

Boost Margins With Merchandise Optimization

FORRESTER®



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With new merchandise optimization technology, retailers will be able to integrate and automate planning, allocation, and pricing processes, resulting in higher gross margins and more efficient operations.

2 MARKET OVERVIEW

- Today's merchandising technology fails to deliver.
- The alternative -- merchant intuition -- isn't so hot either.

4 ANALYSIS

- New optimization technology gives merchandisers better data and tools to do their jobs.
- Retailer risk tolerance and inventory characteristics will determine adoption of automation or optimization software.

8 WHAT IT MEANS

- Optimization causes job loss.
- Online merchandisers get some respect.

9 RELATED MATERIAL

- Online spreadsheet detailing the merchandise optimization vendors.

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MARKET OVERVIEW

CURRENT MERCHANDISING TECHNOLOGY FALLS SHORT

Merchandise, or cost of goods sold, is the single biggest expense line on most retailers' income statements, yet the technology to support merchandise planning, allocation, and revenue optimization takes a back seat to newer technologies like CRM.¹ For example, Gap, which has been struggling for more than two years with merchandise management, just this year implemented merchandising technology.² Why is such a key technology so neglected? Merchandisers we interviewed say they struggle with:

- **Hard-to-use and incomplete systems.** Desperate for “anything better than Excel,” retailers built homegrown systems or adopted vendor point solutions that helped automate planning or markdown schedules (see Figure 1). But they found that the systems were either hard to use or only solved one piece of the merchandising continuum: JDA Software Group, the market leader, offers a financial planning product (Arthur), an assortment planning tool (Intactix), and a replenishment tool (E3) -- but has not yet integrated them. And because end users tend to be seasoned merchants who are set in their ways or entry-level buyers with high turnover, training for complex software turns out to be a nightmare.

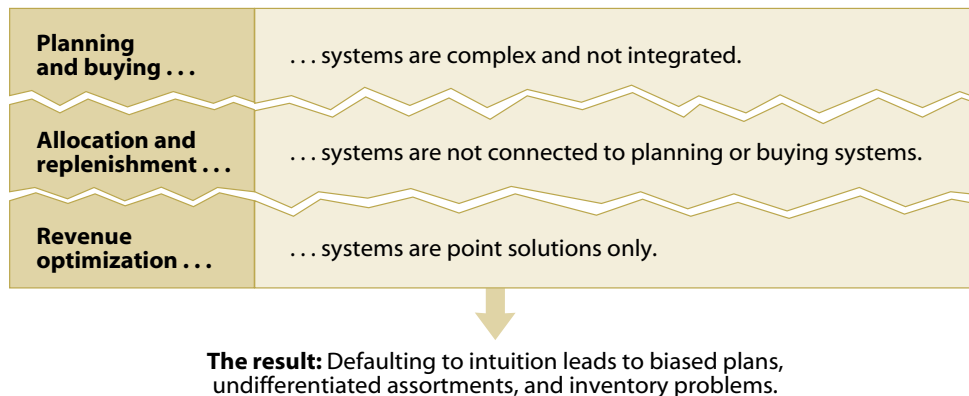
“Mainstream allocation systems don't have much sophistication, and they required too much work for the planners -- so we ended up building a homegrown system.”

- **Massive amounts of -- and frequently inaccurate -- data.** These systems -- Excel, homegrown, or point solutions -- all require retailers to extract and analyze mountains of POS data. But because most retailers get POS data feeds daily or weekly, there's no time for data cleansing that could determine, for example, that “0” sales registered for a product really means that the item was out of stock. Still, retailers use this POS data to make decisions: In a recent survey of specialty retailers, 77% said they rely on data to make planning and allocation decisions (see the June 2002 Forrester Report “Data Strategies For Specialty Retailers”).³

“Merchants do look at data, but the sheer volume makes accuracy difficult. We try to break down data by product category but often can't because the data isn't accurately captured at the point of sale or items have been miscategorized.”

Merchant Intuition Isn't That Much Better

Without good tools, many retailers turn to what they know best -- intuition and experience -- to make merchandising decisions. But in the past 10 years, trend-driven consumers and rapid store expansion have made this practice difficult to rely on:

Figure 1 Merchandising Processes And Technologies Are Out Of Sync

Source: Forrester Research, Inc.

