

From Digital Shelf Signals to Sales

Why Brands Need a New Way to Measure What Actually
Drives Growth



Executive Summary

Over the last decade, brands have made major investments in Digital Shelf Analytics (DSA), retail media platforms, and performance dashboards to understand how products appear, compete, and convert online. These investments were necessary. They brought visibility to a previously opaque environment and helped teams standardize execution across pricing, availability, content, and promotions.

Yet despite this progress, a fundamental question remains unresolved for most brands:

Which digital shelf actions actually drive incremental sales, and which simply create activity without measurable impact?

Clicks, impressions, share of search, and shelf scores are essential operational signals. But they are still proxies. They rarely explain why sales changed, how much value specific actions created, and where the next dollar should be invested with confidence.

This gap has become more consequential as retail media budgets expand rapidly across the US and Europe. US retail media spend has been forecast in the tens of billions annually, with continued growth into 2026. European market momentum is also rising, with increased focus on first-party data, omnichannel integration, and measurement maturity.

At the same time, measurement standards are still evolving. Many advertisers cite lack of standardization, limited tools, and concerns about reliability as major challenges in moving from ROAS to incrementality. This leaves commerce teams in a familiar position: surrounded by data, asked to justify investment, and still forced to rely on narrative.

This whitepaper introduces Digital Shelf Impact Modeling (DSIM) as a new measurement category designed to close that gap. DSIM builds on the foundation of DSA and extends it into true impact analysis. It isolates baseline demand from incremental lift, quantifies the contribution of each digital shelf lever, and identifies where returns diminish so brands can invest with clarity.

DSIM is not a replacement for DSA. It is the natural next layer for brands that already monitor the digital shelf and now need to connect execution to outcomes.

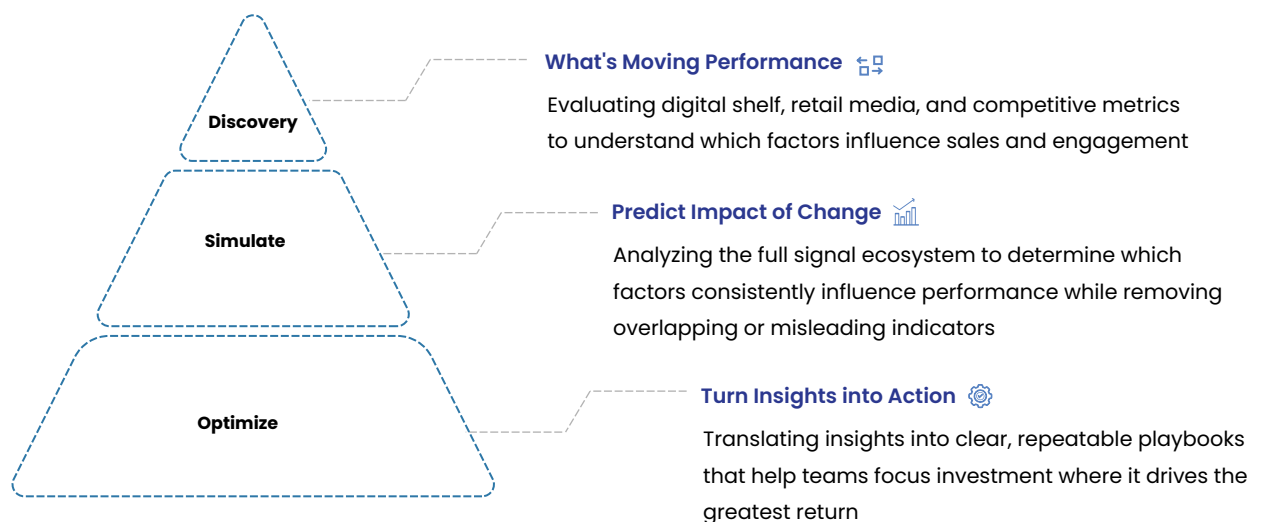
The Evolution of Digital Shelf Measurement

From Visibility to Control

When brands first began selling at scale through online retailers and marketplaces, the primary challenge was visibility. Teams struggled to answer basic questions:

- Are our products in stock and purchasable?
- Are prices consistent with our strategy?
- Does content meet retailer requirements and shopper expectations?
- Are we visible in category navigation and onsite search?

