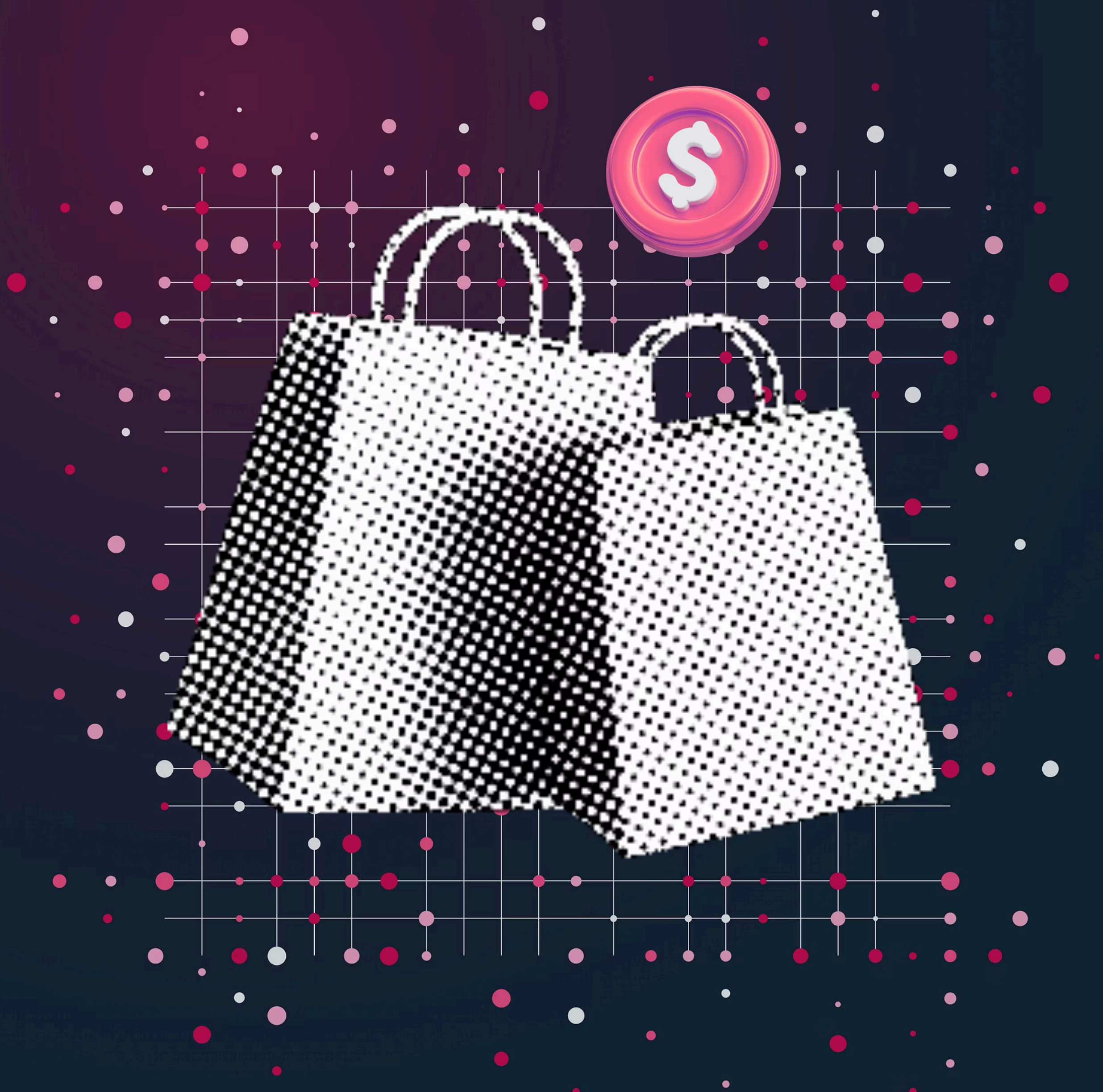
panintelligence

The Retail Intelligence Playbook

How to Reduce Stockouts, Markdowns, and Missed Revenue



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Foreword

Retail organisations are not short of data.

Across stores, eCommerce platforms, supply chains, customer interactions, and loyalty programmes, vast volumes of data are generated every second.

