

Inventory Optimization:

Retail Strategies for Eliminating Stock-Outs and Over-Stocks

May 2009

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Executive Summary

Aberdeen's April 2008 benchmark report, *Technology Strategies for Closed-Loop Inventory Management*, indicated that Best-in-Class retailers are 105% more likely than Average and Laggard companies to segment and prioritize inventory based on store-level customer service requirements. Aberdeen surveyed 120 retailers between April and May 2009 to reveal Best-in-Class retail capabilities and enablers for eliminating shelf-level inventory unit out-of-stock and over-stock situations.

Best-in-Class Performance

Aberdeen used four key performance criteria to distinguish Best-in-Class companies:

- 18% increase in inventory turn rate
- 11% decrease in out-of-stock costs
- 11% decrease in inventory carrying costs
- 7% decrease in cost of goods sold

Competitive Maturity Assessment

Survey results show that the firms enjoying Best-in-Class performance shared several common characteristics:

- Best-in-Class are 1.7-times more likely than all other retailers to garner 96% or higher service levels that not only confirm near-perfect shelf-level in-stock levels but also create the opportunity for long-term customer relationships and lifetime customer value.
- Best-in-Class are twice as likely as all other retailers to undertake stock-out exception management remedial measures at stores, headquarters, and within the extended retail supply-chain network.
- Best-in-Class retailers are 1.5-times more likely than all other retailers to establish SKU-level minimum and maximum quantity thresholds that assist in forecasting and automated replenishment.

Required Actions

In addition to the specific recommendations in Chapter Three of this report, to achieve Best-in-Class performance companies must:

- Implement direct drop shipments from suppliers.
- Ensure that optimum (four to eight weeks) safety stock requirements are in line with store / channel demand.
- Set unit-level inventory thresholds for automated ordering and replenishment.

Research Benchmark

Aberdeen's Research Benchmarks provide an in-depth and comprehensive look into process, procedure, methodologies, and technologies with best practice identification and actionable recommendations.

"We are currently facing a slow-moving products deadlock problem. My teams need better visibility and alerts to plan safety stock buying requirements for slow moving items within categories where we have higher than 95% service levels. We tend to make mistakes of over-stocking in our slow moving item categories."

~ Vice-President, Inventory Management, large US and Canadian home goods retailer with 1,000-plus stores

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Chapter One: Benchmarking the Best-in-Class

Business Context

Unfortunately, retailers must still mop up holiday 2008 before they can move further into 2009. Our data reveals that an astounding 70% of retailers rate themselves average or below average on their inventory management (see appendix for definition) processes. While there were certain macroeconomic influencers beyond their control (e.g., unsteady financial markets, wildly fluctuating fuel prices, and unemployment figures that haven't been seen in decades), most retailers are guilty of knowing they will fall well short of their sales forecast, and yet not taking any truly meaningful action to move through their excess perpetual inventory from stores and other sales channels. As this report will demonstrate, these Best-in-Class retail capabilities improve inventory-related customer satisfaction, inventory turnover, and working capital that can be channelized towards alternative market consolidation and global expansion strategies.

Aberdeen surveyed 120 retailers between April and May 2009 to reveal Best-in-Class retail capabilities and enablers to effectively eliminate shelf-level inventory inconsistencies such as unit out-of-stock and over-stock situations that cause customer dissatisfaction and lost sales opportunities. The report will determine ways that retailers can find the right balance of store- and channel-level inventory, replenishment, and demand management capabilities to maximize sales revenues and customer satisfaction.

Service Levels and Pricing Pressures

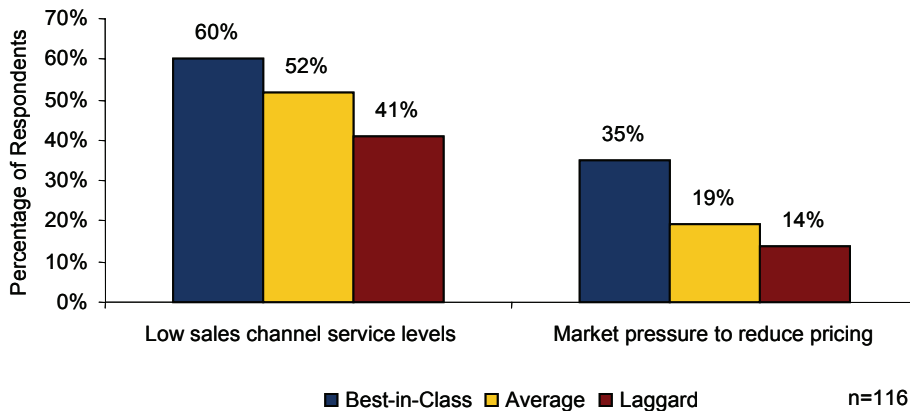
The top pressure facing 60% of Best-in-Class retailers is the need to address service level imbalances at the retail shelf or short-term product category demand. Traditional retail inventory planning that filled warehouses with advance merchandise orders to the tune of six months or more is not a sought-after strategy anymore. Moreover, the ever-so-reliable "80-20" inventory and merchandising rule – that 80% of revenues are driven by 20% of the top-selling, fast moving merchandise – is also no longer as relevant in the current market, as staple category performance has fluctuated to a wide extent. There are either too many products to sell or too few depending on the safety stock, sell-through, and overall open-to-buy merchandise strategy of the retailer. The middle ground of inventory levels for optimum sell-through is hard to find, as a majority of retailers are struggling to focus on the bottomline needs and balance service levels, safety stock, open-to-buy, and seasonal order cycle times of suppliers. Along with Best-in-Class, the "service-level" pressure is felt by 52% of Average and 41% of Laggard retailers. The second-highest inventory-related business pressure of Best-in-Class retailers is the need to respond to the market's expectation of reduced shelf-level prices even as customer demand varies extensively on a week-to-week basis. On the whole, retailers are unable to perform a flat-out and across-the-board reduction in their prices due to the fact that

Fast Facts

- √ An astounding 70% of retailers rate themselves average or below average on their inventory management (see appendix for definition) processes.
- √ The top pressure facing 60% of Best-in-Class retailers is the need to address service level imbalances at the retail shelf or short-term product category demand.
- √ Best-in-Class retailers are 2.9-times as likely as Laggard retailers and two-times as likely as Average retailers to improve end-to-end inventory order management functions

manufacturers are not fulfilling their part in whittling down prices. In other words, the price war between retailers and manufacturers is at a peak.

Figure I: Ineffective Shelf-Level Service and Pricing Impact Retailers



Source: Aberdeen Group, May 2009

Best-in-Class Criteria

With respect to inventory management in retail, Aberdeen used four year-over-year key performance indicators for distinguishing between Best-in-Class, Average and Laggard companies:

- Inventory turn rate
- Out of stock costs
- Inventory carrying costs
- Cost of goods sold

As a result, retailers are responding through deeper and more frequent promotional discounts or markdowns in the department stores, apparel, footwear, luxury, automotive, and other softline and hardline segments. This results in a slow but potentially deadly problem of "bottomline and working capital squeeze" (e.g., Steve & Barry's shut down operations in 2008; Circuit City shut down operations in 2009). Yet another impact point is that, as a result of the price reduction-related inflexibility of their suppliers, retailers are propping up their own brand categories so that they can manage price, margin, and sell-through in a much more controlled manner (e.g., supermarket, grocery, drug, and consumer electronic specialty). These steps are an unquestionable blemish on the traditional retail-supplier bonhomie or collaboration in the areas of effective inventory planning, replenishment, and shelf-level demand management. Our results show that as a response, suppliers are taking their own desperate measures and applying counter-actions such as:

- Non-compliance with retailer order cycle times and on-time delivery requirements
- Creation of new sales channels for expanding their own sphere of sales influence (e.g., online and mobile)
- Lack of retail supply chain responsiveness towards short-term demand adjustments and multi-enterprise supply chain visibility (visibility towards inventory availability and quantity for all major retail and supply chain stakeholders) that are required for agile and customer-responsive inventory management in the retail-supplier ecosystem.

