



SAS® SIZE OPTIMIZATION

Combining SAS® Size Profiling and SAS® Pack Optimization to improve store-level sales, increase margins and lower operating costs.

What does SAS® Size Optimization do?

SAS Size Optimization uses powerful analytics to transform historical sales data into size-demand intelligence. The solution predicts future sales and inventory needs by size, and determines case-pack supply to optimally meet this demand. When integrated with existing merchant systems, it enables the application of this intelligence to purchasing and allocation workflows. The result is optimal case-pack orders and allocations that meet each store's needs. This includes details such as when to ship inner packs, the number of case packs required for inner pack shipments and case-pack mix by delivery.

Why is it important?

SAS® Size Optimization helps retailers improve profitability by identifying and supplying the right sizes to the right stores at the right time. The solution systematizes this level of planning and execution by matching packs to size-level demand for each store. The result is higher store-level margins, lower operating costs, fewer stock-outs and reduced end-of-season markdowns.

Who is it designed for?

The solution is designed for any retailer that sells sized merchandise or stocks assorted products distributed together. Similarly, any organization that ships assorted merchandise to multiple locations could find the solution useful in optimizing shipment profiles.



**THE
POWER
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Overview

Retailers deliver or perish by how they manage the details of the business. For apparel and footwear retailers, excelling at fulfilling size-level demand has been the final frontier.

For years the approach of most large retail chains was to determine an “average” size profile and apply it to all stores. Limited automation and massive amounts of data precluded alternative approaches. Since there are few “average” stores this typically resulted in early-season stock-outs and excessive end-of-season markdowns for the same merchandise in different stores — not a viable strategy in today’s hypercompetitive retail world with ever more demanding customers.

Supply chain efficiency initiatives in the 1990s, which replaced “piece-pick” activity with the distribution of full cases of products packed by vendors according to pre-determined size runs (called case packs), exacerbated the problem by further reducing the flexibility to accurately fulfill size-level demand.

In the 21st century retailers are turning to more automated planning solutions with powerful analytics to accurately project each store’s future sales and inventory needs by size and economically match pack-level supply to optimally meet this demand.

SAS offers the industry’s most sophisticated size and case-pack planning solutions, delivering higher profits and fewer losses that result from stock-outs, markdowns and general supply chain inefficiencies.

SAS® Size Optimization helps retailers succeed by first determining size demand and then incorporating it into efficient case-pack, case-ordering and allocation recommendations. By integrating with merchant planning, purchasing and allocation systems, it seamlessly takes the retailer to size-level execution. SAS Size Optimization consists of two primary software applications: SAS® Size Profiling and SAS® Pack Optimization.

SAS® Size Profiling provides an interactive but automated capability that generates accurate size profiles for each store. The impressive granularity of these profiles, made possible through the advanced analytics of SAS, enables the creation of size distributions for any desired set of merchandise. Both pre-season and in-season profiling is systematized through an intuitive user interface and a highly automated workflow.

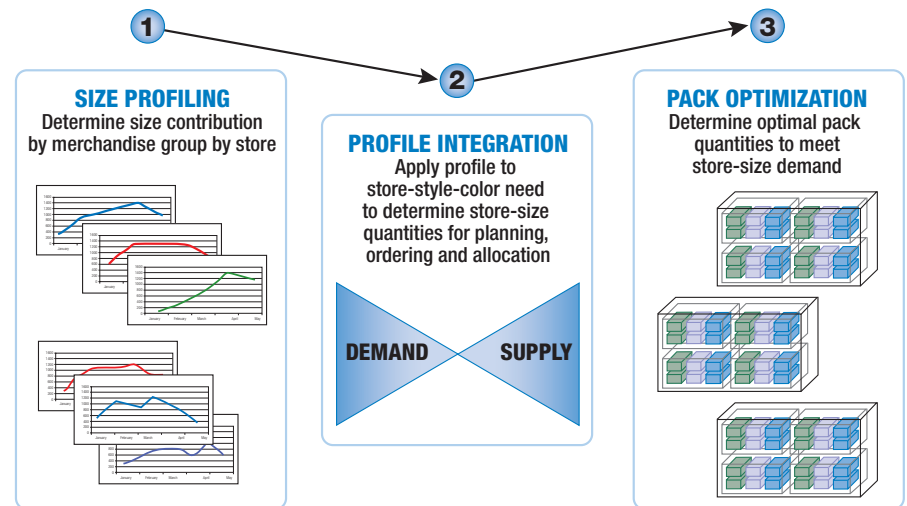
SAS® Pack Optimization determines the optimal quantities of each case-pack configuration needed to best meet size-level demand forecasts. Specifically, SAS Pack Optimization recommends the profit-maximizing combination of available case packs to purchase or allocate, taking both inventory mismatch and handling costs into consideration.