> Over the past decade, the sector has invested heavily in modern data platforms, cloud infrastructure, and increasingly artificial intelligence, all with the expectation that this would lead to faster, more responsive, and more profitable decision-making.
>
> **It hasn't.**

Charlotte Bailey

CEO, Panintelligence

The Gap Between Data and Action

What We Expected

More data → faster decisions → better performance

What Actually Happened

In many retail organisations, **more data has not accelerated decisions. It has slowed them down.**

What I see consistently is not a lack of capability, but a failure to translate that capability into action. Data exists. Insight exists. But the ability to use that insight at the moment decisions need to be made is still lagging behind.

⚠ This is the difference between having data **available** and having **clarity at the point of action**.

A Structural Problem, Not a Tooling Issue

That gap is not a tooling issue. **It is structural.**

The Infrastructure Exists

Retailers have built the infrastructure – cloud platforms, data warehouses, analytics tools, and AI capabilities.

The Capability Is Not Operationalised

They have not yet built the capability to operationalise it across merchandising, trading, store operations, and customer experience.

A Product Problem Too

Increasingly, this is not just a retailer problem. It is a product problem for retail technology providers. If systems capture data but do not enable decisions within the workflow, the decision gap becomes a product gap.

> In retail, that gap is measured in time. And time is measured in **margin, conversion, and customer experience.**

The New Reality of Retail

Retail is one of the most dynamic and operationally complex sectors in the global economy.

$1T+

Annual Losses

Global retail losses due to inventory distortion alone, driven by overstocking and stockouts (National Retail Federation)

40%

Analyst Time Wasted

Retail organisations spend up to 40% of analyst time preparing data rather than analysing it (Deloitte)

A Fundamentally Shifted Operating Model

The operating model has fundamentally shifted. Retailers are now managing a far more complex decision environment than ever before.

Omnichannel Demand

Managing demand across stores, eCommerce, and marketplaces simultaneously with different signals, speeds, and customer expectations.

Real-Time Pricing & Promotions

Pricing and promotion strategies must respond in real time to competitive moves, demand shifts, and margin targets.

Variable Customer Behaviour

Highly variable and increasingly unpredictable customer behaviour across channels, seasons, and demographics.

Complex Supply Chains

Complex, global supply chains under constant disruption, requiring constant adjustment, not retrospective reporting.

Retail is no longer a periodic reporting cycle. It is a real-time operating system.

Fragmented Data, Fragmented Decisions

Despite the shift to real-time operations, operational clarity remains limited. Data is distributed across disconnected systems, and for operational teams, this creates a fundamental problem.

Where Data Lives

→ ePOS systems

→ eCommerce platforms

→ Warehouse and logistics systems

→ CRM and loyalty platforms

What Teams Spend Time Doing

- Reconciling reports
- Validating data
- Interpreting conflicting metrics
- Navigating multiple systems to answer simple questions

The constraint is no longer access to information. It is the ability to act on it.

Why This Matters Now

This is not a future challenge. It is already constraining retail performance today. Three structural pressures are now colliding.

Three Structural Pressures Colliding

Margin Compression

Retail margins are under sustained pressure from inflation, discounting, and competition. Small inefficiencies in pricing or stock allocation have **immediate financial impact.**

Customer Expectation

Customers expect immediacy, personalisation, and consistency across channels. **Delayed insight leads directly to lost engagement and reduced loyalty.**

Operational Volatility

Supply chain disruption, demand variability, and seasonal fluctuation require **constant adjustment**, not retrospective reporting.

According to Deloitte, retail organisations spend up to **40% of analyst time preparing data** rather than analysing it. This is not simply inefficiency. It is **delay built into the system.**

The Cost of the Decision Gap

When decisions are delayed, the impact is immediate and measurable. The cost of the decision gap is already being paid.

Stock Decisions Delayed

Stock arrives too late or too early → lost sales from stockouts, increased markdowns from overstock

Promotions Miss Their Window

Campaigns are reviewed after completion → wasted marketing spend, missed conversion opportunities

Customer Signals Ignored

Behavioural data arrives too late → churn risk identified after the fact, personalisation opportunities missed

Revenue Opportunities Lost

Pricing decisions delayed → margin erosion, reduced competitiveness, lost conversion

> These pressures are not exposing a lack of data. They are exposing **how difficult it is to use it.**

The Structural Problem: Data Exists, Decisions Lag

Retail has not failed to invest in data. Modern retailers have implemented cloud data warehouses such as Snowflake, Redshift, and BigQuery. They have connected systems and built analytics capabilities.