The Maturity Class Framework

Aberdeen used four key performance criteria to distinguish the Best-in-Class from Industry Average and Laggard organizations. Table I provides a framework with which companies can benchmark themselves and identify the category into which they fall. The four key performance indicators (KPIs) include: inventory turn rate, out-of-stock costs, inventory carrying costs, and cost of goods sold. These metrics are critical for any retailer to measure the short-term and long-term success of a shelf-level inventory optimization strategy. It is also noted that the KPIs include both tangible and intangible or hidden cost elements. For instance, out of stock cost is an opportunity cost associated with the estimated cost of an out-of-stock item that could have been sold by the retailer had it been in stock. The results from Table I indicate the demonstrably superior results attained by Best-in-Class companies.

Table I: Top Performers Earn Best-in-Class Status

Definition of Maturity Class	Mean Class Performance (Year-over-Year)
Best-in-Class: Top 20% of aggregate performance scorers	<ul style="list-style-type: none"> ▪ Increased inventory turn rate: 18% ▪ Decreased out of stock costs: 11% ▪ Decreased inventory carrying costs: 11% ▪ Decreased cost of goods sold: 7%
Industry Average: Middle 50% of aggregate performance scorers	<ul style="list-style-type: none"> ▪ Increased inventory turn rate: 5% ▪ Increased out of stock costs: 2% ▪ Decreased inventory carrying costs: 3% ▪ Increased cost of goods sold: 2%
Laggard: Bottom 30% of aggregate performance scorers	<ul style="list-style-type: none"> ▪ Increased inventory turn rate: 2% ▪ Increased out of stock costs: 14% ▪ Increased inventory carrying costs: 9% ▪ Increased cost of goods sold: 10%

Source: Aberdeen Group, May 2009

The Best-in-Class PACE Model

Table 2 shows a roadmap to the key Pressures, Actions, Capabilities, and Enablers (PACE) prioritized by Best-in-Class companies for inventory process, business attributes, and technology tools. This will help identify the key capabilities and enablers that are being considered as part of their shelf-level inventory optimization initiatives.

Table 2: The Best-in-Class PACE Framework

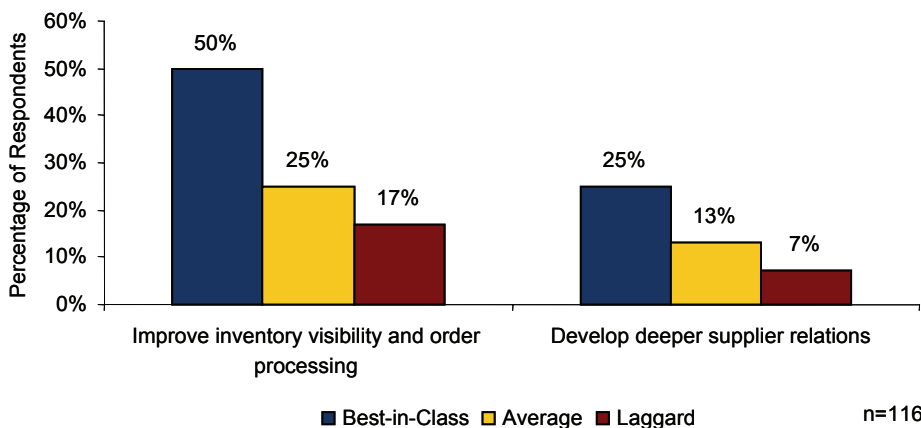
Pressures	Actions	Capabilities	Enablers
<ul style="list-style-type: none"> Declining sales channel service levels or product availability 	<ul style="list-style-type: none"> Improve order management (inventory visibility and order processing) Balance inventory carrying and working capital requirements 	<ul style="list-style-type: none"> Multi-enterprise and enterprise-wide visibility into stock keeping unit (SKU) level inventory availability Unit-level inventory thresholds for automated ordering and replenishment Direct drop shipment from suppliers Updated automated inventory records in stores / sales channels (e.g., cycle count, physical inventory, low balance) Optimum (four to eight weeks) safety stock requirements in line with store / channel demand Balance open-to-buy requirements based on store / channel service levels 	<ul style="list-style-type: none"> Inventory forecasting system Inventory order management system Multi-user and multi-location inventory software application that integrate with headquarters, supply chain execution, and POS applications Vendor managed inventory (VMI) Inventory reporting and dashboard tools Consumer-driven replenishment (CDR), demand response-based inventory system Collaborative planning forecasting replenishment system (CPFR)

Source: Aberdeen Group, May 2009

Best-in-Class Strategies

Figure 2 below denotes that leading retailers realize that scalability and extensibility of their retail shelf-level inventory strategies is dependant on year-round consistency in their inventory order management and supplier collaboration processes. Our results signify that Best-in-Class retailers are 2.9-times more likely than Laggard retailers and two-times more likely than Average retailers to improve end-to-end inventory order management through computer assisted ordering (CAO) functions in a closed-loop manner.

Figure 2: The Role of Order Management in Improving Inventory



Source: Aberdeen Group, May 2009

The closed-loop approach involves store-shelf level data sharing with buyers, procurement job-roles in the retail headquarters for planning

purposes through to suppliers, and a loop-back into the retail warehouses and sales channels in terms of finished product.

This is achieved by developing a far more comprehensive and detailed mapping of the inter-linkages between business events, job-role needs, and IT functions such as CAO database creation and applications that can enable seamless inventory order management utilizing shelf-level reviews and audits done at stores. As part of this inventory order management strategy, the shelf review process in stores is critical to the success of CAO applications. Kroger's (a large grocer) and Harris Teeter (a mid-market grocer) have applied CAO-driven strategies towards effective shelf-level inventory results in terms of higher sales per week due to the focus on improved reporting and a focus on shelf reviews.

Additionally, uniform inventory order management must consist of inventory visibility for all stakeholders (retail headquarters, retail stores, warehouses, suppliers, and brokers) and timely order fulfillment functions with the retail supply chain. This can be achieved by utilizing internal and external expertise for inventory movement visibility, seamless communication of inventory open-to-buy and order cycle time requirements, and appropriate forecasting tool sets to address shelf-level demand.

Our research in the April 2008 [Technology Strategies for Multi-Channel Integration](#) report shows that unified order management in all major product categories at the retail headquarters and stores is a key step in ensuring inventory visibility and customer fulfillment in multi-channel retail. Aberdeen data reveals that 58% of retailers surveyed possess a multi-channel initiative in place for at least one year which has added more inventory volume into retail than ever before. Therefore, the top strategy to improve order management capabilities and tools in a perpetual inventory environment is a step in the right direction in retail considering the relative scale and complexity of the multi-channel nature of customers today. The Aberdeen Insights section below elaborates on the use of multi-site and cross-functional perpetual inventory systems in retail which impact overall inventory effectiveness, including order management, visibility, and inventory execution.