Digital Shelf Analytics emerged to address these needs. It gave brands a shared language and a consistent view of execution across retailers and markets. Over time, DSA became the operational backbone for ecommerce teams, enabling faster issue resolution, stronger governance, and better consistency across thousands of SKUs.



This was a necessary and important step forward.

The New Reality Brands Face

Today, many large brands operating in the US and Europe have reached DSA maturity. They can see the shelf clearly. But clarity alone is no longer enough.



As organizations layered on retail media, promotions, dynamic pricing, expanded assortments, and more frequent competitive shifts, the digital shelf became more complex and more expensive to manage. Retail media in particular has become a central line item for many commerce organizations and is projected to continue growing.

Brands now face a different set of questions:

- Why did sales grow in a given period, and would they have grown anyway?
- Which shelf improvements created incremental lift versus simply aligning to baseline demand?
- Why does the same strategy work in one market but stall in another?
- How do we know when we have pushed media or promotions too far?

These questions sit beyond the scope of traditional digital shelf reporting. They require a different kind of measurement, one that explains impact, not only execution.

The Quiet Measurement Gap

When Signals Multiply but Clarity Does Not

Most brand teams today track dozens of digital shelf and media metrics simultaneously:

- Availability and assortment
- Pricing, discounts, and rollbacks
- Content quality, imagery completeness, and compliance
- Ratings and reviews
- Organic and sponsored visibility
- Media spend, impressions, clicks, and ROAS

Most brand teams today track dozens of digital shelf and media metrics simultaneously:

More signals do not automatically produce better decisions.

Without a way to connect these signals to incremental sales outcomes, teams are forced to interpret correlation as causation. Post-period reviews become narratives instead of answers. Budget conversations rely on intuition, historical patterns, or internal influence rather than evidence.

This gap shows up in familiar ways inside brand organizations:

- Retail media teams optimize efficiency metrics that can look strong even when incremental lift is limited.
- Revenue Growth Management teams struggle to quantify trade-offs between price, promotion, and media in a way that commerce leadership will accept.
- Analytics teams produce complex reporting that still leaves leadership asking, "So what should we do next?"

The problem is not the absence of data. It is the absence of impact attribution at the level where commerce decisions actually get made.

Why This Matters More Now

The pressure to close the measurement gap is rising for three reasons.

First, retail media is scaling fast, but measurement maturity is uneven. Industry discussions increasingly emphasize that ROAS does not measure incrementality, and that incremental sales lift is the key business outcome advertisers want to track. At the same time, organizations report challenges such as reliability concerns, limited tools, and lack of standardization.

Second, the same dollar is being asked to do more. Many brands are being asked to drive growth while protecting margin. That makes it harder to justify spend that cannot be tied to incremental outcomes.

Third, the digital shelf is now a competitive battleground, not a reporting environment. Competitive pricing moves, availability shifts, and visibility tactics can change quickly. Brands need measurement that supports decisions in a changing environment, not just quarterly reporting.

Why Digital Shelf Analytics Stops Short

Digital Shelf Analytics excels at monitoring execution. It tells brands:

- What changed across the shelf
- Where gaps exist
- How you compare versus competitors
- How retailer performance differs across markets

But DSA was never designed to answer a different, harder question:

What actually drove the sales outcome?

Consider a common scenario.