And yet, when decisions need to be made, the system still slows down.

Where the Delay Happens

In each operational role, the delay is not caused by complexity. It is caused by fragmentation.

1

Store Manager

Responding to declining performance – relies on weekly reports, delayed footfall data, and disconnected stock visibility

2

Merchandiser

Managing stock allocation – must reconcile sales trends, warehouse inventory, and supplier updates across separate systems

3

Marketing Team

Reviewing campaign performance – often sees results only after the campaign has already completed

Why Data Fails at the Point of Decision

Data exists, but it is structured in a way that makes it difficult to use when it matters most.

Fragmented

Distributed across disconnected systems with no unified view

Inconsistent

Structured differently across platforms, creating conflicting definitions

Unevenly Governed

Different teams apply different logic, reducing trust in outputs

Delivered Too Late

Insight arrives after the decision window has already closed

As a result, even routine decisions become effortful, whether to replenish stock, whether to adjust pricing, whether to extend or stop a promotion.

Retailers are not struggling to generate insight. They are struggling to use it.

The Implication: The Cost of Inaction

When decisions slow down in retail, the impact is immediate and compounding.

A delayed stock decision leads to:

- Lost sales from stockouts
- Increased markdowns from overstock

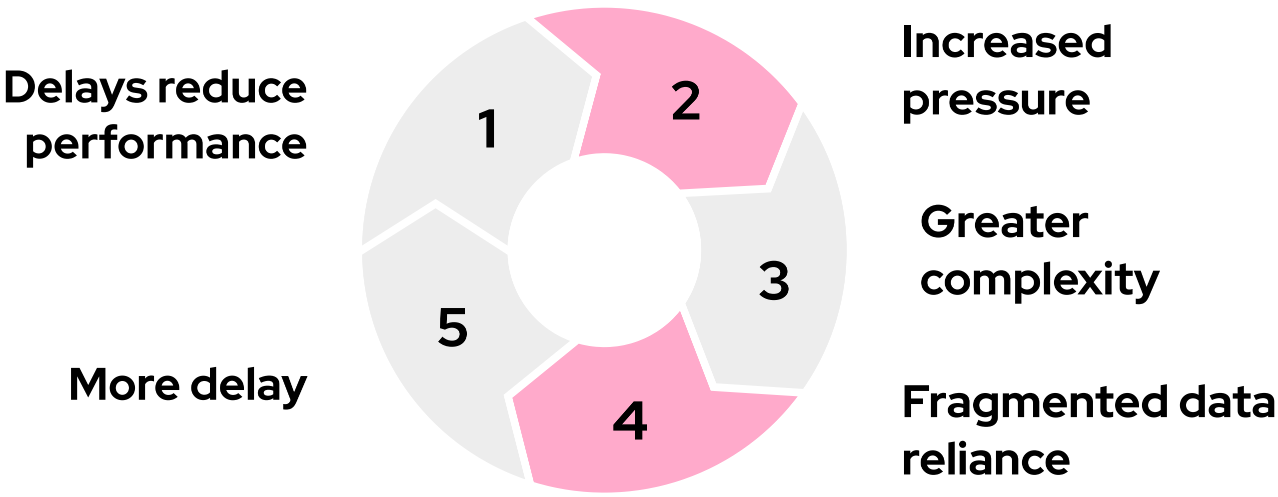
A delayed pricing decision leads to:

- Margin erosion
- Reduced competitiveness

A delayed campaign response leads to:

- Wasted marketing spend
- Missed conversion opportunities

At scale, these delays create a reinforcing cycle:



This is not simply a reporting issue. It is a **system behaviour issue.** The way data is structured, accessed, and delivered is shaping how decisions are made, and when insight is delayed, fragmented, or inconsistent, the system encourages hesitation.

The System Is Designed This Way

> Retail organisations do not delay decisions by accident. **They delay them by design.**

When data is fragmented, when definitions are inconsistent, when insight is delivered after the fact, the system does not enable action. It enforces hesitation. Teams are required to pause. To validate. To reconcile.

Over time, this becomes embedded behaviour.

Decisions slow down not because people lack capability, but because the system does not support action at the moment it is required.

⚠ **This is what the decision gap really is.**

The Shift Required

To move forward, retail must shift fundamentally, not incrementally.