"We are trying to develop more sophisticated yet practical data calculations to map our inventory, replenishment, and store allocation needs. We need specific types of integrated data metrics that accounts for different efficiencies with inventory and reacts quickly to changes in business. "

~ Vice-President,
Merchandising and Inventory
Management, Large
Department Store Chain

Aberdeen Insights - Perpetual Inventory and Cross-Functional Teams

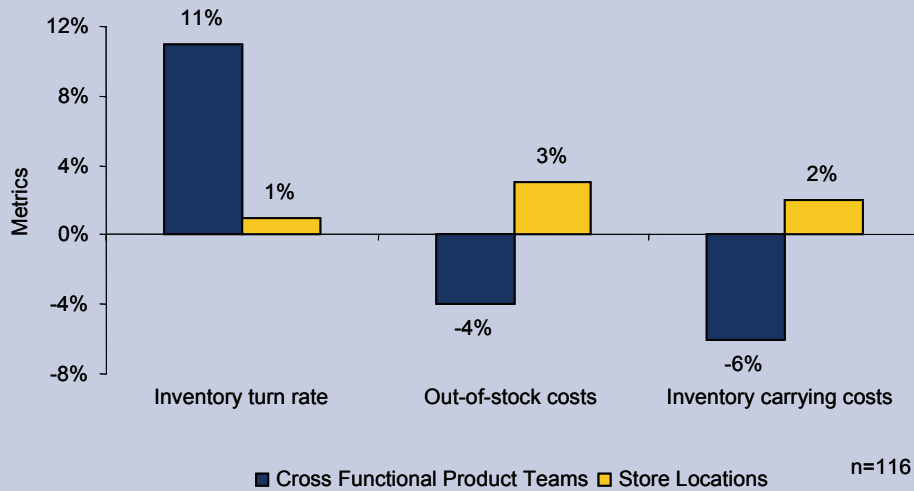
Shelf-level inventory effectiveness depends a great deal on the type and structure of the perpetual inventory system. Perpetual inventory is defined as a continuous inventory system that updates inventory quantities and availability in the retail chain on a near-real-time or real-time basis. These systems are an improvement over periodical or eyeball inventory systems that are still used in smaller store concepts, including 55% of grocery retail.

continued

Aberdeen Insights - Perpetual Inventory and Cross-Functional Teams

Our results show that 45% of systems in the retail industry today are multi-site and multi-location perpetual inventory systems managed by cross-functional product teams and 31% are managed by store locations. Figure 3 points out that retailers that adopt perpetual inventory systems that are organized by cross-functional product teams are experiencing significantly higher turn rates, reduced out-of-stock opportunity costs, and reduced inventory carrying costs year-over-year.

Figure 3: Cross-Functional Inventory Teams Find Greater Success



Source: Aberdeen Group, May 2009

The reasons for the higher performance include better mapping of inventory movement across major departments and teams (e.g., Staples brand product, office supplies, electronics, copy center supplies), improved visibility of inventory-related decisions (e.g., order management), tighter controls on safety stock requirements, and centralized decision-making on buying and procurement decisions. The inventory accuracy risk is high in the case of retailers that own perpetual inventory systems but place more responsibility on store locations to manage some or all parts of the inventory order process and adjustments decisions (e.g., overstating and understating of inventory). These systems are more prevalent in Europe and some retail segments in the Americas such as grocery, furniture, department stores, and some specialty segments.

In the next chapter, we will see what the top performers are doing to achieve these gains.

Chapter Two: Benchmarking Requirements for Success

One of the critical demand-related complexities that cause inaccurate shelf-level inventory planning is the inability to sense and respond to inventory demand trends. More than half (55%) of retailers surveyed are able to capture a demand trend in five weeks, while 44% of retailers respond to a demand trend at a painstakingly slow rate of six weeks or more, causing all sorts of seasonal in-stock complexities for stores. The lack of inventory accuracy at stores is not only a planning issue, it also a performance and bottomline challenge that has a ripple effect. Our results show that 76% of retailers either "increased or remained the same" when it comes to current positive or negative inventory adjustments at the store-level. This indicates three problems:

- With too much safety stock in stores and warehouses, the lower sell-through rates are causing higher than normal inventory carrying costs for slow moving items.
- On the flip side, with continuous cycle of demand fluctuations in the last three to four quarters, stores and channels are not receiving optimum quantities of fast-moving finished goods, leading to higher than normal out-of-stock opportunity costs.
- There is a heightened need for improved visibility and inventory order management collaboration (both internal and external) to ensure optimum sellable quantities of merchandise in stores and warehouses.

Best-in-Class retailers with a perpetual inventory strategy managed by cross-functional teams try to ensure that products are available for a customer when they need it. Optimum availability of product in stores and channels improve customer satisfaction, inventory turnover, and margin percentage per customer visit. Less than adequate inventory leads to a distraught customer and dismal sales. On the other hand, more than adequate inventory levels (an over-stock scenario) leads to lower than anticipated inventory turns, higher markdown, and high cost of goods sold. During the last six months, a majority of retailers in the Americas and Western Europe have closely mirrored both under-stock and over-stock trends. However, our results signify that the latter trend (over-stock) has been a much more complex issue for retailers to handle on a day-to-day basis.

The following case study is an example of a retailer that is following a continuous cycle of upgrades to internal capabilities, external collaboration, and systems changes to reinvent its shelf-level strategies.

Fast Facts

- √ Best-in-Class retailers are 1.5-times more likely than all others retailers to establish SKU-level minimum and maximum quantity thresholds that assist in forecasting and automated replenishment.
- √ Best-in-Class are two-times more likely than all others in undertaking stock-out exception management remedial measures at the store and headquarter-level.
- √ Best-in-Class are 1.7-times more likely than all others to garner more than 96% or higher service-levels that not only confirm near perfect shelf-level in-stock levels but also create the opportunity for long-term customer relationships and lifetime customer value.

Case Study — New Look Attains Sales Uplift and Reduction in Inventory and Increased Inventory Turnover

New Look is a United Kingdom (U.K.) based, large fast fashion retailer with 850 stores (also known as shops or branches as termed by U.K. retail parlance) located across Europe. This retailer's primary selling categories include women's and men's clothing, footwear, and accessories. This retailer's total assortment is comprised of 4,500 products and 20 million stock keeping unit (SKU) store combinations. In recent times, this retailer has expanded its retail floor space by 35%. The longest lifecycle for a product in New Look's inventory is six months. A majority of the products have a lifespan of four to eight weeks.

Until 2006, New Look was using a major legacy store replenishment and allocation system through a large enterprise retail solution provider that was fraught with allocation delays, one to two major inventory allocation inaccuracies per month due to lack of a common workflow, and stores were replenished three to five times with often too much merchandise or inventory. Too much stock created a gridlock in the stores in terms of above-the shelf storage and backroom storage, leading to unsold merchandise, high inventory costs, and lost merchandise due to shrink. According to Spencer Maynard, Head of Stock Optimization, VP-Allocation and Replenishment, "Our stores were too full of stock that they did not need on a day-to-day basis. We had a push to the store mentality which had to change towards a demand pull inventory and replenishment methodology."

