

Accelerating the Path to Demand Intelligence with a Demand Signal Repository

WHITE PAPER

Sponsored by: Netezza and Market6

Leslie Hand
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GLOBAL RETAIL INSIGHTS OPINION

Demand intelligence is about leveraging data/information for more efficient and effective business decision making. Utilizing demand intelligence improves the precision of pricing, product assortments, channel/store placement, and promotion, which are all essential for sustainable revenue management performance.

The benefits of demand intelligence are magnified when used collaboratively by both retailers and their suppliers. Achieving the collaborative benefits, however, requires a common information model and the ability to share demand activity as quickly as possible. Specific software applications can provide the requisite demand signal repository (DSR) as well as the analytic demand intelligence capabilities.

The future of demand intelligence and DSRs will be based on the following trends:

- A significant acceleration in the quantity and quality of retailer "downstream" data. Heretofore, the vast majority of the data residing in consumer products companies' data repositories has been provided by Wal-Mart and a handful of other retailers. Over the next few years, a significant number of supermarket and other retailers will be able to share both raw POS data and predictive analytic measures such as forecasts and anticipated out of stocks.
- The value proposition will be extended across the merchandising, marketing, and logistics functional areas — technology vendor selections will be made with this in mind.
- Mature organizations with some business intelligence and data warehousing experience will move in the direction of an externally hosted DSR rather than rebuild or add to existing functionality. Less mature organizations will adopt on-demand DSRs because of the reduced learning curve and speed to value.

- One-size-fits-all business analytics technology is not sufficient to support all organizational demand intelligence needs. Technology investments will be made in a variety of delivery platforms, including SaaS and internally supported applications. Technology requirements and operational support characteristics will determine which choices are made. High-performance capabilities will drive more growth in the market for business analytics appliances. These systems have changed the price/performance characteristics of data warehouse platform technology.

IN THIS WHITE PAPER

In this white paper, Global Retail Insights, an IDC company, discusses the current market need for demand intelligence and demand signal repositories. We discuss the needs and considerations of retail trading partners as they define their road map for demand intelligence/DSR adoption.

One retailer case study is presented. The technology vendors involved, Netezza and Market6, are featured.

SITUATION OVERVIEW

The Power of Demand Intelligence

Retailers have been analyzing sales data and forecasting demand for decades. Their trading partners have been heavily reliant on retailers for forward forecasts of true demand. What has changed over the years is the level of data forecast, the number of demand influencing inputs, the accuracy of the forecasts, retail/supplier collaboration, and the position of demand intelligence within the enterprise application portfolio. Demand intelligence is now emerging as a core element of the central merchandising and replenishment engine facilitating not just demand forecasting but also trading partner collaboration, retail planning, price optimization, shelf allocation and assortment optimization, and supply chain and logistics planning.

Challenging economic circumstances drive retailers and their suppliers to move toward "right product, right place, right time, right price" product and promotion initiatives more than ever. Inflated inventories, a proliferation of stock-keeping units (SKUs), and competitive markets have retailers and their trading partners tightening their belts. Global Retail Insights predicts that this will drive new investments in demand intelligence capabilities. Table 1 shows a few key IDC and Global Retail Insights projections for spending growth in information technology spend categories that support demand intelligence purchases.

TABLE 1

Projections for Spending Growth for Demand Intelligence

IT Investment Area	Data Source/ Market	2007 IT Spend	IT Spend Growth	CAGR Period Reported	Reference
Demand forecasting optimization software	Global Retail Insights/retail	\$234 million	12.9%	2007–2011	<i>Worldwide Retail IT Spending Guide, Version 1, 2008</i> (Global Retail Insights #GRI213269, July 2008)
Supply chain analytic software	IDC/all verticals	\$2.6 billion	11.9%	2006–2007	<i>Worldwide Supply Chain and Services Operations and Workforce Analytic Applications 2007 Vendor Shares</i> (IDC #214202, October 2008)
Worldwide business analytics software	IDC/all verticals	\$22.1 billion	9.7%	2007–2011	<i>Worldwide Business Analytics Software 2008–2012 Forecast and 2007 Vendor Shares</i> (IDC #214904, November 2008)

Source: Global Retail Insights, 2008

These forecast growth rates emphasize the priority the retail value chain is placing on being more precise in its action. Using information to drive better product, price, and promotion decisions is seen as key to outperforming the competition.