1

2

From Data Access

Having data available somewhere in the organisation

To Decision Capability

Delivering clarity at the exact point action is required

1

2

From Reporting Outputs

Dashboards that explain what has already happened

To Operational Inputs

Embedded intelligence that supports decisions in real time

Operational Intelligence in retail is the ability to deliver real-time, governed, decision-ready insight directly within the workflows where decisions are made, removing the delay between what is happening, what is understood, and what is acted upon.

The Retail Data Maturity Curve

Most retailers believe they are progressing in their use of data. In reality, many are stalled between stages. The challenge is not progression. It is **progression without coherence.**

1

Stage 1: Data Consolidation

Data is centralised, but access is slow.

Risk: Insight is not available when decisions are made.

2

Stage 2: Standardised Reporting

Consistency improves, but insight is retrospective.

Risk: Decisions rely on lagging indicators.

3

Stage 3: Self-Service Analytics

Access increases, but consistency declines.

Risk: Conflicting interpretations reduce trust.

4

Stage 4: Predictive Capability

AI is introduced without workflow integration.

Risk: AI amplifies inconsistency.

5

Stage 5: Operational Intelligence

Insight is embedded, governed, and real-time.

Outcome: Faster, more consistent decisions.

Why Traditional Approaches Continue to Fail

Adding more tools does not solve the problem. The issue is not capability. It is alignment.

Dashboards

Explain what has already happened. They do not support decisions in real time. By the time a dashboard is reviewed, the decision window may have already closed.

Self-Service Analytics

Increases access to data, but not alignment on meaning. Different teams interpret the same data differently, reducing trust and slowing decisions further.

Artificial Intelligence

Does not resolve fragmentation. It amplifies it. AI applied to inconsistent, ungoverned data produces outputs that cannot be trusted or acted upon with confidence.

> The issue is not capability. **It is alignment.**

The Pattern

> The value is not in more data. It is in making data **usable, in context, at the moment it matters.**

Not More Data

The organisations moving forward are not generating more data. They already have enough.

Usable Data

The shift is about making existing data accessible, trusted, and actionable, without friction.

In Context

Insight delivered within the workflow where the decision is being made, not in a separate tool.

At the Moment It Matters

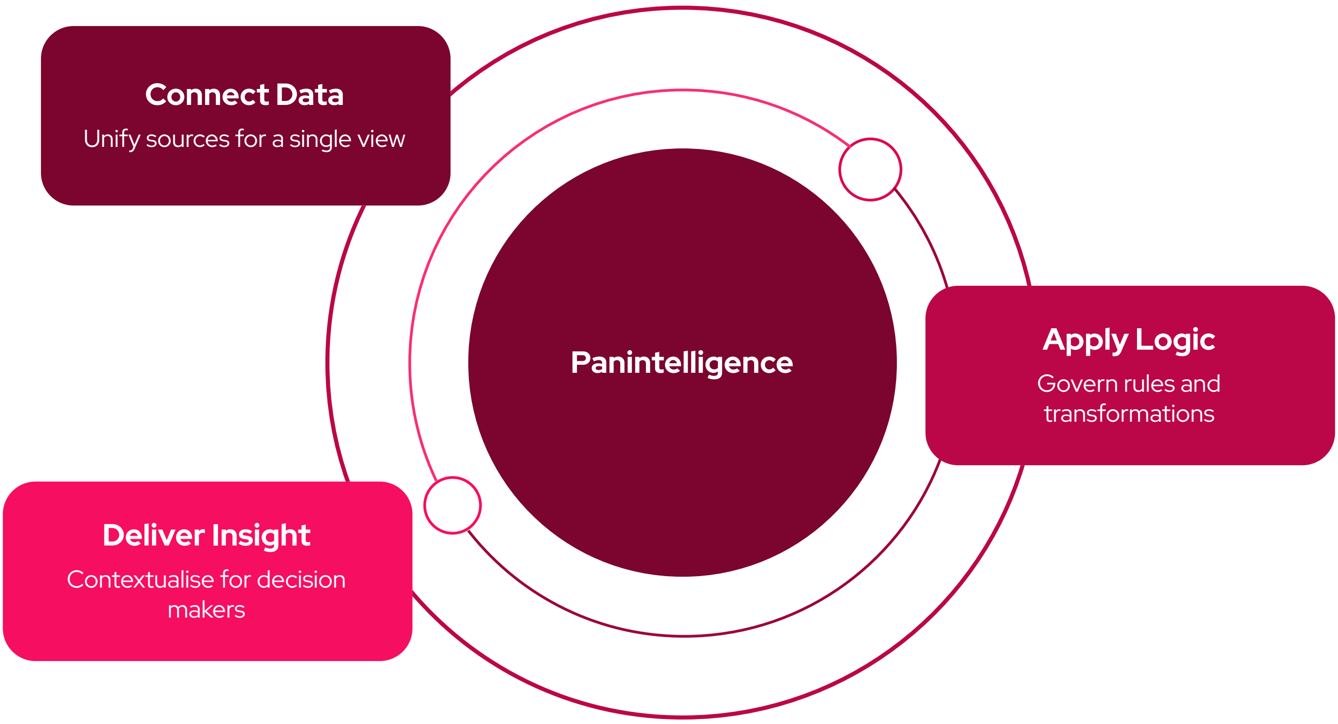
During the trading day. During the campaign. During the customer interaction. Not after.