All these business challenges prompted this retailer to select a Best-of-Breed replacement system that is also used by other retailers such as Guitar Center. This application is more user-intuitive, built with demand forecast driven allocation capabilities, and provides analytical reporting capabilities at every stage of the store inventory allocation and replenishment process. The objectives for the new application were to ensure optimum allocation of sizes and units of quantities for the low and high volume locations, automated threshold based replenishment, improved full-priced product sales, and overall improved profitability. New Look started the deployment by comparing sales uplift and stock reduction in two sets of stores. The first set of stores executed the sell one to get one replenishment and allocation method using the legacy system. The second set of stores adopted the demand forecast method via the new Best-of-Breed system. The company discovered in a few months that there was hard evidence in favor of deploying the new system. Post-deployment, this retailer found a six-month return on investment from the new system. Some of results are as follows:

continued

Case Study — New Look Attains Sales Uplift and Reduction in Inventory and Increased Inventory Turnover

- New Look has taken out 5% from stores and moved it back to warehouses and improved their gross profit margin by 4% year-over-year.
- The resultant comp sales improvement is to the tune of 2% year-over-year.
- The retailer is maintaining an across the board service level of 88%. At the distribution center the service level attainment is 98% or more.
- Current inventory turnover rate is between eight- and nine-times a year – compared to 6.5- to seven-times a year attainment with the legacy allocation and replenishment. This has resulted in increased working capital optimization and lower cost of goods sold.

“Besides all the inventory and store performance metrics, the demand forecast based system is a web-based system which has a three-screen workflow advantage compared to the 20 functional screens in the legacy system. We possess complete visibility into stock in the store and warehouses by location, size, color, store size, and other variables for improved store inventory allocation planning and execution. In the area of inventory accuracy, with the previous system, we used to encounter one to two major allocation errors due to system complexities on a monthly basis. Currently, such errors are reduced to next to nothing on an annual basis,” says Maynard.

Competitive Assessment

Aberdeen Group analyzed the aggregated metrics of surveyed companies to determine whether their performance ranked as Best-in-Class, Industry Average, or Laggard. In addition to having common performance levels, each class also shared characteristics in five key categories: (1) **process** (the approaches they take to execute their daily operations); (2) **organization** (corporate focus and collaboration among stakeholders); (3) **knowledge management** (contextualizing data and exposing it to key stakeholders); (4) **technology** (the selection of appropriate tools and effective deployment of those tools); and (5) **performance management** (the ability of the organization to measure its results to improve its business). These characteristics (identified in Table 3) serve as a guideline for best practices, and correlate directly with Best-in-Class performance across the key metrics that measure inventory performance.

Table 3: The Competitive Framework

	Best-in-Class	Average	Laggards
Process	Multi-enterprise and enterprise-wide visibility towards inventory quantities and availability:		
	75%	58%	52%
	Unit-level inventory thresholds for automated ordering and replenishment:		
	75%	52%	48%
	Optimum (four to eight weeks) safety stock requirements in line with store / channel demand:		
	70%	57%	41%
Organization	On-time replenishment collaboration as a key tenant of store-execution management:		
	55%	44%	41%
Knowledge	Updated computerized records for inventory planning at headquarters:		
	90%	65%	62%
	Store / channel-level inventory stock-out exceptions analysis and resolution:		
	75%	45%	33%
Technology	Technology tools / applications that support optimized inventory strategies in retail:		
	<ul style="list-style-type: none"> ▪ 90% Inventory forecasting system ▪ 65% Inventory order management system ▪ 60% Vendor Managed Inventory (VMI) ▪ 55% Inventory reporting and dashboard tools ▪ 45% Consumer-driven replenishment system ▪ 40% Collaborative planning forecasting replenishment system (CPFR) 	<ul style="list-style-type: none"> ▪ 60% Inventory forecasting system ▪ 48% Inventory order management system ▪ 33% Vendor Managed Inventory (VMI) ▪ 50% Inventory reporting and dashboard tools ▪ 25% Consumer-driven replenishment system ▪ 29% Collaborative planning forecasting replenishment system (CPFR) 	<ul style="list-style-type: none"> ▪ 45% Inventory forecasting system ▪ 45% Inventory order management system ▪ 31% Vendor Managed Inventory (VMI) ▪ 41% Inventory reporting and dashboard tools ▪ 24% Consumer-driven replenishment system ▪ 24% Collaborative planning forecasting replenishment system (CPFR)

	Best-in-Class	Average	Laggards
Performance	Store / channel daily inventory reports for performance tracking:		
	75%	55%	46%

Source: Aberdeen Group, May 2009

Capabilities and Enablers

Based on the findings of the competitive framework and interviews with end-users, Aberdeen’s analysis of the Best-in-Class demonstrates that leading retailers follow more comprehensive and practical approaches that enable customer-centric inventory management in retail stores / channel through a combination of:

- Store and warehouse-level inventory tracking and audit procedure compliance for inventory accuracy.
- Perpetual inventory procedures downstream – timely field-level inventory stock-out and over-stock updates. This enables retailers to manage inventory to the shelf requirements and ensure seamless customer service.
- Improvement of multi-store location and multi-warehouse inventory planning to ensure localized inventory for stores.

All of the above requirements, and many more shelf-level inventory capabilities and systems, are ingredients of the Best-in-Class mantra for continued success. The top Best-in-Class capabilities and system usage areas are described below.

Process

Retailers across sub-segments, such as grocery, specialty, apparel, and general merchandise, lack consistent process execution towards maintaining active, inactive, discontinued, and clearance merchandise in stores / channels. Some of the complexities are due to in-store inventory execution shortcomings (e.g., promotion pallet not set on the floor or planogram non-compliance). However, a bulk of the "on-hand inventory and on-shelf availability disconnect" is due to inadequate headquarter and warehouse processes. This inadequacy leads to in-store sales and margin imbalances on a daily basis.

Table 4: Key Process Capabilities

	Best-in-Class	Average	Laggard
Unit-level inventory thresholds	75%	52%	48%
Enterprise-wide visibility into SKU level availability	75%	58%	52%

“Our biggest challenge is dealing with the sheer volume of SKUs, especially the slow moving SKUs. We have to keep our young franchises cash flow positive by gearing purchases towards parts with the best coverage and the fastest ROI. We rely on our franchise network for this – if one franchise does not have a part in stock, they have visibility into the network to find the closest franchise with that part in stock. This real-time visibility ensures that the franchise can get the part the next day, which make the difference between a sale and a lost sale.”

~ John Thys, VP Franchise Reporting and Analytics, I-800-RADIATOR

	Best-in-Class	Average	Laggard
Optimum safety stock requirements	70%	67%	41%
Seasonal order cycle times for suppliers	60%	56%	48%

n = 116

Source: Aberdeen Group, May 2009

Aberdeen data indicates that Best-in-Class retailers are taking the leap in managing these shelf-level inventory processes by addressing three primary areas of focus:

- Unit-level item thresholds:** Best-in-Class retailers are 1.5-times more likely than all other retailers to establish SKU-level minimum and maximum quantity thresholds that assist in forecasting and automated replenishment. For instance, if a small-box drug store has less than average levels of days of inventory supply on a certain item that sells rapidly due to a demand shift or casual event, unit-level item thresholds ensure that warehouse teams and suppliers are alerted to comply with shorter lead time for timely in-store replenishment. This helps in controlling out-of-stock opportunity costs for the stores. The reverse is true in the case of two-thirds of retailers currently, where slow-moving items are not selling down to a particular level due to unfavorable demand factors. Item thresholds enable the retailer to prevent further influx of slow-moving items into the stores. This prevents an over-stock situation which applies downward pressure on operating profit. Daily updates on CAO-based shelf review data provides a retailer with the ability to assess item detail in a granular fashion to set appropriate thresholds.
- Multi-enterprise and enterprise-wide visibility towards SKU-level availability:** Visibility towards active in-store on-hand merchandise and inactive merchandise that has moved in the past seven days is imperative for creating cohesive stores, warehouses, and headquarters departments (supply chain, inventory, distribution, and store operations). Companies can achieve visibility by adopting browser-based inventory management systems that update quantities as close to real-time and generate summary emails or dashboards. Best-in-Class are 1.3-times as likely as all others to provide inventory visibility across a single channel or the entire multi-channel enterprise, including the extended supply chain comprising multiple suppliers. Multi-location and multi-channel web network-based inventory visibility leads to easier inventory data access at any given point in time within the organization. This facilitates service levels, less margin of error in setting-up localized inventory plans, job-role based inventory accountability, and store /

warehouse / headquarters / retail supply chain performance management.