As stores get bigger, it's nearly impossible for centralized buyers to be familiar with sales and consumer trends for every superstore.⁴ When retailers fall back on intuition to make merchandising decisions in this environment, they end up with:

- **Biased merchandise plans.** An ideal merchandise plan has input from both financial planners that dictate overall company sales goals and from buyers that forecast likely product sales. But because financial planners are tied to Wall Street expectations like earnings per share, and buyers only plan for key items, the more detailed financial plan almost always wins out. One apparel planner explained this unequal consideration of plans: "We reconcile forecasts with buyers, but they're never going to ask for more budget, even if their forecast calls for it, because their compensation is based on them keeping costs and budgets low."
- **Cookie-cutter store assortments.** Retailers admit that without detailed item-level shopping data, they cluster stores along generic criteria like climate for apparel or sales volume for general goods. One interviewee illustrated the problem of basic store clusters: The retailer missed out on sales by pulling merchandise off of the racks of all stores around the country at the same time -- even though the items were still selling in some of the stores in a particular region. Without analytics tools, the merchants could not optimize regional assortments.
- **Costly excess inventory or stock-outs.** Factors like unpredictable weather, a rocky economy, and fierce competition make it increasingly difficult for even the most seasoned buyers to make bets on which products will fly off of the shelves. Department stores feel the pain of inventory overstocks most acutely -- markdowns skyrocketed from 8% of store sales in the '70s to 33% in the late '90s.⁵

ANALYSIS

MERCHANDISE OPTIMIZATION BLENDS ART AND SCIENCE

Neither humans nor technology alone can deliver on the goals of merchandise planning and allocation: gross margin improvements, better service levels and inventory turns, and easier, faster decision-making. While most merchants are willing to learn new systems to improve business results, their tools -- until recently -- fell short. This is changing, as old merchandise planning and allocation tools are giving way to a new class of tools called merchandise optimization software, which we define as:

Systems that run advanced algorithms to interpret data and operate on an integrated platform to produce better merchandising decisions.

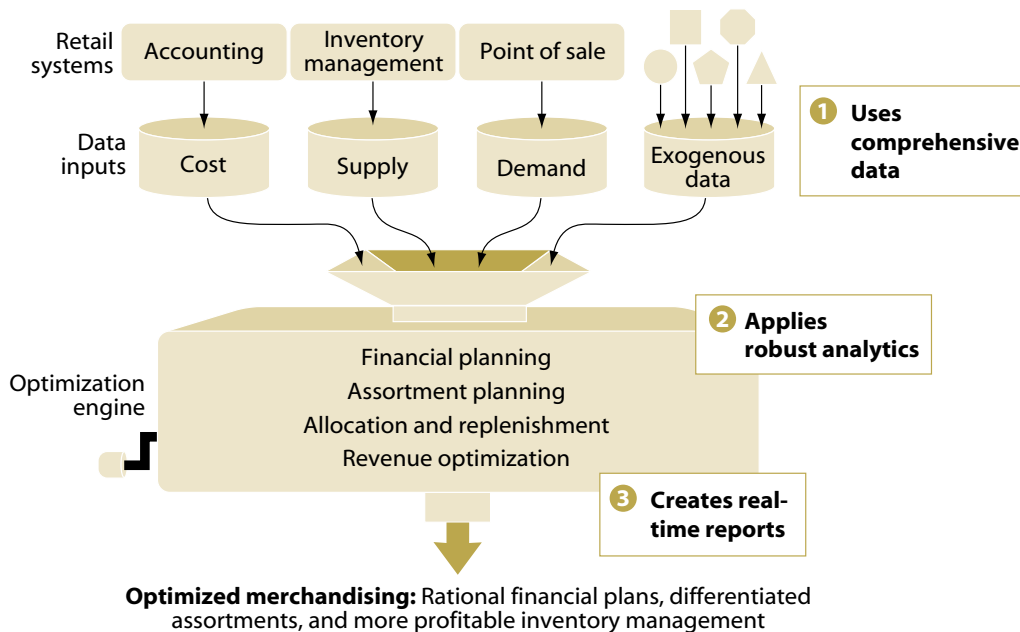
At least 10 vendors are starting to deliver these systems, which:

- **Use comprehensive data.** Whether it's just basic sell-through demand data from POS systems or multiple inputs like supplier data, weather, or competitive pricing, optimization tools run analysis for all key merchandising decisions off of the same set of data (see Figure 2 and see the April 2002 Forrester Report "Getting The Retail Technology Advantage").⁶
- **Apply robust predictive analytics.** Analytical engines do the work that humans can't -- crunch billions of data points within minutes. By applying advanced statistical algorithms, these engines can interpret historical data to get an accurate picture of products sold and the conditions under which they were sold. And the engines can predict likely future outcomes -- like a product's expected sales lift if it is featured on an aisle end-cap.
- **Create real-time reports.** After merchants set initial plans, optimization engines analyze weekly or daily sell-through data to produce real-time reports that recommend forecast adjustments. Access to those reports enables buyers and planners to dynamically fine-tune pricing and assortments in season, and to provide updated sell-through data to suppliers with which they have vendor-managed inventory relationships.