The Panintelligence Approach

Panintelligence is designed to close the decision gap by changing how insight is delivered, governed, and used. This is not about adding another reporting layer. It is about restructuring how data, analytics, and decision-making operate together.

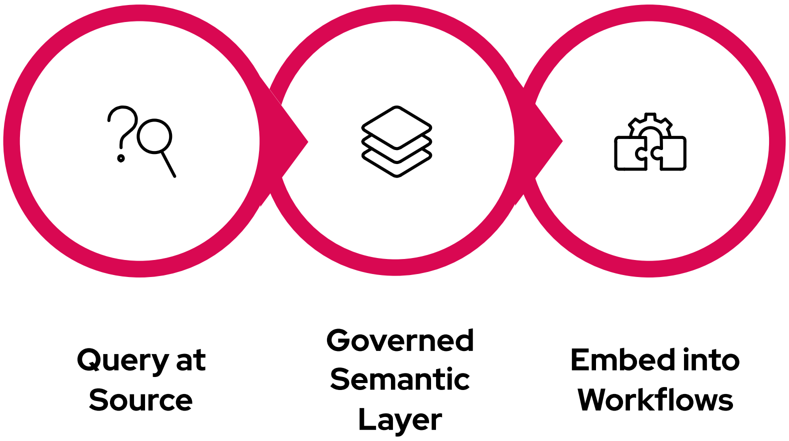
Retailers have already invested in data infrastructure. The challenge is that this infrastructure does not, by itself, enable decisions.

Panintelligence sits above that environment as a governed intelligence layer, connecting data, logic, and insight in a way that supports how decisions are actually made.



A Structural Solution to a Structural Problem

If the challenge is structural, the solution cannot be another tool layered on top of existing complexity. It must change how data is accessed, governed, and delivered into workflows.



This ensures that insight is not separated from action. Instead, it becomes part of it.

What This Changes in Practice

Traditional Environment	With Panintelligence
Data is centralised but not usable. Insight is available but delayed. Decisions are made outside the system.	Data remains where it is. Definitions and metrics are applied consistently. Insight is delivered in real time, within the systems where decisions are made.

This removes the need to extract data, reconcile reports, or validate conflicting metrics.

> The result is not more visibility. **It is decision-ready insight.**

Core Capabilities Aligned to Retail Operations

Panintelligence enables this shift through a set of capabilities designed to work together.

Embedded Analytics Within Workflows

Insight is delivered directly inside retail systems, from eCommerce platforms to store dashboards – ensuring decisions can be made without switching context.

Governed Semantic Layer

Business definitions, KPIs, and logic are applied consistently across all users, ensuring merchandising, marketing, and operations teams work from the same version of the truth.

Role-Based Access and Security

Data access is aligned to user roles, ensuring store managers, regional leaders, and executives see only what is relevant, while maintaining full auditability and control.

No Data Movement Architecture

Data is queried in place – preserving control, reducing duplication, and maintaining alignment with existing data governance models.

Predictive and AI Capability Within Governance

Predictive analytics and AI operate within the same governed framework, ensuring outputs are explainable, traceable, and aligned to trusted data.

Data-driven organisations are 23x more likely to acquire customers

—McKinsey

23x

Acquire

More likely to acquire customers

6x

Retain

More likely to retain customers

19x

Profit

More likely to be profitable

This matters because, as highlighted by McKinsey, organisations that effectively use data-driven decision-making are significantly more likely to acquire customers and improve profitability.