Wal-Mart's Retail Link: An Early Example of Demand Intelligence

Wal-Mart established Retail Link, a homegrown decision support system that links more than 100,000 suppliers to sales and inventory data for their products, more than a decade ago. It was an innovative idea at conception — enabling suppliers to reduce product out of stocks on the store shelf while reducing inventory levels in the entire value chain. Suppliers access product performance metrics such as store-level inventory and sales, sales trend data for the past 10 years, profitability analysis, sell-through rates, and promotional sales lift through a portal or by contracting with a third party that provides additional analytics in supplier-specific data formats.

This has been enhanced more recently to include an executive dashboard, called Business-At-A-Glance, that provides additional analytical views of available product and consumer insights data.

Demand intelligence applications have evolved that enable what many would argue are better capabilities for retailers and their trading partners to reduce out of stocks, improve turns, and reduce inventory levels.

Retail Link has had a significant impact on the financial performance of Wal-Mart and its suppliers. Importantly, as more retailers come on line with Retail Link-like data, the industry can expect important improvements in key performance metrics.

Retailers experience an increase of \$50 million or more per \$1 billion in sales from store demand-specific allocations.

Data compiled from various surveys, client interactions, and research indicates that retailers that implement a demand intelligence platform like Retail Link generally experience 20–35% improvement in out of stocks, 2–3x improvement in stock turns, and 10–20% reduction in inventory. Additionally, some merchants have seen 5–12% sales improvement from store demand-specific allocations and 3–7% improved sales from optimized distribution of soft lines sizes.

The criticism of Retail Link always has been that it is a Wal-Mart-"owned" database and that suppliers are simply visitors to the data. As DSRs and supply signal repositories (SSRs) proliferate, it is likely that Retail Link will be viewed as more restrictive and less "open" than it needs to be to foster true cross-partner collaboration. It has been a great start, but the cracks are starting to show.

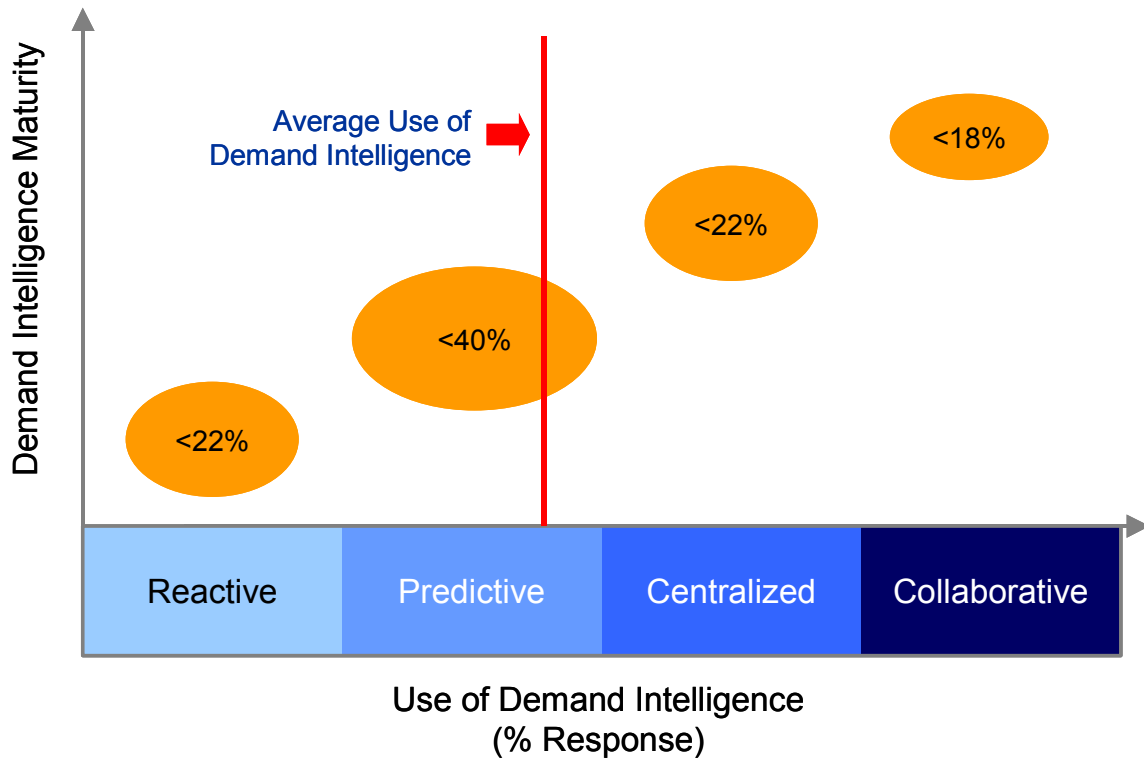
One can further argue that if the ubiquitous demand signal repository with open, granular data is to become the norm, then the cost of operating a retailer portal like Retail Link becomes both unnecessary and unsustainable. Thus, the possibility exists that, like all pioneers, Retail Link ultimately will be replaced by better, faster descendents.

