock, but discrepancies caused by mispicks, misplacement, or shrink frequently go undetected. And when items are shelved incorrectly or sitting in backstock, they're effectively unavailable to shoppers.

Planograms may dictate product placement, but without visibility into whether those plans are being executed correctly, compliance issues often go unnoticed. This lack of store visibility leads to persistent challenges: stockouts that frustrate shoppers and cut into revenue, inconsistent execution that undermines brand standards, and inefficient operations that increase costs.

Shelf intelligence solutions have the power to transform physical stores from static spaces into responsive, insight-driven environments. By integrating this intelligence into decision-making, retailers can ensure products are where they should be, prices are accurate, and merchandising aligns with shopper behavior.

Inventory data available to capture across the retail value chain

MP&A	Supply Chain	Distribution Centers	Stores ✓	Digital

Mechants set initial pricing, quanity, and allocations

Inventory data is captured systemically as inventory moves through the supply chain

Distribution centers provide the first opportunity for physical inventory counts and audits

Stores represent the intersection of inventory, merchandising, and customer data domains.

First-party customer data is available for capture through customer facing channels, peaking in digital channels

▢ Mechandising　　▢ Inventory　　▢ Customer

Despite stores being a rich data environment, shelf intelligence is often unmeasured and underutilized.

The Role of Shelf Intelligence
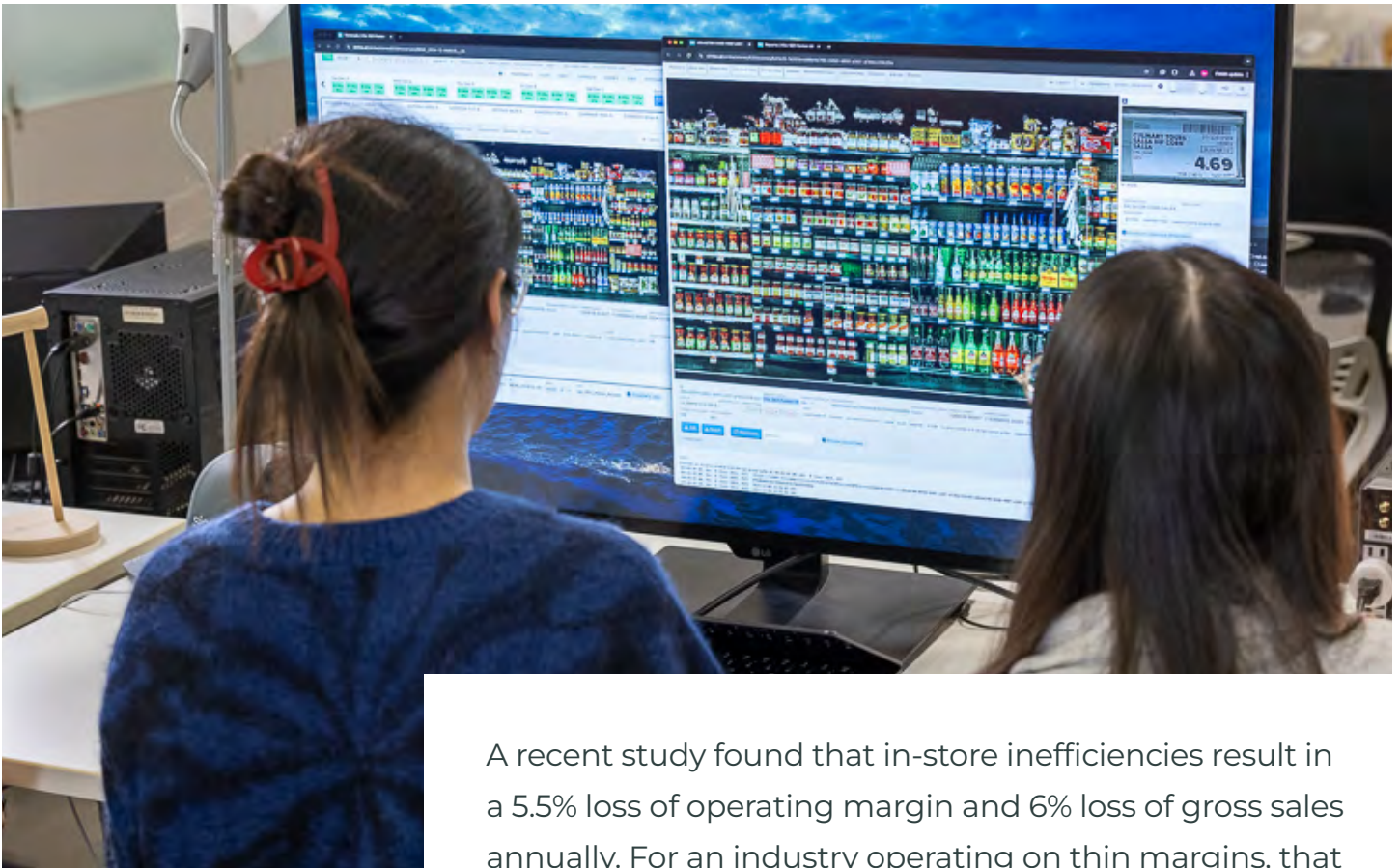
A recent study found that in-store inefficiencies result in a 5.5% loss of operating margin and 6% loss of gross sales annually. For an industry operating on thin margins, that is a significant impact.