For retail, this is not a future ambition. It is the present competitive baseline. The question is not whether to invest in decision capability. It is how quickly it can be made operational.

A Practical Path Forward

Closing the decision gap does not require replacing existing infrastructure. It requires aligning what already exists.

For most retail organisations, the path forward is not about adding more capability.

It is about creating coherence between data, analytics, and decision-making.

Five Steps to Close the Decision Gap

01

Establish Trusted Foundations

Ensure that data definitions, calculations, and KPIs are consistent across the organisation. This creates a shared understanding of performance across merchandising, operations, and marketing. Without this, confidence in data will always be limited.

02

Align Analytics to Real Decisions

Move beyond reporting for visibility and focus on the decisions that need to be made. Understand who is making decisions, what information they need, and when they need it. Analytics should be designed around these decision points, not around data structures.

03

Embed Insight into Workflows

Insight must be delivered where decisions are made, not in separate reporting environments. This reduces friction, removes delay, and increases the likelihood that insight is acted upon. The closer insight is to action, the more valuable it becomes.

04

Introduce AI Within Governance

AI should not be applied in isolation. It must operate within a framework where data is trusted, outputs are explainable, and decisions remain auditable. Without this, AI increases noise rather than improving clarity.

05

Scale Consistently Across the Organisation

Once aligned, this approach must be applied consistently across teams, channels, and systems. This is where value is realised,not in isolated improvements, but in the ability to make better decisions at scale.

Why This Matters in Retail

Retail is a real-time operating environment. Decisions must be made during the trading day, during the campaign, during the customer interaction. **Not after.**

Reduce Response Time

Reduce the time between identifying an issue and acting on it, across stores, channels, and teams

Improve Decision Consistency

Improve the consistency of decisions across stores, channels, and teams, using the same trusted definitions

Remove Central Dependency

Remove dependency on central data teams for day-to-day decisions, empowering operational teams to act

Increase ROI on Infrastructure

Increase the return on existing data infrastructure investment, without replacing what already works

Retailers lose an estimated **$1.1 trillion annually** due to inventory distortion, overstocks and stockouts. This is the cost of delayed decisions at scale.

For retail SaaS platforms, this shift is equally critical.

Retail technology platforms are no longer evaluated on functionality alone. They are evaluated on their ability to **improve outcomes** within the environments they operate.

The Product Gap

When Analytics Sits Outside the Product

- Users leave the system to make decisions
- Value is diluted
- Adoption decreases
- Retention and expansion are at risk

When Analytics Is Embedded in the Product

Panintelligence enables analytics to be embedded directly into the product experience, transforming platforms from **systems of record** into **systems of action.**

This creates:

- Stronger user engagement
- Clearer product differentiation
- Measurable operational value for customers

Why This Works

Connects, Not Replaces

Panintelligence does not attempt to replace existing systems. It connects them, sitting above the existing data environment as a governed intelligence layer.

Makes Existing Data Usable

It does not create more data. It makes existing data usable, applying consistent logic, governance, and context to what is already there.

Embeds Analytics in Operations

It does not separate analytics from operations. It embeds it within them, ensuring insight is available at the point of decision, not in a separate tool.

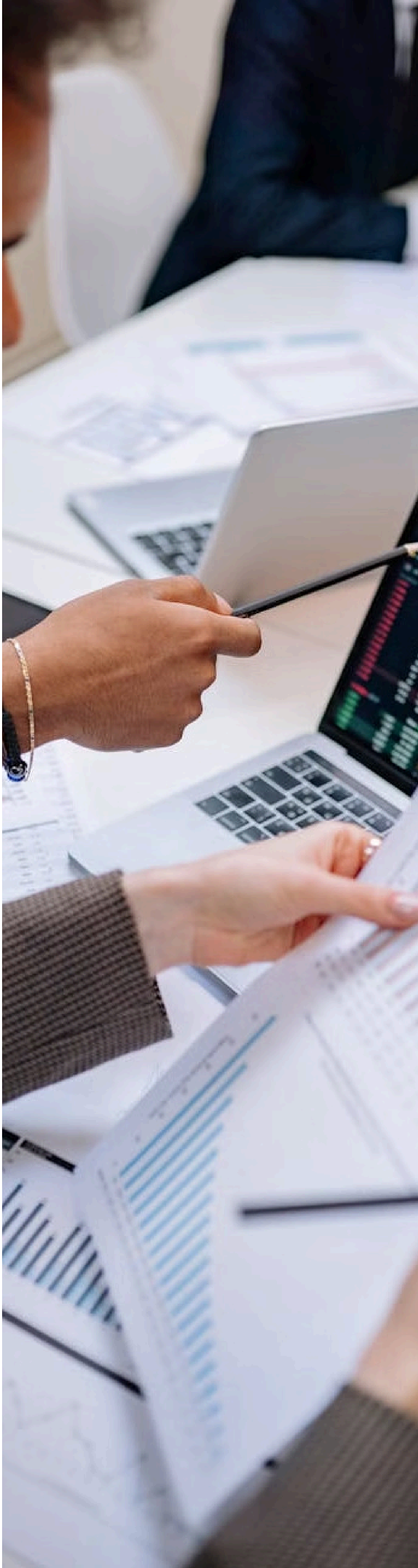
> Closing the decision gap is not about having more information. It is about ensuring that the right information is **available, trusted, and actionable at the moment it is needed.**