Sales increased eight percent over a four-week period. During that time:

- Availability improves
- Sponsored visibility increases
- Discounts deepen slightly
- Ratings grow modestly
- A competitor runs an aggressive campaign or experiences an out-of-stock event

DSA can show all of this. What it cannot do is quantify:

- How much of the eight percent was baseline demand
- Which actions created incremental lift
- Which actions had minimal effect
- Which actions only shifted demand forward or redirected sales within the category
- Whether the brand paid more for growth than necessary

As a result, brands often invest more in the most visible signals rather than the most valuable ones.

This is not a failure of DSA. It is a reflection of its purpose. DSA provides visibility and control. Impact analysis requires a different layer altogether.

Introducing Digital Shelf Impact Modeling (DSIM)

A New Measurement Category for Brands

Digital Shelf Impact Modeling (DSIM) is an advanced analytics framework that quantifies the incremental sales impact of digital shelf and retail media actions.

Rather than reporting on metrics in isolation, DSIM models how multiple shelf levers interact to influence sales outcomes and separates baseline demand from true incremental lift. This builds on the DSA foundation and extends it into impact analysis.

At a high level, DSIM answers three foundational questions:

- What actually drove sales performance?
- How much incremental value did each lever contribute?
- Where should investment be increased, reduced, or rebalanced next?

DSIM does not replace Digital Shelf Analytics. It builds on it.

DSA provides the signals. DSIM explains the impact.

The Market Context: Why the Industry Is Shifting to Incrementality

The Limits of ROAS and Proxy Metrics

In retail media, ROAS is useful for in-flight optimization. It is widely available and easy to compare within a platform. But industry leaders increasingly emphasize that ROAS does not measure incrementality, and that incremental sales lift is the outcome advertisers ultimately need to understand true ROI.

A practical way to think about this:

- **ROAS answers:** "Did this spend correlate with sales?"
- **Incrementality answers:** "Did this spend create sales that would not have happened otherwise?"

That difference matters more on retail media networks because shoppers are already in a buying environment. It is easy for campaigns to look strong simply because they are present when a shopper is already likely to purchase.

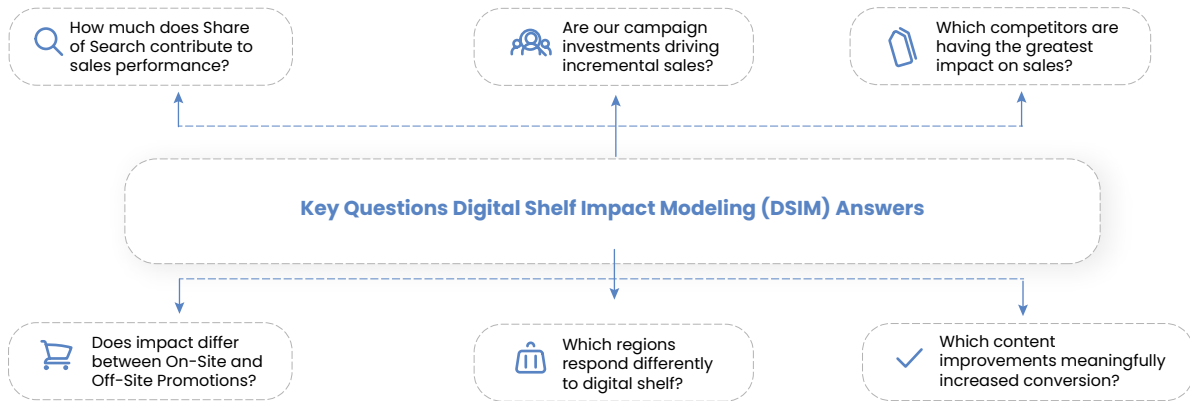
Why Incrementality Measurement Has Been Hard

If incrementality is so important, why do so many organizations still struggle to operationalize it?

Industry research points to familiar barriers:

- Concerns about reliability and accuracy of incrementality results
- Difficulty applying incrementality across diverse ad types and environments
- Limited tools and technologies
- Lack of standardization across platforms and retailers

These challenges explain why many brands still treat incrementality as an occasional project rather than an always-on decision layer.