The combined power of these two integrated applications — SAS® Size Profiling and SAS® Pack Optimization — gives retailers solid answers to the perennial question of how to order and allocate merchandise in the right sizes for every store.

Key Benefits

- **Improve sales.** SAS® Size Optimization assists retailers by more accurately identifying both size-level demand by location and determining pack-level quantities required to meet that need. As a result, there are fewer stock-outs across the stores and higher overall sales without increasing inventory risk.
- **Increase margins.** SAS® Size Optimization increases full-price early-season sales by better matching size profiles to forecasted demand. SAS Size Optimization also reduces the need for markdowns by reducing “stranded” inventory at store level. The result is higher profit margins. Determining just the right number of each pre-pack configuration needed also allows retailers to control product procurement costs.
- **Decrease operating costs.** Determining just the right number of each available pre-pack configuration needed to economically meet demand helps maintain reasonable distribution costs. Retailers using this solution also reduce the need for costly break-pack and piece-pick activities within their distribution networks by raising the percentage of product supplied in multi-item pre-packs. Ultimately, this provides an opportunity to reduce labor requirements and improve distribution center throughput.
- **Improve planning team efficiencies.** Retailers today are always looking for ways to streamline their teams and increase throughput and effectiveness while constantly fighting competitive pressures that drive down margins. SAS® Size Optimization utilizes numerous automated processes and procedures to improve the efficiencies of planning teams, allowing them to play a more strategic role in the organization.

SAS® Size Optimization



Solution Details

SAS® Size Optimization

Matching Store-Level Supply to Size-Level Demand

SAS® Size Optimization determines size-level demand at each store for any set of merchandise. This information is systematically employed in purchasing and allocation workflows to optimally leverage a wider set of packs. By matching pack-level supply with size demand, retailers are better able to address the unique merchandise needs of individual stores.

1. Size Profiling

Software Application: SAS® Size Profiling Intuitive User Interface

SAS Size Profiling adds tremendous flexibility and sophistication to the size-profiling process in a highly automated fashion through an intuitive user interface. The menus and settings provide users with an opportunity to inject their own business experience into the activity. The UI can be seeded with preferred settings to automate the size-profiling process and allow analysts to focus on exception management.

True Historical Demand Determination

While sales history is the primary input to the size-profiling process, there may not be enough useful data when significant stock-outs are present early in the season. In such cases, the power of SAS Analytics are employed in SAS® Size Profiling to estimate size/store/week sales data that is either missing or constrained by previous supply conditions. This improves the solution's ability to determine the relative demand for a given item across its size range and, consequently, the value of the resulting size profile.

Intelligent Store Clustering

SAS Size Profiling leverages world-class analytics to cluster stores exclusively by size-demand ratios. Pooling sales data from similar stores provides an ample basis for a significantly more granular analysis. The result is a set of size profiles specific to particular styles or even style colors, without a loss of store-level accuracy.

Optimal Profile Generation

Optimal Profile Generation (OPG) automatically captures the critical differences in size-demand ratios within a selected set of merchandise by creating

multiple profiles at lower levels of the product hierarchy. As a result, a user may pool a wide range of merchandise for the sake of workflow efficiency with the confidence that underlying variations in size demand will still be captured. OPG ultimately provides better accuracy and greater granularity without requiring additional work.