- **Optimum safety stock requirements:** At a recent user event of a prominent vendor, at least three large retailers (1,000-plus stores) lamented their prime challenge is to reduce their safety stocks for slow moving items that are residing in multiple warehouses for the last three months or more. However, Best-in-Class companies are 1.2-times more likely than others to develop safety stock requirements or "shock absorbers" that are optimized to work for four to eight weeks of inventory supply. Currently, 40% of retailers are unable to optimize safety stock requirements to a four to eight week level. This can lead to an inventory clog which can be removed only if retailer's implement higher than the 10% to 20% standard markdown practice in terms of overall inventory. Such a situation impacts net profit margin directly and permeates a negative cost of goods sold scenario, irrespective of size and type of retailer. Among other factors, aggressive safety stock acquisition can be curtailed if retailers follow through on CAO-driven shelf reviews, service levels, enterprise visibility of inventory availability, and the adjustment of seasonal order cycle times of their suppliers in line with short-term demand forecasts and competitive trends.

Organization

Today's perpetual or non-perpetual inventory systems in retail have one common goal: the speed to shelf. In retail the customer does not wait nor does a sale at a register. Once within the four walls of a store, it is the retailer's mission not to let the customer leave without his or her desired purchase. This does highlight the growing importance of aligning on-time replenishment with store-execution management (SEM) principles in terms of the organizational structure. Best-in-Class retailers are 1.2-times more likely than all others to connect SEM processes with rapid shelf-level replenishment strategies. This means that Best-in-Class retailers are connecting the operational dots by creating an organizational structure to:

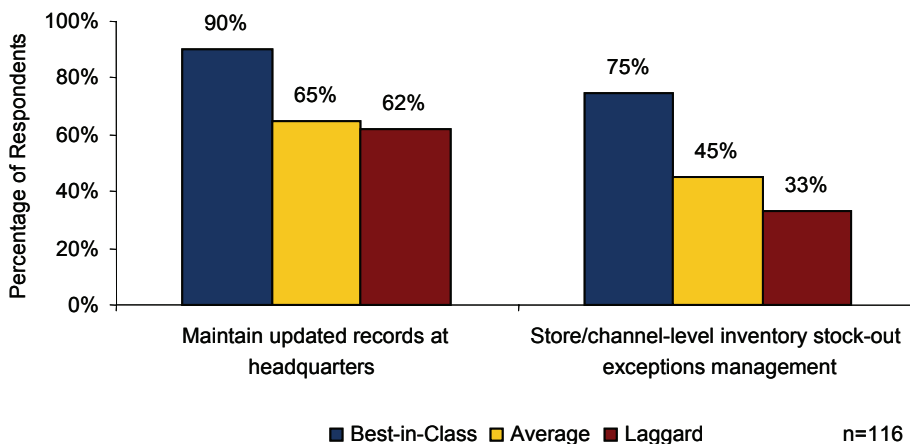
- Respond to rapid replenishment needs by planning direct-to-store inventory deliveries (DSD) based on specific inventory unit-level needs (e.g., high-volume versus low-volume locations), geographical location of store, and labor hours (e.g., freight break-down and shelf put-away during customer peak versus non-peak hours).
- Enable execution of store in-stock procedures such as cycle counts, handling out-of-stock exceptions of active and sale of inactive items, and low balance walks. These procedures ensure that store inventory is updated on a daily basis for rapid replenishment.
- Manage other in-store inventory accuracy tasks based on store labor management principles such as damaged goods, direct drop shipment from suppliers, returns to vendor, returns to warehouse, markdown and clearance merchandise stock procedures.

Knowledge Management

Figure 4 (below) shows that the first area where Best-in-Class retailers are outperforming Average and Laggard companies is on the treatment of store or channel-level stock-out exceptions. Best-in-Class are two-times more likely than all others to undertake the following stock-out exception management remedial measures at the store and headquarter-level:

- Using CAO applications for reporting on shelf-level review gaps such as identifying active items with no balance on hand and inactive items that have sold during a given period. Stores typically are required to research and resolve such inconsistencies.
- Identify stores that comply with shelf-level inventory procedures, such as cycle counts or returns, and stores that do not comply. District managers and regional managers require all stores in their district or region to comply on such exceptions per headquarter norms.
- Identify SKUs or items that come up on consecutive shelf reviews during a review period or even the same week. Such reports are priority for store managers and inventory associates to research and resolve.

Figure 4: Knowledge Management Capabilities



Source: Aberdeen Group, May 2009

Secondly, Best-in-Class companies are leading adopters of updated computerized inventory records for inventory threshold and safety stock planning, forecasting, and change management purposes. Best-in-Class inventory planning teams are 1.4-times more likely to develop a more holistic approach to store-level inventory plans based on access to computerized records related to open-to-buy, purchase order, price books, returns, consolidated physical inventory and supplier files. Besides aiding day-to-day decisions, these records can easily be integrated into business intelligence tools for advanced forecasting and demand trend analysis.

Technology

The technology landscape for inventory management-related solutions is characterized by enterprise solution providers and best-of-breed providers. Based on survey results from 120 retailers, currently enterprise solution providers that offer inventory modules dominate best-of-breed installations at a 2:1 ratio.

Table 5: Primary Enablers

	Best-in-Class	Average	Laggard
Inventory forecasting system	90%	60%	45%
Inventory order management system	65%	48%	45%
Inventory reporting and dashboard tools	55%	50%	41%
Consumer-driven replenishment (CDR)	45%	25%	24%

n=116

Source: Aberdeen Group, May 2009

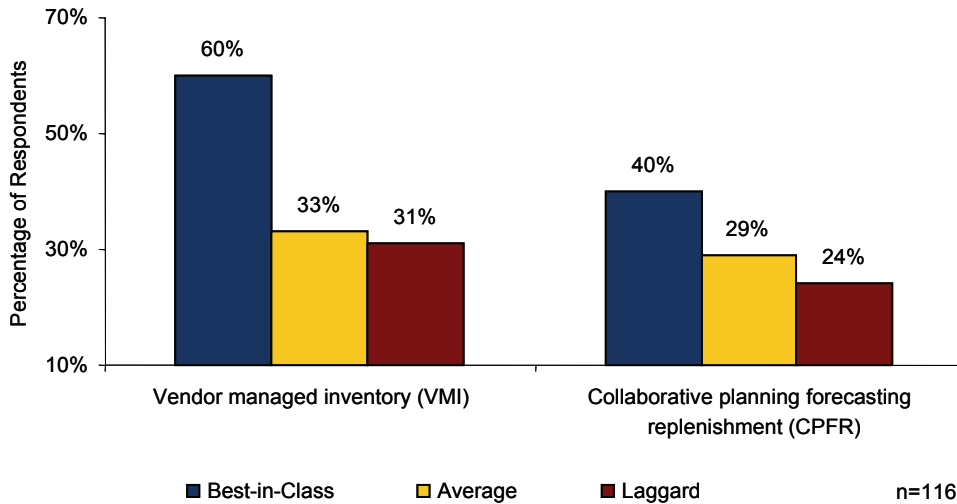
However, 56% of all deployments are legacy, and enterprise solution providers do lead the pack. Therefore, the improvements required in retail to overcome legacy drawbacks are as much in favor of best-of-breed providers. As the channel volumes and supply chain continue to expand, the integrated approach to shelf-level inventory planning, visibility, and customer fulfillment enables retail headquarters, store, multi-channel, and suppliers to view and manage orders by following a business rules-based rather than assumption-based inventory order management approach – a process rampant with the use of legacy, divisional ERP order and fulfillment processes.