Reactive to Predictive to Real-Time Trading Partner Collaboration

Figure 1 illustrates the evolutionary stages of demand intelligence and the approximate percentage of retailers at each level. The maturity level data reflects how 75 self-selected customer-centric retailers classify themselves. As retailers progress from relying solely on sales history to react to demand to collaborative demand intelligence, they integrate all data that influences demand, including sales, price, promotions, competitive information, and consumer demographic and lifestyle data. To maximize the value of demand intelligence, retailers must be working collaboratively with trading partners.

FIGURE 1

Retail Demand Intelligence Maturity



Notes:

Maturity percentages were sourced from a 2008 Global Retail Insights survey.

Respondents = self-selected customer-centric retailers

Source: Global Retail Insights, 2008

The history of predicting consumer demand has evolved through the following periods:

- **Stage 1: Pre-demand intelligence (reactive forecasting).** Initially, predictive forecasting was applied at the warehouse level to support the enterprise's needs. Merchandising applications used store-specific modeling — replenishing individual SKUs based on store-level volumes (A, B, C, D stores representing highest- to lowest-volume stores). Traditional forecasting and reporting systems like this faltered as SKU counts grew, consumer priorities shifted, and the need to localize execution became more intense. The ability to make appropriate adjustments became more difficult, resulting in lost margin, stock-outs, and missed opportunities.

- **Stage 2: Early demand intelligence (predictive process optimization).** Early store-level demand forecasting applications resided in the store or on independent data warehouses. About 10–15 years ago, store-based computer-assisted ordering (CAO) applications were popularized, but adoption was slow because of the large distributed capital expense. The decision to run these applications in the store made sense at the time because large SKU-intensive, high-volume retailers could not fathom bringing detailed SKU data back to corporate for analysis. Communication speeds and network capacity simply were not robust enough.

In the past decade, data warehouses (DWs) and their associated analytics and forecasting engines proliferated as technology roadblocks diminished. These DWs have been successful in providing insight into core retail functions like initial pricing, labor scheduling, and replenishment planning. While the benefits were clear, decisions to select and deploy these "optimization" products were often made in a vacuum, leaving some retailers with multiple forecasting technologies, different workflows and user interfaces, and redundant data integration processes. While better than reactive reporting, this approach simply propagated the "multiple versions of the truth" problem into demand planning, resulting in less than efficient execution.