DSIM is designed to make incrementality practical by grounding impact analysis in the same digital shelf signals brands already measure, and by producing outputs that are prescriptive, not academic.

How DSIM Works: From Signals to Incrementality

The Core Concept: Baseline Versus Incremental Demand

Every product has a baseline demand. Baseline demand is driven by factors such as brand strength, distribution, seasonality, and habitual purchasing.

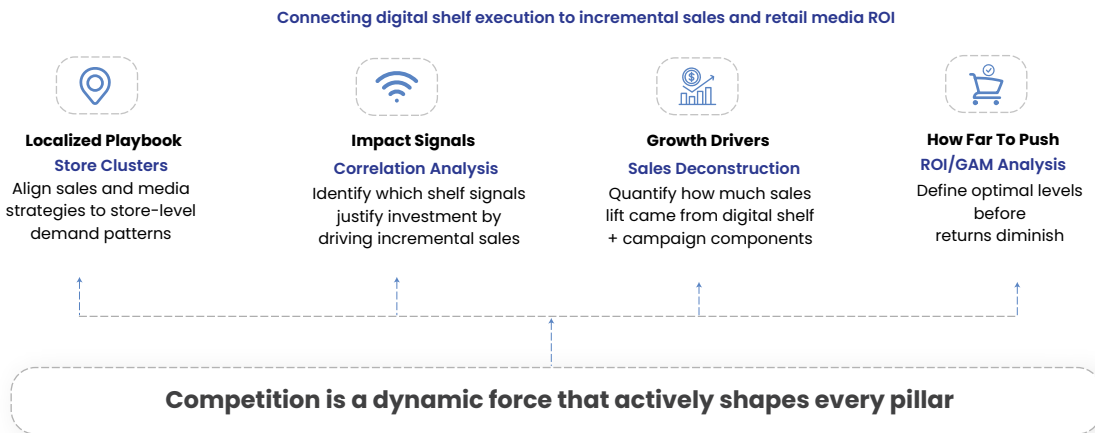
Digital shelf actions aim to influence demand beyond that baseline.

DSIM isolates and quantifies incremental effects by modeling sales outcomes as a function of multiple drivers, then separating what would have happened anyway from what was influenced by specific actions.

This distinction is critical. Without it, brands risk attributing natural demand movement to tactics, leading to over-investment and diminishing returns.

The DSIM Framework

DSIM operates through five connected components that translate data into decisions.



1. Store Clustering and Localization

DSIM groups stores or fulfillment zones based on observed shopping and conversion behavior, not geography alone. This matters because digital shelf and media performance often varies within a retailer across clusters.

In practice, this enables brands to move beyond national averages and understand where a lever is truly effective, where it is saturated, and where it is constrained by shelf conditions.

2. Signal Validation and Correlation Testing

Not every digital shelf signal deserves equal weight. DSIM tests relationships between digital shelf metrics and sales outcomes to ensure the model is grounded in statistical reliability, not coincidence. This increases confidence that the analysis is identifying true drivers.

3. Sales Decomposition

DSIM decomposes total sales into:

- Baseline demand
- Incremental contribution by lever
- Competitive pressure effects

This decomposition clarifies which levers drove lift and which levers simply moved without meaningful sales impact.

In DataWeave DSIM examples, model strength and forecast alignment can be high, with forecast accuracy around 5.9 percent MAPE and strong explanatory power as reflected in R-squared values.

4. ROI and Diminishing Returns

DSIM identifies points of diminishing returns, showing where additional investment continues to add sales but with declining efficiency. This is especially important for retail media and promotions, where spend often grows faster than incremental contribution.

These curves help brands set guardrails. Not just “what worked,” but “how far to push.”