7 Use Cases in Practice

OPERATIONAL INTELLIGENCE IN RETAIL

The following use cases demonstrate how Operational Intelligence removes the delay between insight and action across every major retail function.

The pattern is consistent: the challenge is not a lack of data. It is the delay between insight and action.



1. Omnichannel Performance and Trading Decisions

A retail trading team is responsible for managing performance across stores, eCommerce, and third-party marketplaces.

In many organisations, performance is reviewed through daily or weekly reports, separate dashboards for online and in-store channels, and manually consolidated summaries. By the time a clear picture emerges, the trading window has already moved on.

The Problem

- A product may be underperforming in stores but overperforming online
- A promotion may be driving traffic but not conversion
- A regional trend may emerge that is not visible at a national level

The issue is not visibility in isolation. It is the timing of that visibility.

With Embedded, Real-Time Insight

- Performance is monitored continuously across all channels in a single, consistent view
- Variances between regions, channels, and product categories are surfaced as they emerge
- Trading teams can adjust pricing, promotions, or allocation in real time

Trading decisions are made during the trading cycle, not after it.

2. Inventory Management and Stock Optimisation

Inventory decisions are among the most commercially sensitive in retail.

A merchandiser must balance demand variability, supplier lead times, warehouse capacity, and store-level performance, often across fragmented systems.

Earlier Intervention

Stock levels, sales velocity, and demand signals are visible together. Emerging stock risks are identified before they impact availability or margin

Reduced Markdowns

Overstock situations are recognised before markdowns become necessary. Allocation decisions are adjusted dynamically across stores and channels

Improved Full-Price Sell-Through

Stockouts are identified before sales are lost. Inventory becomes actively managed, rather than retrospectively corrected

3. Campaign and Promotion Performance

Marketing teams in retail operate in a fast-moving environment where timing is critical. Campaign performance is often reviewed after completion. By the time performance is understood, the opportunity to act has passed.

Traffic Without Conversion

A campaign may drive traffic but fail to convert, without real-time insight, this is only visible after the campaign ends

Regional Variation

A campaign may perform well in one region but poorly in another – without live data, spend cannot be reallocated in time

Stock Misalignment

A campaign may create demand that cannot be fulfilled due to stock constraints, without alignment between marketing and inventory, the opportunity is lost

> With embedded, governed analytics: campaign performance is tracked live, underperformance is identified early, and **marketing becomes responsive, not retrospective.**

4. Customer Behaviour and Loyalty Management

Customer data is one of the most valuable assets in retail, yet it is often underutilised.

Loyalty, transaction, and behavioural data typically sit across multiple systems, requiring consolidation before insight can be generated.

→ Churn risk is identified too late, after the customer has already disengaged.

→ Engagement patterns are not acted upon in time. Personalisation opportunities are missed.

→ Early signals, such as reduced basket size, lower visit frequency, changes in purchasing patterns, go unnoticed

With integrated, real-time insight: customer behaviour is monitored continuously, early indicators of churn are surfaced, segmentation is dynamic, and **customer relationships are actively managed in real time.**

5. Store Operations and Performance Management

Store managers are responsible for delivering daily performance against targets. In many organisations, they rely on end-of-day reports, weekly summaries, and limited access to real-time data, creating a lag between performance issues and action.