The key Best-in-Class enablers mentioned in Table 6 are based on current usage and preference. The make-up of inventory solutions in retail needs to be looked at from two lenses. Firstly, there are systems that are primary to shelf-level inventory planning and execution. Inventory forecasting, order management systems, consumer-driven replenishment, and reporting tools are the primary systems / tools that are directly related to the core inventory functions such as forecasting, planning, demand-driven replenishment, inventory data analysis and reporting.

Secondly, associated collaborative approaches for shelf-level inventory optimization include vendor managed inventory (VMI) and collaborative planning forecasting replenishment system (CPFR). Both approaches are focused on unified inventory and multi-enterprise supply chain integration. CPFR and VMI have been adopted in the last decade or so and continue to see increased adoption amongst retailers since perpetual inventory costs had to be distributed and curtailed within a multi-tier, multi-location, and multi-enterprise retail supply chain environment. These approaches relate to close collaboration between retailers and their suppliers for developing

shared responsibility on inventory visibility and replenishment across product categories.

Figure 5: Secondary Enablers



Source: Aberdeen Group, May 2009

CPFR and VMI allow for retailers and suppliers to share critical inventory order and customer demand related information so that the overall cost burden on individual retail supply chains, logistics, distribution, warehouses, and stores is minimized. There are several top-tier retailers such as HEB, Kroger's, Staples, and Best Buy, as well as mid-tier retailers such as Winn Dixie and scores of others that have special relationships with their top 10 or 15 suppliers and follow either VMI or CPFR forecasting and replenishment strategies or a hybrid model comprising both approaches.

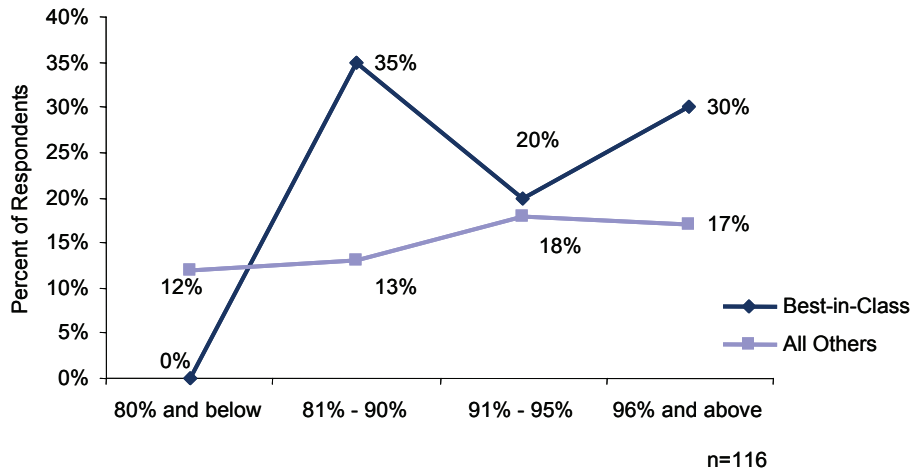
It is also important to note that like anything else in retail, nothing is permanent. Our qualitative data shows that VMI and CPFR approaches are currently impacted by the price and trade promotion wars between retailers and suppliers. One of the largest suppliers of ink to a large consumer electronics retailer recently delayed shipment of several thousand ink cartridges due to an acute dispute on lower pricing and higher trade promotions expectations of the retailer.

Performance Management

Leading retail enterprises apply varied approaches towards inventory performance management. While companies must focus on the inventory cost equation during down market conditions, the net tangible value is in the level of customer satisfaction related to inventory availability or service levels (percentage of customers that do not experience a stock-out) which turns into repeat business and lifelong customers. Our data shows that Best-in-Class retailers attained an average of 92% inventory-related customer service levels (year-over-year). Figure 5 shows that Best-in-Class are 1.7-times more likely than all other retailers to garner more than 96%

or higher service-levels that not only confirm near perfect shelf-level in-stock levels but also create the opportunity for long-term customer relationships and lifetime customer value.

Figure 6: Inventory Programs and Customer Success



Source: Aberdeen Group, May 2009

Aberdeen Insights - The Precarious Relationship Between Safety Stock and Service Levels

The lack of connectivity between safety stock visibility and service levels can cause havoc in terms of more than desired levels of excess stock within the retail enterprise. Our results show that while 56% of retailers indicate 80% or more service level attainment, that has not curbed the tendency of the buyers, merchandisers, and procurement teams to order additional quantities of safety stock. Higher than required levels of safety stock eventually become a nightmare to move around different stores and sell-through even as retailers continue to struggle with the high inventory holding costs.

Data indicates that retailers are continuing to order safety stock for slow moving items that on average possess 90% or more service levels. This causes the "inventory clog" effect that was referred to in previous sections. Aberdeen's recent conversation with a large general merchandise retailer revealed that the Vice President of Merchandising and Supply Chain's main grouse is that his team lacks the right level of alerts and visibility towards the need to balance service level attainment and safety stock requirements.

Chapter Three: Required Actions

Whether a company is trying to move its performance in Inventory Management from Laggard to Industry Average, or Industry Average to Best-in-Class, the following actions will help spur the necessary performance improvements:

Laggard Steps to Success

- **Implement direct drop shipments from suppliers.** Currently, only 48% of Laggard retailers, as compared to 75% of Best-in-Class retailers, have the ability to implement direct drop shipments from suppliers. As a retailer increases its physical inventory, the holding and supply chain infrastructure costs escalate. To alleviate these increased costs, Laggard retailers can identify their top ten suppliers and broker a conversation to leverage their on-shelf strength, brand strength, and sell-through rate to implement drop shipments. The use of direct drop shipments will reduce the total inventory cost by lowering inventory levels in the warehouse and supply chain, as well as eliminating middle-man operations.
- **Set unit-level inventory thresholds for automated ordering and replenishment.** Laggard retailers need to establish proper inventory levels to generate new orders through analysis of sell-through rates and demand. Proper analysis examines short term demand data rather than historical data. When the inventory level reaches the predetermined level, a new order needs to be generated. Companies can use CAO application data integration techniques to be seamless and trigger across the entire supply chain when a new shipment needs to be ordered. The manual process of checking inventory stock levels and replenishment schedules is a virtual impossibility. The pre-determined inventory levels eliminate this process and ensure a more agile and cost efficient supply chain. Currently, Best-in-Class companies are 1.5-times as likely as Laggard companies to effectively set these thresholds.
- **Ensure that optimum (four to eight weeks) safety stock requirements are in line with store / channel demand.** Our results show that only 41% of Laggard retailers possess this capability. Demand for products varies on a global, national, regional, local, and store level. To ensure a successful inventory management process, Laggard retailers need to establish set safety stock levels based on service-levels and short term demand data. Miscalculated safety-stock levels will have two costly implications: out-of-stock items and over-stock items. Out-of-stock items are costly from a lost sales perspective, while over-stock items are costly from increased inventory carrying costs and the resulting markdowns to reduce the stock level. Proper analysis of safety stock requirements will eliminate these two risks. Companies can

Fast Facts

- √ Seventy-Five percent (75%) of Best-in-Class retailers implement direct drop shipments from suppliers, compared to 48% of Laggard retailers.
- √ According to our data, only 45% of Average retailers have the ability to implement a strategy to manage store / channel-level inventory stock-out exceptions, compared to 75% of Best-in-Class retailers.

utilize real-time safety-stock and service-level alerts to balance the needs.