The inability to monitor shelf conditions in real-time affects every level of the retail organization—from operations to merchandising to finance—ultimately influencing overall business performance.

At the same time, store associates spend a disproportionate amount of time searching for products, correcting inventory discrepancies, and manually auditing shelves. Without technology to capture and analyze shelf conditions, these challenges persist, reducing profitability and diminishing the shopper experience.

Multimodal shelf intelligence, which combines multiple data capture methods, now gives retailers a way to close this gap. By combining

5.5%
margin loss from in-store inefficiencies annually

autonomous shelf-scanning robots, fixed sensors, and AI-powered analytics, retailers gain real-time shelf-level visibility into product availability and merchandising execution. These insights are seamlessly integrated into existing systems, enabling store teams to take immediate, informed action.

Where manual inventory and pricing audits are labor-intensive and error-prone, automated shelf intelligence delivers accuracy at scale. It reduces operational overhead while empowering store associates to shift from problem-finding to problem-solving—spending more time helping shoppers and less time chasing stock.

Just as important, shelf intelligence improves the overall experience in-store and online. Shoppers are more likely to find what they need, when they need it, without running into empty shelves, incorrect prices, or disorganized aisles. This consistency builds trust, reduces friction, and drives higher satisfaction, whether someone is shopping in person or relying on the store to fulfill an online order.

> "Our store associates have found that Tally makes their jobs easier and more efficient."
>
> **Tom Yearsley**
> CEO, Country Supplier
> **COUNTRY SUPPLIER**

Retailers need a solution that:

Delivers real-time shelf visibility

Recommends next-best actions

Integrates fast w/ existing systems

Is loved by shoppers & associates

Strengthens partnerships

The High Cost of Inaction

Retailers that hesitate to adopt real-time shelf intelligence risk falling behind in an increasingly data-driven industry. The cost of inaction extends beyond operational inefficiencies, it directly affects revenue, profitability, and long-term viability.

Market share erosion is a significant risk.

Shoppers expect products to be available when and where they need them. Retailers that fail to meet these expectations lose customers to competitors that prioritize inventory accuracy and seamless shopping experiences to ensure that products are always available when shoppers need them.

Margin pressures continue to mount.

Rising labor costs, inflation, and economic uncertainty make operational efficiency more critical than ever. Without technology to optimize store operations without increasing manual workloads, retailers struggle to maintain profitability amid tightening margins.

Technical debt accumulates when businesses delay technology investments.

Many retailers still rely on legacy systems that are not equipped for the demands of modern retail. Without real-time data integration, they face expensive overhauls down the line—often at a greater cost than proactive investment in shelf intelligence today.

Attracting and retaining talent becomes increasingly difficult.

Employees prefer workplaces that leverage automation to remove tedious, repetitive tasks. Retailers that do not adopt technology risk losing valuable talent to competitors that offer a more engaging and efficient work environment.

How Shelf Intelligence Fuels Growth Imperatives

Shelf intelligence doesn't just solve a narrow operational problem—it's a strategic enabler. By delivering accurate, real-time visibility into store conditions, shelf intelligence unlocks new ways for retailers to drive revenue, streamline operations, and build a future-ready organization.