Merchandising Optimization Offers Three Key Benefits

By integrating and automating planning and allocation, these tools allow merchandisers to make more efficient and precise decisions, resulting in:

- **More rational financial plans.** One system that combines top-down financial planning with a bottom-up sales forecast eliminates the typical mismatch between

Figure 2 The Mechanics And Benefits Of Optimization Systems

Source: Forrester Research, Inc.

corporate expectations and buyer sales estimates. Benefits are twofold: A plan built from a store-SKU level automatically creates store-level assortment plans, and buyers have realistic open-to-buy plans that top-down financial plans alone could not produce. By using Nonstop Solutions' demand forecasting tool, The Bombay Company was able to marry a more accurate bottom-up plan with its financial plan, and end up with \$14.5 million less inventory in 2001 than in the prior year while growing sales almost 4% during a very difficult retail year.

- **More precise allocation and replenishment.** Detailed analysis of demand-level data enables retailers to get beyond category analysis to shopping basket analysis. This level of granularity unearths individual store customer preferences that feed assortment and replenishment plans to decrease stock-outs, improve inventory turns, and fuel smarter store clustering. By accurately forecasting and implementing automatic replenishment cycles, Retek's Advanced Replenishment and Allocation system was able to reduce costly safety stock by 30% for one retailer.
- **More profitable revenue management.** Instead of just using space as a constraint to make decisions about what goes on a shelf and how to price those items, optimization engines model the profitability of decisions by analyzing how consumers react to displayed products and prices. A major grocery chain is currently piloting

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optimization software from Mercari Technologies to determine how much space to allocate to items like Pillsbury dough. The result? Reduced stock-outs and improved shelf productivity: Mercari's grocery customers have seen an average 4% to 6% sales lift and a 10% to 15% GMROI increase.

RETAILERS: START NOW BY EITHER AUTOMATING OR OPTIMIZING

Pressures from retailers like J.C. Penney and Office Depot that already see ROI from optimization systems, and benefits like a significant increase in gross margins indicate that it's not a question of if retailers should adopt merchandise optimization, but a question of when organizations will be ready for it. Retailers need to take two steps to capitalize on new technologies that will improve their merchandising results.

Step One: Pick A Path Based On Risk Tolerance


Not every retailer has the appetite for the newest thing, but they all do need to graduate from Excel and homegrown tools to stay competitive. Based on the company's technology risk profile -- a measure of how willing the company is to adopt new technologies -- retailers will choose one of two paths (see Figure 3):⁷

- **Low-risk automation.** Not all merchandising software optimizes decisions, but plenty of vendors' tools automate decisions through exception-based management that helps merchandisers use their time more efficiently.⁸ This is a step toward optimization -- and one worth taking. With a common platform for all merchandising processes, Marketmax has the most comprehensive solution; JDA has the most product breadth, although its products are not yet integrated.
- **Higher-risk optimization.** In addition to providing the automation tools, vendors are talking about optimizing -- and starting to actually do it for more than one discrete merchandising process. But because the analytics needed to run optimization engines take years to develop, the practice is still emerging. All vendors are working on adding optimization to existing products because of its early promising results, but currently only two are close to offering complete solutions: Retek has the most developed products today, and ProfitLogic follows closely with its newly launched planning and assortment product releases.

Step Two: Assess Inventory Characteristics To Choose A Vendor

Because no retail organization can absorb a complete overhaul of all merchandising processes at the same time, retailers will choose to begin with the automation or optimization technology that addresses the merchandising process in the most dire straits. This will vary dramatically based on the life cycle of products offered:

Figure 3 Think “Good, Better, Best” To Optimize Merchandising

 A spreadsheet detailing vendor offerings is available by clicking the online “Get Data” button above this figure.