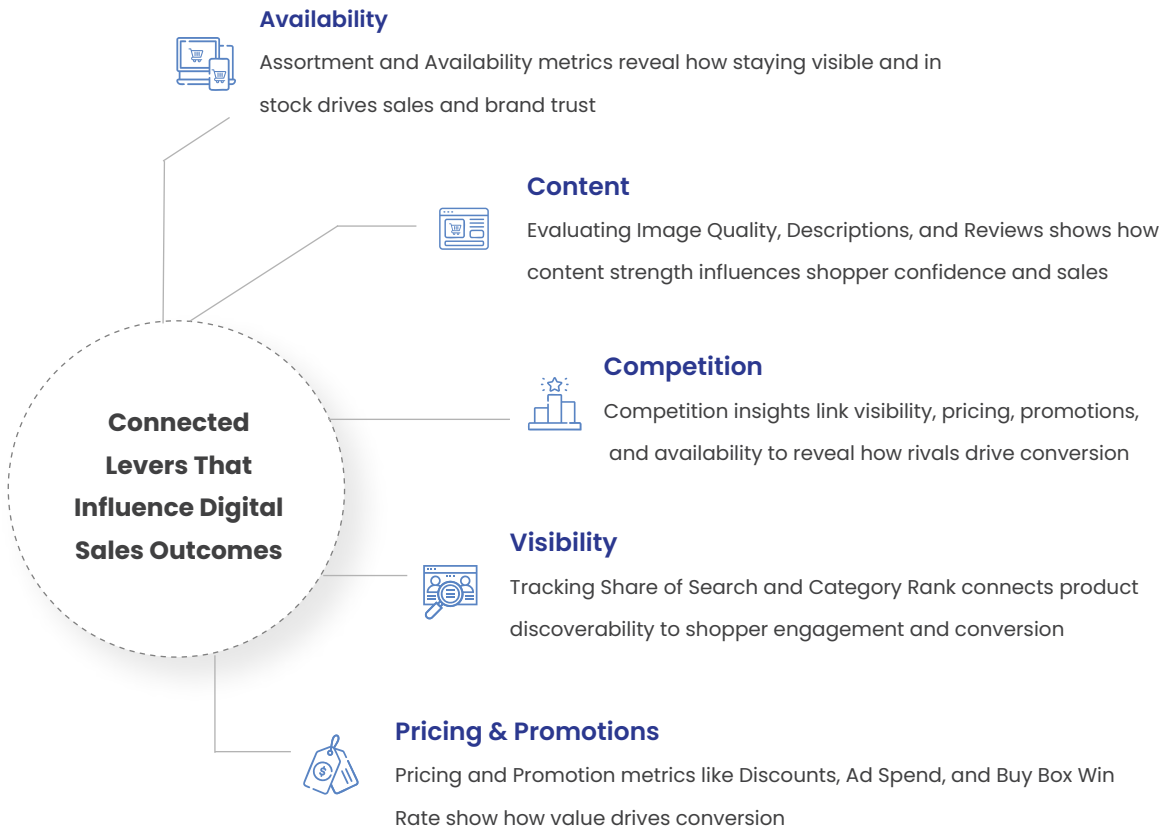
5. Prescriptive Outputs and Decision Recommendations

The final output of DSIM is designed to be operational. It produces guidance that commerce teams can act on:

- What to scale
- What to maintain
- What to reduce
- Where constraints exist, such as availability limiting returns

The Digital Shelf Levers DSIM Evaluates

DSIM evaluates a set of digital shelf pillars that brands already recognize and manage.



Availability and Assortment

- In-stock rate and stability
- Out-of-stock risk and recovery
- Assortment depth and share

Availability is often the most underestimated multiplier. When shoppers cannot purchase, media and visibility cannot convert.

Visibility and Discoverability

- Organic placement in search and category navigation
- Sponsored visibility and share
- The balance between organic presence and paid presence

DSIM can quantify when visibility is a true growth driver and when it is simply following demand.

Content and Experience

- Content quality and completeness
- Image quality and accuracy
- Ratings and reviews volume and velocity

When content has low variability in a period, its incremental impact may appear limited even if it is important. DSIM helps teams interpret this correctly and decide when deeper item-level analysis is required.