When integrated into core business processes, it serves as a catalyst for transformation across the entire value chain helping retailers to:

Explore New Channels & Revenue Streams

As retailers look to diversify their business models, the store itself becomes a valuable media and data asset. Shelf intelligence powers retail media networks by providing brands with real-time visibility into on-shelf execution—helping validate campaign performance, improve targeting, and strengthen retailer-brand partnerships. The same shelf-level insights that support operational efficiency also generate new monetization opportunities by enabling rich, first-party data that brands can trust.

Invest in Next-Gen Omnichannel

Shoppers expect consistency, convenience, and personalization regardless of how or where they choose to shop. Shelf intelligence provides the real-time inventory data required to deliver reliable omnichannel experiences, from BOPIS and same-day delivery to in-app product location and digital shelf accuracy. It also lays the groundwork for personalized marketing, recommendation engines, and loyalty programs that reflect the current state of each store.

Strengthen the Digital Core

Many digital transformation efforts falter without a solid foundation of real-time, high-quality data. Shelf intelligence feeds the modern retail tech stack with consistent, accurate insights enabling systems like ERP, pricing engines, workforce management, and analytics platforms to operate with greater precision. By connecting store-level data to the broader business ecosystem, shelf intelligence turns reactive workflows into predictive, data-driven decisions.

> "Tally keeps us on task, so we have products to sell to customers."
>
> **Diane Olsen**
> Center Store Manager,
> SpartanNash
>
> **SpartanNash**

Streamline In-Store Operations

Operational efficiency begins with visibility. When store teams know exactly what's happening on the shelf—what's missing, mispriced, or misplaced—they can focus their time where it matters most. Shelf intelligence automates tedious, time-consuming audits and empowers teams to act quickly on high-priority issues, improving execution, reducing labor waste, and creating a more seamless shopper experience.

Build Talent Agility & Resilience

Retailers face growing pressure to attract and retain talent in an increasingly competitive labor market. Shelf intelligence helps redefine in-store roles by shifting the focus away from manual inventory checks and toward meaningful, high-impact work. This not only increases job satisfaction and efficiency but also aligns retail work with the digital skillsets that today's workforce seeks helping retailers build more agile, resilient teams.

A Phased Approach to Store Transformation

Retail transformation isn't a single leap—it's a series of smart, connected investments that build on one another. Shelf intelligence lays the foundation for more advanced capabilities, from AI-powered forecasting to personalized shopping experiences.

PHASE 1

Build a Data-Driven Foundation

Transformation begins with real-time shelf visibility. By automating the capture of product availability, pricing, and planogram compliance, retailers can resolve in-store issues faster and with less labor—unlocking immediate operational value.

PHASE 2

Invest in the Digital Core

Once data is flowing from the shelf, the next step is to digitize and connect adjacent systems. RFID, workforce management platforms, planogram tools, and modern POS systems all benefit from real-time shelf intelligence—and in turn, help retailers scale efficiency.

PHASE 3

Optimize Pricing and Promotions with AI

With a digital core in place, retailers can leverage AI to optimize pricing and promotional decisions. Dynamic engines powered by real-time insights enable more responsive and profitable merchandising strategies.

PHASE 4

Enhance the Shopper Experience

The final step is delivering personalization at scale. When shelf data, shopper behavior, and digital tools are integrated, retailers can create seamless, relevant experiences that build lasting loyalty—online and in-store.

Conclusion:

The Future of Retail is data-driven, optimized and personal

Retailers that invest in shelf intelligence today will be well-positioned for success in an increasingly competitive market. By embracing automated data capture and AI-powered analytics, they can unlock new levels of efficiency, revenue growth, and shopper satisfaction.

Simbe's Store Intelligence™ platform provides the foundation for modern retail transformation. By delivering actionable insights in near real-time, it empowers retailers to improve operations and the shopper experience while future-proofing their business.

Within just three months of implementation, retailers using Simbe's Store Intelligence™ platform see a 4X return on investment, with long-term gains reaching up to 15X. This rapid impact demonstrates the power of leveraging real-time data to optimize operations and improve the bottom line.

The time to act is now. The retailers that move first will not only gain a competitive advantage, they will define the future of retail.

Ready to act?
Are you ready to transform your retail blind spots into breakthrough opportunities?

Visit **simberobotics.com** to learn more.

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