Common Causes of Underperformance

- Low conversion rates
- Staffing imbalances
- Stock availability issues

Without immediate visibility, these issues are only addressed **after targets are missed.**

With Embedded, Role-Specific Dashboards

- Store performance is visible throughout the trading day
- KPIs such as footfall, conversion, and sales are updated in real time
- Managers can identify and respond to issues as they arise

Store teams become **active participants in performance management**, not passive recipients of end-of-day reports.

6. Supply Chain and Fulfilment Coordination

Retail supply chains are increasingly complex and sensitive to disruption. Planning decisions require coordination across suppliers, warehouses, distribution networks, and store and eCommerce demand. In fragmented environments, this coordination is often manual and delayed.

More Reliable Fulfilment

Supply, demand, and fulfilment data are aligned in a single view. Risks to availability or delivery are identified earlier.

Reduced Expedited Costs

Plans are adjusted dynamically as conditions change, reducing the need for costly last-minute interventions.

Improved Customer Satisfaction

Coordination becomes proactive rather than reactive. Disruptions are identified before they impact the customer experience.

7. Board and Executive Decision-Making

At an executive level, decisions rely on trusted, consistent information. In many retail organisations, board reporting involves manual data consolidation, reconciliation of conflicting metrics, and delays in producing reports, introducing both risk and delay.

Consistent Metrics

Metrics are consistent across all functions. Executives are working from the same version of the truth, not reconciling conflicting reports

Automated Reporting

Reports are generated automatically and reflect current performance, eliminating manual consolidation and the delays it introduces

Traceable and Auditable

Data is traceable and auditable. Executives can act with confidence, knowing the data behind every decision is governed and reliable

The result is not simply improved reporting efficiency. **Decision-making becomes more confident and more timely.**

What the Use Cases Demonstrate

The pattern across all these use cases is consistent.

The challenge is not a lack of data. It is the delay between insight and action.

Operational Intelligence removes that delay, ensuring insight is available at the point of decision, context is complete and consistent, and action can be taken immediately.

> That is the difference between **understanding performance and being able to influence it in real time.**

Conclusion

Retail organisations are not short of data. That was true at the start of this paper, and it remains true now.

What has become clearer, however, is that the challenge is not about how much data exists, or even how advanced the infrastructure has become. It is about whether that data is being translated into decisions at the point where they matter most.

The Consistent Pattern

Across many organisations, there is a consistent pattern. Investment has been made. Platforms are in place. Capability exists across the business. And yet, when pressure is applied, whether through shifting demand, underperforming products, or changing customer behaviour, teams still find themselves pausing to reconcile, validate, and interpret before they can act.

> **That pause is the gap.**

And in a retail environment defined by immediacy, that gap is increasingly difficult to sustain.

⚠ Because retail does not operate on reporting cycles. **It operates in moments.**

- The moment a customer decides to buy, or not.
- The moment a product begins to underperform.
- The moment a promotion either lands or misses its window.

Those moments do not wait for data to catch up.

The Way Forward

The organisations that are moving forward are not doing so by adding more tools or increasing complexity. They are stepping back and addressing the structure, aligning data, governance, and analytics in a way that supports how decisions are actually made, rather than how data has traditionally been consumed.

Not About Reporting

This is not about producing better reports or more sophisticated dashboards. Reports explain the past. The challenge is acting in the present.

Not About Dashboards

Dashboards are a tool, not a solution. The solution is embedding insight into the moment of decision, not creating another screen to check.

About the Ability to Act

It is about whether your organisation can act. Clearly. Consistently. Without hesitation. In an environment that will not slow down to accommodate delay.

The question is no longer whether the capability exists.
It is whether it is being used.

Panintelligence is designed to ensure that the right information is available, trusted, and actionable at the moment it is needed, across every function, every channel, and every decision that defines retail performance.

$1.1T

Annual Cost

Lost annually by retailers due to inventory distortion – overstocks and stockouts

40%

Wasted Analyst Time

Of analyst time spent preparing data rather than analysing it (Deloitte)

5

Maturity Stages

From data consolidation to Operational Intelligence – most retailers are stalled between stages

The shift from reporting as an output to **insight as an operational input** is not a future ambition. It is available now. The question is whether your organisation is ready to make it.

panintelligence

Ready to turn retail data into faster, more profitable decisions?

Book a strategy call with our retail intelligence team and see how Panintelligence can transform your data into decisions — in weeks, not quarters.

Book a Strategy Call

No commitment. Just a conversation about what's possible for your retail operation.