Good		Better		Best	
What	Basic tools	What	Automation tools	What	Optimization tools
Who	All retailers	Who	Risk-averse retailers	Who	Risk-tolerant retailers
What it does	Basic calculations	What it does	<ul style="list-style-type: none"> • Exception-based reporting • Centralization of data 	What it does	<ul style="list-style-type: none"> • Predictive forecasting • Integrated planning
Leading vendors	Microsoft (Excel), homegrown solutions	Short life cycle goods	<ul style="list-style-type: none"> • Store clustering by volume • Key item planning • Item listing and delisting • Planogramming • Workflow 	Short life cycle goods	<ul style="list-style-type: none"> • Store-level demand forecast • Promotion planning • Attribute-level analysis • In-season read/react forecasting
		Long life cycle goods	<ul style="list-style-type: none"> • Key item planning • Assortment • In and out timing • Planogramming • Workflow 		Long life cycle goods
		Leading vendors	JDA, Marketmax, SVI Solutions	Leading vendors	

Source: Forrester Research, Inc.

- **Short life cycle retailers should focus on planning.** For fashion and seasonal goods retailers like Ann Taylor and Toys“R”Us, a solid financial plan is crucial to sales success -- especially for merchants that have to commit to a single, high-risk, preseason buy. Forecasting demand for new products based on detailed attribute-level product analysis from Spotlight Solutions will help Target’s merchandisers focus on what swimwear will be hot this season, not how many will sell in the Evanston, Ill. store. For retailers with shorter lead times, a system like 4R that can read in-season sales data and create new forecasts will help retailers get the right inventory onto shelves to avoid excessive markdowns or stock-outs.
- **Long life cycle retailers should start with space optimization.** The relative predictability of replenishing goods to stores means that grocery and general merchants like Safeway and Osco Drug face harder revenue management decisions -- space,

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pricing, and promotion -- once items hit the shelves. Systems from Mercari and i2 that address competitive factors, consumer preferences, and margin and volume tradeoffs to determine optimal displays and prices will help retailers maximize margins on shelf space and create more precise store clusters (see the December 2001 Forrester Report “Retail Revenue Management”).⁹

WHAT IT MEANS



Optimization eliminates old jobs -- but creates new ones.

Along with increased margins and sales, optimization and even automation technologies bring efficiency to retail, enabling fewer people to do more work faster. After implementing E3 replenishment and integrating the pieces with its homegrown technology, West Marine overhauled its merchandising team: The retailer consolidated financial planners, replenishment planners, and category buyers, cut its merchandising staff by 50%, and hired more technologists.



Vendor shakeout? No biggie.

Considering that half of the leading merchandise optimization vendors are startups, expect the inevitable shakeout. But because a scalable analytical engine takes a team of Ph.D.s years to build, other players will snatch up and revive optimization assets when a vendor goes under. Look for a revival in the M&A business as vendors like Retek and i2 get cozy with point solution vendors like KhiMetrics and Spotlight.



The Web finally gets attention from merchandising VPs.

As retailers digest offline merchandising technology, they'll stop overlooking the online channel's role in optimizing overall merchandising. VPs of merchandising will hire online merchants who already use clickstream analysis data to make closer-to-real-time product assortment, pricing, and placement decisions; planners and buyers will use the Web to gauge demand for new products and for price testing; and store managers will ask online merchandisers to help liquidate products through a bargain section on the site or via eBay.

RELATED MATERIAL

Online Resource

The underlying spreadsheet detailing the vendor landscape in Figure 3 is available by clicking the online “Get Data” button above the figure.

Methodology

To understand retailer use of technology for merchandise planning, allocation, and revenue optimization, we conducted in-depth interviews with planning and merchandising executives at 10 retailers, as well as the 14 technology vendors listed below.

Companies Interviewed For This Report

4R Systems
www.4rsystems.com

ANT USA
www.antusa.com

The Association for Merchandise
Planning & Allocation
www.rs-s.com/ampa/ampahome.htm

DemandTec
www.demandtec.com

JDA Software Group
www.jda.com

Kurt Salmon Associates
www.kurtsalmon.com

Marketmax
www.marketmax.com

Mercari Technologies
www.mercaritech.com

Nonstop Solutions
www.nonstop.com

Planalytics
www.planalytics.com

ProfitLogic
www.profitlogic.com

Retek
www.retek.com

Spotlight Solutions
www.spotlightsolutions.com

SVI Solutions
www.svisolutions.com

Related Research

April 2002 Forrester Report “Getting The Retail Technology Advantage”

March 2002 Forrester Report “Balancing Supply And Demand”

March 2002 Forrester Report “Benchmark North America: Business Technographics®
Data Overview”

December 2001 Forrester Report “Retail Revenue Management”

GRAPEVINE

Bluefly's got post-sale branding in the bag.