- **Stage 3: Advanced demand intelligence (centralized demand intelligence).** As merchants became more familiar with leveraging demand insight into their decisions, their goals shifted to ensure that the same insight is used consistently across the enterprise. The desired strategy for many retailers has become the deployment of a common "engine" that generates a store/SKU-level, real-time forecast that drives pricing, markdown, inventory, sourcing, and staffing decisions. Implicit in this platform approach is the concept of embedded analytics, where demand models and forecasts are presented inside of traditional merchant applications. This ensures that predictive demand is a core component of retailer decision making.
- **Stage 4: Demand signal repositories (collaborative centralized demand intelligence).** Advanced demand intelligence is at its best when trading partners leverage and share data to improve forecasting accuracy throughout the whole value chain. This can be accomplished with proprietary implementations of advanced demand intelligence applications, but hosted DSRs ease startup and facilitate collaboration, making trading partners friendly and repeatable processes available.

Table 2 outlines the capabilities that were added through each of the evolutionary stages of demand intelligence and the technologies that made them possible.

TABLE 2

The Evolution of Demand Intelligence

Stage	Technology	New Capabilities
Pre-demand intelligence (reactive forecasting)	Merchandising systems, warehouse demand and store modeling	Demand forecasts, store modeling
Early demand intelligence (predictive process optimization)	CAO applications, data warehouses	Process optimization, SKU/store data
Advanced demand intelligence (centralized demand intelligence)	Better data warehouse, database, and analytics technology	SKU/store/day data, integrated workflow, improved usability, integrated cross-functional forecasts
Demand signal repositories (collaborative centralized demand intelligence)	SaaS and appliances	Collaboration, two-way data sharing, more external demand influence data

Source: Global Retail Insights, 2008

Current demand intelligence platforms are consumer centric — forecasts are adjusted as shifts in consumer demand occur. Real-time trading partner collaboration ensures that the supplier knows this as soon as the retailer picks up the trend. Demand intelligence systems deliver SKU/store/day granularity and real-time forecasts and analytics and have built-in executive dashboards with workflow and interfaces consistent with the way people work. DSRs simplify supplier/retailer two-way data sharing and often facilitate additional external data inputs like syndicated data, weather forecasts, and local event information.

As trading partners look for ways to combine their need for brand differentiation with financial improvements, there is no better foundation technology available. Demand intelligence applications ensure that strategic priorities, enterprise planning, and market execution across all functional disciplines are underpinned by a clear, technology-driven picture of future demand.

The retailer interviewed in the case study that follows indicated that consumer shopping patterns shifted overnight when the U.S. economy seriously faltered in the fall of 2008. Demand intelligence platforms recognized these shifts and allowed for immediate corrective action for both the retailer and its suppliers.

Grocery Retail Case Study

A major United States-based grocery retailer talked with us about its implementation of the Netezza and Market6 DSR technologies. This retailer achieved significant results and high user acceptance because of the ease of implementation and excellent performance of the platform.

Circumstances

This grocery retailer recognizes demand intelligence as a key differentiator and believes that the ability to work collaboratively with suppliers is absolutely crucial for retail success in coming years. Sharing data establishes premium trading partner relationships and opens doors to additional mind share and, potentially, additional vendor funds.

The retailer ventured into this attempt cautiously since previous attempts to implement consumer demand-driven ordering failed on a couple of occasions — once 10 years ago and as recently as two years ago — because of system performance issues and lack of user acceptance. But it seized the opportunity to try again, this time by leveraging demand signal repository technologies that did not require much in the way of internal resources or technical project management.

Strategy

This chain grocer hopes that the success from this initial demand intelligence trial will win internal support for a broader rollout for all stores and across categories. It believes that the benefits can be gained incrementally and is therefore planning on growing this program slowly while refining processes and measuring performance improvements from the initial supplier/category tests.

Guiding principles for this retailer's collaboration efforts include:

- Keep collaboration simple — integrate collaborative ordering and promotion planning into the way that people do their work.
- Put intelligence in the hands of the retailer and supplier teams that are charged with meeting demand.
- Share data collaboratively, including POS information, shrink by item and store, promotion information, space allocations, and seasonal plans.