- **Consider using a SaaS model for inventory and supply chain management.** Currently, only 13% of Laggard retailers utilize SaaS applications for their inventory and supply chain management solutions. A SaaS model can reduce the internal IT costs needed to maintain the inventory management system, while providing greater access across the enterprise. A SaaS solution is not necessarily an inventory management quick fix for Laggard retailers, but these retailers should consider both delivery models as a solution to their inventory management problem.

Industry Average Steps to Success

- **Implement a strategy to manage store / channel-level inventory stock-out exceptions.** These active merchandise outs or inactive merchandise sales will vary from store to store and channel to channel. Our research shows that only 33% of Average retailers have implemented a stock-out exception strategy, as compared to 75% of Best-in-Class companies. Average companies can start with weekly shelf reviews. Identify stores that comply with shelf-level inventory procedures such as cycle counts or returns and stores that do not comply. District managers and regional managers must require for all stores in their district or region to comply on such exceptions per headquarter norms. SKUs or items that come up on consecutive shelf reviews as stock-out exceptions during a review period or even the same week must be reviewed immediately. Such reports must be a priority for store managers and inventory associates to research and resolve the same day.
- **Develop a collaborative planning forecasting system (CPFR).** This system, which only 29% of Average retailers have developed, enhances supply chain integration through the collaboration of suppliers and retailers. There is shared visibility into the supply chain and information is shared regarding customer demand. As demand is generated by the consumer, the supplier is able to deliver the necessary stock of items. This helps to streamline the supply chain, eliminating out-of-stock costs and reducing inventory carrying costs for the retailer.

Best-in-Class Steps to Success

- **Make on-time replenishment collaboration a key tenant of store-execution management.** A delay in replenishment can have disastrous results for a retailer. Our research shows that 45% of Best-in-Class retailers are not protected in these delays in replenishment. If a retailer is even a day or two late in discovering that replenishment is necessary, it can slow down the process by a week or more depending on supplier availability and shipping capabilities. Internal collaboration within a retail organization and between the retailer and supplier will help to ensure that proper

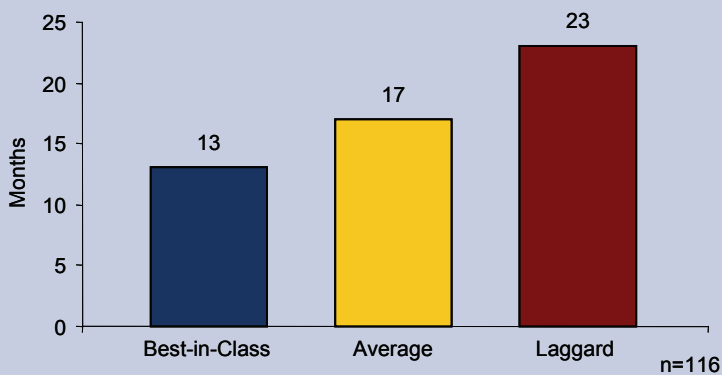
replenishment schedules are kept. As such, if agreed upon earlier as part of the collaborative effort, the supplier should have visibility into the inventory levels to generate a new order even if the retailer does not initiate the re-order due to a lapse in the process. At the same time, the retailer needs to ensure that proper inventory replenishment thresholds are established, adhered to, and shared with the supplier.

- **Analyze procurement, carrying, and out-of-stock costs in near real-time.** Consumer demand will change due to seasonal needs, economic turbulence, competitive pricing strategies, and other assorted reasons. Without proper analysis, inventory levels run the risk of significant over-stocks or under-stocks. Delays in reporting procurement costs, carrying costs, and out-of-stock costs will have a significant impact on inventory planning for the retailer, as inventory holding costs will not be accurate. Fifty-five percent (55%) of Best-in-Class retailers have not made the transition to real-time reporting on inventory costs. By moving to real-time or near-real-time reporting on inventory costs, retailers will have a better view into the supply chain and will be able to better prepare for fluctuations in consumer demand without overspending on inventory or cutting themselves short.

Aberdeen Insights — Keys to a Fast Return On Investment

According to 50% of Best-in-Class companies, the cost of deployment of an Inventory Management application is a top-of-mind deployment criterion. Part of the deployment cost analysis takes into consideration the time for a return on investment. Figure 8 (below) shows that Best-in-Class companies have seen an ROI on their most recent inventory technology implementation nearly 25% faster than Industry Average retailers and 50% faster than Laggard retailers.

Figure 7: Time to ROI on Inventory Technology Implementation



Source: Aberdeen Group, May 2009

continued

Aberdeen Insights — Keys to a Fast Return On Investment

One of the keys to success for Best-in-Class retailers has been an improved emphasis on collaboration between team members, stores, channels, and supplier networks. Other key improvements include moving to a cross-functional product team perpetual inventory management structure and an improved focus on inventory visibility and order processing. These improvements have helped to streamline the replenishment process from an inventory and cost standpoint. This newly agile supply chain has improved inventory accuracy and lowered the cost of ownership, which has resulted in a faster ROI than Average and Laggard retailers.

Case Study — Top Ten Grocery Chain

A large grocery retailer with operations in the United States and Mexico encountered the challenge of high commodity prices in 2008, which led to an increase in cost of operations. The increasing cost of operations trickled into 2009. One of the biggest drivers of cost for this retailer currently is inventory. The top business challenge facing this retailer is how to optimize inventory procurement for the stores and warehouses, while the top associated technology challenge is how to improve its inventory alignment with prevailing demand and retail inventory-supply chain integration. According to the company's Vice President of Distribution and Supply Chain Process Improvement, "Low velocity items are most expensive to handle. We are trying to cut down lead time and take advantage of inventory that is sitting within the four walls by increasing enterprise visibility."

The other associated issue is the lack of adequate inventory visibility and unified inventory order management. Like many other retailers, this chain struggled lately with warehouse and supply chain visibility for the dry grocery category. "We ordered more than our needs and packed up the warehouses. Our objective is to take out the latency factor and build a better safety stock by using store-level information to optimize safety stock in stores and warehouse", the executive said. "Taking out the latency factor takes cost out of the business. Our average days of inventory goals are to carry lower than 10 days of supply for the warehouse and 10 to 12 days of supply in the stores."

continued

Case Study — Top Ten Grocery Chain

From an inventory process and systems standpoint, this retailer uses a combination of home-grown and best-of-breed inventory forecasting, planning systems, and store / warehouse execution modules. This retailer uses a perpetual inventory system, a demand fulfillment system for forecasting and planning, besides a combination of transportation management and warehouse management systems to manage end-to-end inventory cycles from planning to delivery. In varied phases since 2004, this company introduced a multi-location perpetual inventory system in stores with limited computerized ordering capabilities permitted at the stores.