Pricing and Promotions

- Everyday price and price competitiveness
- Discount depth and rollback intensity
- Elasticity curves and thresholds

Pricing and promotion effects can be nonlinear. The most important question is not whether discounting works, but what discount depth creates marginal lift that justifies cost.

Retail Media Activation

- Onsite paid search and display
- Offsite media where relevant
- Investment curves and saturation points

DSIM is especially useful in diagnosing where a channel is driving incremental lift and where it is crowded and less efficient.

Competitive Pressure

Competition is not a background factor. It is a dynamic force that influences every pillar. DSIM accounts for competitive actions explicitly so brands can avoid false conclusions based only on internal execution.

What DSIM Reveals That Brands Cannot See Today

1. The Few Levers That Actually Matter

Across categories, brands often manage dozens of shelf metrics. DSIM typically reveals that a limited subset of actions explains the majority of incremental lift, while many other actions contribute minimal marginal value in that period.

This is one of the most practical benefits of DSIM. It reduces decision noise. It helps teams focus and simplify.

2. Diminishing Returns You Can Act On

Retail media and promotions frequently show nonlinear returns. Industry commentary and vendor research increasingly emphasize the need to measure incremental impact because campaigns can look successful but fail to drive extra sales. DSIM translates that principle into action, showing where to push and where to stop.

This is the difference between reporting and optimization.

3. Shelf Conditions That Cap Media Performance

Even sophisticated media optimizations can underperform when shelf fundamentals are weak. For example, if availability declines as spend increases, the model can show that sales impact is capped before shelf conditions can fully support conversion.

This helps brands avoid the common trap of blaming creative or targeting when the real constraint is shelf readiness.

4. Competitive Pressure as a Measurable Effect

Competition often feels like an uncontrollable variable. DSIM makes it measurable by quantifying how competitor visibility, pricing, or sponsorship share correlates with sales performance and how much it suppresses growth.

This matters for both planning and defense. It helps brands identify where growth is being constrained externally, not internally.

5. Localization That Improves Decisions

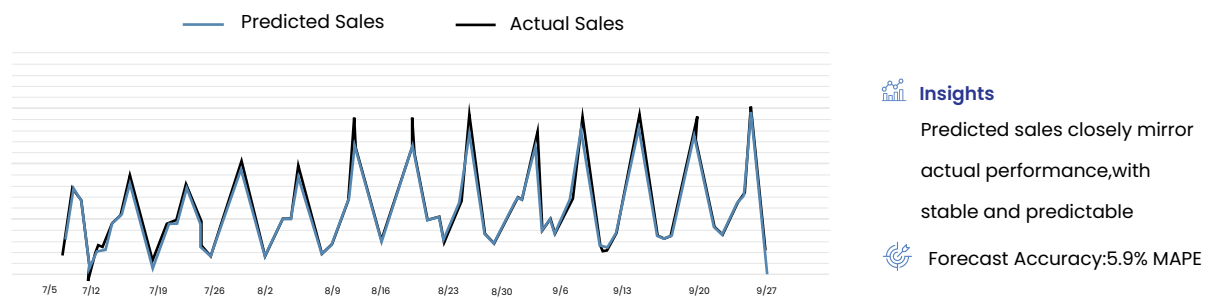
National averages are convenient but misleading. DSIM uses clustering to identify meaningful differences in responsiveness across markets and shopper behavior patterns. This enables targeted recommendations that do not require teams to build entirely separate strategies, but still avoid one-size-fits-all mistakes.

Proof of Effectiveness: Reliability and Business Impact

Forecast Reliability and Model Strength

DSIM aims to be both explainable and trustworthy. In DataWeave DSIM deployments, forecast accuracy can be around 5.9% MAPE with stable and predictable variance, and model strength can reach high R-squared values.