Technology Selection

This retailer skipped a formal vendor selection process and instead formalized an agreement to move forward with Market6. Market6 deploys its DemandView platform on a Netezza data warehouse appliance. The retailer's vendor selection criteria included the vendor's depth and breadth of capabilities, strategic road map, and domain experience and the product's ease of implementation, speed to value, price/performance, user interfaces/workflow integration, ease of support, and scalability.

The Market6/Netezza DSR appliance receives and synthesizes data from many sources, optimizing the use of demand signal data from retailers and manufacturers. Netezza provides the underlying data warehousing technology, and Market6 provides the demand intelligence application. Market6's DSR behaves a lot like Wal-Mart's Retail Link, with the addition of enhanced predictive forecasting and reporting. Suppliers find that the data that they receive is application ready — formatted to their needs.

Implementation

This initial project involved one direct store delivery (DSD) supplier and the grocery retailer. They selected Market6 to implement its DemandView software to calculate very precise orders for products the DSD vendor delivered to the retailer's stores. Once fully engaged, Market6 delivered the live operational system in only 60 days. This included daily feeds to the hosted system from a set of test stores. Daily forecasts were calculated and shared with the supplier. Sales and inventory performance was compared between the test stores and a set of control stores periodically.

This retailer allowed Market6 to do what it does best — that is, implement a DSR environment that allows both retailers and their suppliers to respond to shifting real-time demand signals to improve product sales, reduce out of stocks, and enable optimal promotion results. This chain grocer validated the vendor claims that this approach delivers unprecedented performance.

Making the Business Case for a Next-Generation DSR

This retail case study cited significant benefits — the kind that would motivate most retail executives to initiate a demand intelligence program if they have not already. Other retailers and suppliers have reported savings even greater than these.

While retailers rank reduced inventory, improved in-stock positions, and overall ROI as the most significant benefits of demand intelligence, suppliers rank improved fill rates, better planning and reduced trade spend as the key benefits. Ultimately, increased consumer satisfaction is the overarching goal because neither retailers nor suppliers want consumers to choose other brands because of out of stocks.

A next-generation DSR eases implementation and reduces operational support and maintenance requirements, providing greater speed to value. It also enables the integration of a far greater range of external data inputs like supplier inventory and promotional planning data, competitive market information, and weather and local event data. With a DSR, trading partners easily share all demand data influencers and estimates.

The benefits of accurate demand intelligence build on each other, culminating in building and maintaining strong brands, customer loyalty, and improved sales and profitability. Table 3 illustrates the value proposition for demand intelligence.

TABLE 3

The Benefits of Demand Intelligence

Area	Benefit
Store labor	Retailers can realize 10–15% improvement in sales per labor hour, often with actual improvements in customer service from better staffing allocations during periods of high demand.
Inventory	Benefits include 20–35% improvement in out of stocks, improved (2–3x) stock turns, and 10–20% reduction in inventory carrying costs.
Pricing	Merchants can see 3–5% gross profit improvement, with 2–4% improvements in gross sales.
Promotion	Retailers have experienced 25–30% reduction in time required to process vendor deals, assess product affinities, and develop and deploy promotion events.
Fresh/perishables	Retailers can see up to 80–90% reduction in spoilage-related shrink and 8–10% sales improvement in food service categories based on day part demand planning.
Merchandise planning	Some merchants have seen 5–12% sales improvement from store demand–specific allocations and 3–7% improved sales from optimized distribution of soft lines sizes.
Markdowns	Depending on the merchandise type, retailers can experience up to 45% faster inventory sell-through, with 5–15% profit improvement.
Customer marketing	With improvements to marketing, companies have seen a 15–35% increase in average transaction size and a 5–10% improvement in customer-specific profitability.
Product sourcing	A 5–15% reduction in supply chain logistics costs resulting from optimized timing of inbound merchandise to demand and reduction of rush shipping charges has been seen.