We were floored by delivery of an online apparel order. For \$5.95 standard shipping, a Bluefly order placed on a Sunday afternoon arrived via USPS on Wednesday. The box read: "Sealed with style for fashion freshness" and contained a bright blue Bluefly shopping bag. The item was protected in plastic, wrapped in tissue, and came with a hanger. Bluefly knows that post-sale details keep customers happy and, as with branded shopping bags that many women reuse, can even act as walking advertisements.

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Casual Corner brings retail lingo to the masses.

Since the word "sale" in email subject headers barely passes through spam filters these days, retailers are trying new jargon to entice customers: Casual Corner emailed its customers with the subject line "Markdowns Just Taken -- Don't Delay!" We think it's a good tactic: Consumers are sick of merchants -- some legitimate and some not -- flooding their inboxes with "sale" and "free offer" emails; this exposes consumers to retail-speak and the urgency of markdown schedules. As long as the next email doesn't say "10% markdowns taken on b stock," we think Casual Corner is on to something.

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How 'bout some cucumbers and sour data?

On a trip to a recently renovated grocery store, we got yet another first-hand look at how data gets dirty. The clerk was rushing to scan our items when the word "jicamas" popped up on the screen. Well, we have never purchased jicamas, and since the real items -- cucumbers -- cost much less than jicamas, we asked the clerk to correct the keycode entry error. She said, "I'm sorry, I'll just deduct it and the item is yours, free." We were appreciative, but we realized that this "jicama hiccup" had just cost the retailer the \$1.49 worth of cukes -- and the knowledge that we actually bought them.

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Message for Hoffman Estates: Quality is Job 1.

After we published our kudos on the Sears acquisition of Lands' End, we were surprised by a steady stream of emails and commentary from worried customers -- Lands' End customers, that is (see the May 14, 2002 Forrester Brief "Sears + Lands' End = Multichannel Success").¹⁰ Seems there are plenty of loyal customers who are jumping to the conclusion that Lands' End quality is going to suffer. We agree that to make this work, Sears must not meddle with Lands' End's merchandising executives. If they do, rival L.L. Bean stands ready, willing, and able to snap up those high-end customers.

E N D N O T E S

- 1 Forrester's Business Technographics March 2002 North America Benchmark Study found that 41% of retailers are piloting or rolling out CRM projects.
- 2 According to Gap's 2001 annual report, the retailer attributed 4.5 of the 4.9 percentage points in merchandise margin loss in 2001 to a great percentage of items sold at markdown. Gap selected Retek's Planning Solution in May 2001, and is just now rolling out more elements like markdown management.
- 3 We found that specialty retailers are more likely to use data to make merchandising decisions than for customer behavior analysis or strategy decisions, but that the data they rely on is not always accurate or easy to access.
- 4 At the end of 2001, Target had 1,053 stores and a total of 125 million square feet. The average Target store is 118,000 square feet.
- 5 Source: Marshall L. Fisher, Ananth Raman, and Anna Sheen McClelland, "Rocket Science Retailing Is Almost Here -- Are You Ready?", Harvard Business Review, July-August 2000.
- 6 We define overall retail optimization as the process of using specific data from the enterprise to drive better retail decision-making.
- 7 Forrester's Business Technographics methodology segments businesses along three axes: Business/IT coordination, technology risk tolerance, and executive commitment to eBusiness. Retailers that fall into the conservative segments of "followers" and "stragglers" should hold off from experimenting with optimization software and stick with safer automation tools.
- 8 Exception-based management frees users of having to manually approve every decision by alerting users when predefined product parameters are not met -- like the stock level of an item falling below a certain amount or sales trending too far above or below forecast. By studying how long functions like replenishment processing take before and after system implementation, Retek estimates that retailers experience a 40% to 63% increase in productivity with its Advanced Replenishment and Allocation application.
- 9 Retail revenue management blends customer demand forecasts and retailer business rules to optimize margins and grow revenue.
- 10 The buyout of Lands' End by Sears should be a win-win situation: Lands' End gets into 870 stores by holiday 2002, and Sears gets a major private-label brand and a world-class direct sales operation.

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