MAPE, or Mean Absolute Percentage Error, measures forecast accuracy as the average percentage difference between predicted and actual values. A lower MAPE indicates a tighter, more reliable model



This matters because impact modeling is only valuable if stakeholders trust it. Commerce leaders and finance partners need confidence that the recommendations are grounded in the data and validated against actual outcomes.

Business Impact: What Brands Unlock

In brand engagements, DSIM has helped identify and unlock opportunities such as:

- Annualized incremental sales opportunity exceeding \$500K by aligning investment to the most effective tactics and optimal spend ranges
- Overfunded tactics where spend can be reduced without sacrificing growth
- Underfunded levers where modest increases create meaningful incremental lift
- Clear guardrails that prevent waste beyond optimal thresholds

These outcomes are achieved not by adding more tactics, but by reallocating existing resources more intelligently.

Outcome-Based Measurement Is Rising

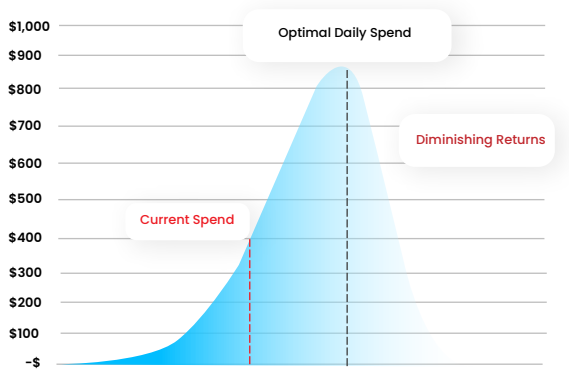
Broader industry perspectives also emphasize the value of independent measurement and the rapid growth of retail media. As budgets expand, advertisers increasingly demand measurement that ties spend to outcomes rather than platform-specific proxy metrics.

DSIM aligns with this trajectory by grounding measurement in sales impact and connecting shelf execution to growth outcomes.

DSIM in Practice: A Brand Scenario

To make DSIM tangible, consider a stylized example that reflects what many brands see across US and EU markets.

Customer Brand X: Sponsored Visibility Factor



Current spend sits below the optimal daily threshold. There is room to scale investment before diminishing returns set in.

- Sponsored visibility increases
- Paid search spend increases
- Availability fluctuates
- Discount depth increases slightly
- Ratings grow for a subset of SKUs
- A competitor launches aggressive pricing on a comparable set of items

A traditional review often becomes a debate:

- The media team attributes growth to spend and improved visibility.
- RGM attributes growth to pricing and promotions.
- Ecommerce attributes growth to improved content and better availability.
- Analytics notes that demand was rising in the category anyway.
- Finance asks which factors were incremental.

DSIM resolves this by decomposing the outcome:

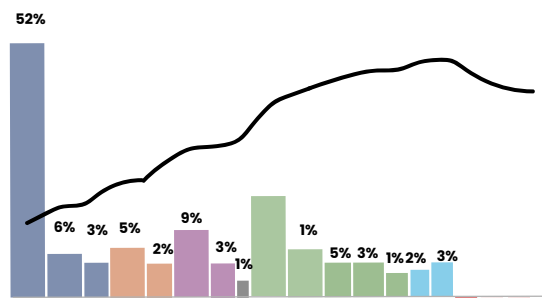
- Baseline demand explains part of the growth.
- A limited set of levers explains incremental lift.
- Some levers show minimal marginal value.
- Competition imposes measurable suppression.
- Spend levels show a saturation point where returns diminish.

The output is not a narrative. It is a decision plan:

- Maintain spend on the lever with the highest incremental contribution.
- Reduce spend on the lever that has entered diminishing returns.
- Fix availability to remove a conversion ceiling.
- Adjust pricing strategy where elasticity indicates meaningful marginal gain.
- Identify the competitor action that is most responsible for suppression, then respond with targeted tactics.