The stores teams have the ability to make promotion item changes and some product modifications at the store-level. All other SKUs are replenished automatically through a process of min / max item-level thresholds that allow for replenishment planning all the way to the suppliers. In terms of performance management, this retailer has the ability to calculate in-stock levels by store, region, company and lost sales opportunity costs when in-stock goes down to zero. The current improvements within the system functionalities includes the tools that allow the chain to calculate lost sales and reasons for out-of-stock opportunity cost due to store, warehouse, or supplier issues.

In order to address the rising inventory holding costs and sell-through, this retailer is currently considering additional demand classifications for improving short-term forecasting in order to develop shelf-level inventory accuracy, creating optimum levels of safety stock, and a more responsive inventory from point-of-sale (POS) to supplier. This chain has an effective track record of working closely with its suppliers to optimize inventory.

In the past, the retailer used vendor management inventory (VMI) strategies but recently applied collaborative planning forecasting replenishment (CPFR) techniques which are effective in adjusting order cycle times based on changes in demand for finished products. This retailer also believes that as-close-to-real-time POS data collaboration amongst cross-functional teams (internal and external), timely sharing of store-level replenishment reports, and overall inventory data / reporting integrity is the key to the inventory accuracy of the produce that is sold in stores and stored in warehouses.

“We are looking to improve inventory and supply chain alignment with POS connectivity. Our long-term objective is to share store location shelf-level data all the way back to warehouse and supplier. It would help us significantly to hold 20% less inventory in our warehouses and maintain the 55-45 mix for dry produce (55% in stores and 45% in warehouses).”

Appendix A: Research Methodology

Between April and May 2009, Aberdeen examined the use, the experiences, and the intentions of more than 120 enterprises using Inventory Management applications in a diverse set of retail enterprises. Inventory Management in retail can be defined as the continued cycle of organizing and managing a list of finished goods. The inventory process comprises of timely replenishment and distribution of finished goods for sales in retail channels based on seasonal and non-seasonal demand.

Aberdeen supplemented this online survey effort with telephone interviews with select survey respondents, gathering additional information on Inventory Management strategies, experiences, and results.

Responding enterprises included the following:

- *Job function:* The research sample included respondents with the following job functions: procurement, supply chain, or logistics (46%); IT (17%); operations (13%); business development and management (13%).
- *Job title:* The research sample included respondents with the following job titles: director (23%); consultant (22%); Manager (15%); EVP / SVP / VP (13%); Senior Management (10%).
- *Industry:* The research sample included respondents exclusively from retail industries. Supermarket / grocery was the largest segment with 14% of the sample. Other segments included specialty store (11%); consumer products (10%); general merchandise and warehouse (8%); electronics (8%); apparel and footwear (6%).
- *Geography:* The majority of respondents (60%) were from North America. Remaining respondents were from the Asia-Pacific region (17%), Europe (14%), and Middle East / Africa (9%).
- *Company size:* Forty-five percent (45%) of respondents were from large enterprises (annual revenues above US \$1 billion); 35% were from midsize enterprises (annual revenues between \$50 million and \$1 billion); and 20% of respondents were from small businesses (annual revenues of \$50 million or less).
- *Headcount:* Sixteen percent (16%) of respondents were from small enterprises (headcount between 1 and 99 employees); 23% were from midsize enterprises (headcount between 100 and 999 employees); and 61% of respondents were from small businesses (headcount greater than 1,000 employees).

Solution providers recognized as sponsors were solicited after the fact and had no substantive influence on the direction of this report. Their sponsorship has made it possible for Aberdeen Group to make these findings available to readers at no charge.

Study Focus

Responding retail executives completed an online survey that included questions designed to determine the following:

- √ The degree to which Inventory Management is deployed in their retail operations and the financial implications of the technology
- √ The structure and effectiveness of existing Inventory Management implementations
- √ Current and planned use of Inventory Management to aid operational and promotional activities
- √ The benefits, if any, that have been derived from Inventory Management initiatives

The study aimed to identify emerging best practices for Inventory Management usage in retail, and to provide a framework by which readers could assess their own management capabilities.

Table 6: The PACE Framework Key

Overview
<p>Aberdeen applies a methodology to benchmark research that evaluates the business pressures, actions, capabilities, and enablers (PACE) that indicate corporate behavior in specific business processes. These terms are defined as follows:</p> <p>Pressures — external forces that impact an organization’s market position, competitiveness, or business operations (e.g., economic, political and regulatory, technology, changing customer preferences, competitive)</p> <p>Actions — the strategic approaches that an organization takes in response to industry pressures (e.g., align the corporate business model to leverage industry opportunities, such as product / service strategy, target markets, financial strategy, go-to-market, and sales strategy)</p> <p>Capabilities — the business process competencies required to execute corporate strategy (e.g., skilled people, brand, market positioning, viable products / services, ecosystem partners, financing)</p> <p>Enablers — the key functionality of technology solutions required to support the organization’s enabling business practices (e.g., development platform, applications, network connectivity, user interface, training and support, partner interfaces, data cleansing, and management)</p>

Source: Aberdeen Group, May 2009

Table 7: The Competitive Framework Key

Overview	
<p>The Aberdeen Competitive Framework defines enterprises as falling into one of the following three levels of practices and performance:</p> <p>Best-in-Class (20%) — Practices that are the best currently being employed and are significantly superior to the Industry Average, and result in the top industry performance.</p> <p>Industry Average (50%) — Practices that represent the average or norm, and result in average industry performance.</p> <p>Laggards (30%) — Practices that are significantly behind the average of the industry, and result in below average performance.</p>	<p>In the following categories:</p> <p>Process — What is the scope of process standardization? What is the efficiency and effectiveness of this process?</p> <p>Organization — How is your company currently organized to manage and optimize this particular process?</p> <p>Knowledge — What visibility do you have into key data and intelligence required to manage this process?</p> <p>Technology — What level of automation have you used to support this process? How is this automation integrated and aligned?</p> <p>Performance — What do you measure? How frequently? What’s your actual performance?</p>

Source: Aberdeen Group, May 2009

Table 8: The Relationship Between PACE and the Competitive Framework

PACE and the Competitive Framework – How They Interact
<p>Aberdeen research indicates that companies that identify the most influential pressures and take the most transformational and effective actions are most likely to achieve superior performance. The level of competitive performance that a company achieves is strongly determined by the PACE choices that they make and how well they execute those decisions.</p>

Source: Aberdeen Group, May 2009

Appendix B: Related Aberdeen Research

Related Aberdeen research that forms a companion or reference to this report includes:

- [*Cutting Edge Customer Loyalty: Retail Best Practices for Acquiring, Retaining, and Re-engaging Customers*](#); March 2009
- [*Retail On-Demand: Software-as-a-Service Takes Off*](#); January 2009
- [*New Age Multi-Channel Retailing: Prospects for Digital Retail Revolution and Avenues for Better Integration*](#); January 2009
- [*State of the Retail Market*](#); December 2008
- [*Business Intelligence in Retail*](#); November 2008
- [*Precision Merchandising*](#); November 2008
- [*Mobile Payments in Retail*](#); October 2008
- [*The Mantra for Driving Holiday Sales*](#); August 2008
- [*Responsive Trade Promotion*](#); July 2008
- [*Responsive Customer Loyalty*](#); June 2008
- [*Technology Strategies for Multi-Channel Retailing*](#); April 2008
- [*Customer-Centric Point-of-Service*](#); February 2008

Information on these and any other Aberdeen publications can be found at www.aberdeen.com.

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