Note: Data was compiled from various surveys, client interactions, and research.

Source: Global Retail Insights, 2008

ESSENTIAL GUIDANCE

Demand signal repositories lead to better planning and decisions for trading partners. Retailers and suppliers, armed with a synthesized view of all of the necessary demand influencing components, can respond to and predict fluctuations in consumer demand more accurately. The synthesis of this data enables the best decisions about pricing, promotions, labor scheduling, replenishment, and logistics and facilitates putting the right product in the right place at the right time.

Actions to Consider

Consider the following best practices when selecting demand intelligence platforms:

- **Demand intelligence road map.** Develop a road map for demand intelligence. Define the who, when, and what process impact plans with IT and functional end-user support. Include milestones for turning on new processes like demand planning, replenishment planning, promotions planning, transportation planning, shelf planning, new product introductions, and price and assortment planning. Get started as soon as possible to start reaping the rewards, but plan to incrementally implement processes that build on the basic demand intelligence capabilities. Determine if a DSR is the most efficient route to collaborative demand intelligence for your organization.
- **Two-way data exchange/collaborative processes.** Expect to achieve a two-way collaborative exchange of data. This provides the ability to get inventory data back from suppliers so that product can be better distributed to stores and plans can be adjusted to inventory shortfalls. Initiate conversations with trading partners to discuss their experience with demand intelligence and DSRs, and select willing partners that are equally committed.
- **Workflow and usability.** Look for role-based user interfaces that present information the way that users want to see it — matching the way they work. Built-in executive dashboards ensure that all levels of an organization can optimize the way they work.
- **Internal and external data integration.** Synthesizing all of the appropriate data from retailers and suppliers is crucial. This includes POS, inventory, shipment, and external influence data like competitive pricing, vendor offers, and supplier capabilities. POS data is usually at the specific SKU/store level, sometimes at SKU/store/day.

- **Scalability.** The system must grow and adapt as stores, SKUs, or data requirements change. Speed, power, flexibility, and scalability are critical factors — the enterprise data warehouse (EDW) must adapt with organizational change. Technology platforms must perform well even when complex queries are requested to ensure the information delivered is as relevant as possible.
- **Test, measure results, and repeat.** Start collaborating with selected trading partners to set goals and short- and long-term success criteria. Establish communication plans, clear expectations, and a timeline for the activities to pursue. Measure performance and refine processes and expectations. Broaden project scope, add suppliers and categories, and perform analysis again.

Specific technology selection guidance follows:

- **Technology selection — hardware.** The first decision is SaaS or a system implemented, managed, and supported internally. Base this decision on current and future needs. You will want to be agile and in a position to adopt the latest capabilities. Demand intelligence databases can get very large very fast, so a consideration of user response requirements, data storage requirements, data granularity, and hardware platform preferences is integral to planning. Even in a hosted environment, make sure your needs can be met — define the need and availability of incremental units of capacity, data loading frequency, information access speed, query complexity, and performance expectations.
- **Technology selection — software.** Select the demand intelligence system that works for you and your trading partners. There is much disparity in terms of breadth and depth of vendor applications. Evaluate technology vendors with an understanding of the breadth of demand intelligence desired — applications support some or all of the following needs: consumer demand; pricing; promotions; allocations; shelf planning; executive dashboards; and integration of external market, weather, and event data.
- **Technology — integration.** Determine the required level of data integration with legacy applications and your scalability requirements. Does your organization plan on building new merchandise planning capability around your new implementation, or are you looking for specific intelligence that will be leveraged and integrated into existing applications?

With numerous applications and implementation options available, retailers need to consider their demand intelligence needs through the lens of their organizational goals, their own strengths and weaknesses, the functionality they have already invested in, the architecture and infrastructure they can readily support, and the resources they have

available for projects. It is important for retailers to select the application and architecture that provide the functionality their business needs, without adding unnecessary complexity or demanding customization that ultimately is difficult to maintain.

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