Isolating baseline demand from the digital shelf actions to understand sales incrementality

Customer Brand X: Sales



A limited set of digital shelf actions drove the majority of incremental sales, while competitor factors exerted measurable downward pressure.

52%	Baseline Sales	5%	Offsite Display Factor
6%	Seasonality Factor	3%	Onsite Display Factor
3%	Residuals/Noise	4%	Sponsored Visibility Factor
5%	Availability Factor	1%	Onsite Search Factor
2%	Assortment Factor	2%	Organic SOS Visibility Factor
9%	Ratings and Reviews Factor	3%	Organic SOC Visibility Factor
3%	Content Quality Factor	-3%	Competitor sponsored Factor
1%	Price Factor	-6%	Other Organic Factor
13%	Brand Media - Halo Effect Factor	-5%	Competitor Organic Factor

What Changes for Brand Teams

DSIM is designed for a blended audience because digital shelf decisions are inherently cross-functional. The most valuable impacts are organizational, not just analytical.

Ecommerce and Digital Commerce Leaders

DSIM answers the core leadership question: What actually worked?

It enables commerce leaders to defend investment decisions with credible impact analysis, align teams around shared outcomes, and prioritize actions that create incremental value.

outcomes.

Retail Media and Performance Marketing

Industry discussion increasingly underscores that incrementality is the key business outcome advertisers want to track, and that ROAS alone does not capture incremental sales that would not have happened otherwise.

DSIM operationalizes that shift by translating spend into incremental outcomes and by showing where spend is saturated. It supports a more strategic conversation about budget allocation, not just channel

Revenue Growth Management

RGM teams often manage price, discounting, and promotion strategy, but they are increasingly asked to coordinate with media investment and digital shelf execution. DSIM provides a quantifiable framework for trade-offs, such as when pricing changes deliver more impact than additional media investment.

Analytics and Data Science

DSIM raises the bar for impact measurement by validating signals, modeling outcomes, and producing interpretable results. It also creates a path toward deeper future-state analysis, such as SKU-level optimization, halo effects, and more granular causal frameworks.

Finance and Executive Stakeholders

DSIM provides a language finance can trust because it focuses on incremental sales impact and guardrails. It reduces the need for subjective storytelling and supports more disciplined investment decisions.

Integrating DSIM Into the Brand Measurement Stack

DSIM is most powerful when positioned correctly: as the next layer for brands already using DSA.

Where DSIM Sits

DSIM is most powerful when positioned correctly: as the next layer for brands already using DSA.

- **DSA** monitors shelf execution and competitive position.
- **DSIM** quantifies how those changes drive incremental outcomes.

The Role of DataWeave

Digital Shelf Impact Modeling is a new category. Operationalizing it requires three things that are difficult to combine at scale:

- Broad and reliable digital shelf data coverage
- Consistent data quality and normalization across retailers and markets
- Advanced modeling that can connect shelf and media signals to sales outcomes and produce prescriptive guidance

DataWeave has built DSIM to bring these elements together into a single, scalable framework. DataWeave's broader approach emphasizes AI-driven coverage and data quality, which is foundational for credible impact modeling.

DataWeave's DSIM framework is designed to translate shelf performance into incremental impact analysis, connect shelf execution to investment decisions, and provide clarity on where to invest next.

A New Standard for Digital Shelf Success

Brands do not need more dashboards. They need clearer answers.

Digital shelf success has long been defined by visibility, compliance, and efficiency. Those metrics remain important. But as retail media scales and competitive pressure rises across US and EU markets, success must be measured by incremental contribution to growth.

DSIM provides a way to move beyond proxies and narratives toward a measurement approach grounded in incremental sales impact. It helps brands invest with confidence, align teams around outcomes, and rethink what digital shelf success truly means.

The question is no longer whether brands should measure impact, but how soon they choose to do so.

Get in Touch

Unlock the full potential of your digital shelf with DataWeave's DSIM today. To learn more about us

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