Hierarchy and Attribute-Based Profiling

SAS Size Profiling enables users to specify that merchandise at distinct points in the product hierarchy or with distinct values of a chosen attribute be profiled independently. For example, unique profiles can be automatically created for each subclass within a department, or for each vendor. This results in profiles at just the right level of granularity that can be applied to very specific planning groups in upcoming seasons.

Precise Size-Set Management

SAS Size Profiling enables the automated identification of meaningful size sets and the accurate merging of size-level sales histories in order to create profiles. To this end, the solution takes advantage of user-defined size-translation tables and an automatic size-set detection capability to reduce the user's workload and ensure that profiles are created over the most desirable size ranges from the appropriate product histories.

2. Automated Profile Integration

Software Application: SAS® Pack Optimization

Accurate size profiles bring value to retailers only when they can be put to use in everyday merchandising workflows. SAS® Pack Optimization automates profile consumption by considering user-specified criteria to select the best available profile for both purchasing and allocation requests. The profile is applied to a summary volume, enabling

an assortment planner, buyer or allocator to reach the level of detail where customer demand must ultimately be addressed — at the store-size level.

3. Pack Optimization

Software Application: SAS® Pack Optimization

Optimized Case-Pack Level Purchase Recommendations

SAS® Pack Optimization is capable of transforming style-level buys into optimized pack-level order recommendations. By selecting and applying the best available profile the solution first determines size-level store needs. It then considers the costs of both overstock and missed sales to derive the most efficient combination of packs to satisfy these needs. The final recommendation, which may include both multi-SKU and bulk packs, is sent directly to a purchasing system. The result is a fully integrated path from style-level plan to size/pack-level execution.

Optimized Case-Pack Level Allocation Recommendations

SAS® Pack Optimization integrates with retail allocation solutions to create comprehensive pack-level allocation recommendations. By simultaneously considering all available packs on hand, target inventory levels can be more consistently achieved while also reducing handling costs. SAS® Pack Optimization can take into account various retail preferences such as minimum presentation quantities, and can also incorporate size-level on-hand and on-order inventory data. This leads to fewer stock-outs, fewer markdowns and lower operating costs.

SAS® Size Optimization Software Applications

SAS® Size Profiling
SAS® Pack Optimization

The right merchandise in the right sizes to meet demand

A customer, eager to buy the dress she saw in the window display, approaches a fixture full of the dresses. There's the right style, the right color; but her size is missing. The dress she wants — in her size — is on the rack in another store where that size isn't selling well. Right merchandise, wrong store. A potential customer walks away disappointed, while the dress gets marked down later at the other store.

This scenario is frustrating for consumers and costly for retailers. For the retailer, it brings two negatives: a forfeited sale and a markdown on the same item. Conversely, it is also costly to make every sale if you can't be sure which sizes will be in demand. You could overstock stores, but you'd pay too much for inventory and shelf space — and end up marking down more merchandise at season's end. You could send allocations to stores more frequently or handpick individual sizes from bulk packs as needed, but the processing costs would erode profit margins. You could transfer the dress to the shopper's preferred store, but that's a time-consuming and expensive proposition.

Operating System Requirements

SAS® Size Optimization leverages the SAS Merchandise Intelligence 3.2 architecture. The server tier is implemented in SAS as part of SAS 9.1 Foundation.

Middle Tier

The SAS Merchandise Intelligence Mid-Tier Server is a Java-based, middle-tier component. The middle-tier component enables automatic optimizing of data. The SAS Merchandise Intelligence

Mid-Tier Server can be installed in the following operating environments:

- Windows Server 2003
- AIX 5.3

Client

The SAS Merchandise Intelligence Client is a Java-based, client application. The SAS Merchandise Intelligence Client can be installed in the Windows XP Professional operating environment, with Service Pack 2.

SAS Merchandise Intelligence supports the following transactional databases:

- DB2 8.2
- Oracle Database 10g

Comprehensive Retail Intelligence

SAS® Size Optimization is just one part of SAS' vision for complete retail intelligence. Retailers can employ a wide range of powerful SAS solutions, all built atop a common retail business intelligence platform to allow for rapid integration and lower total cost of ownership. These solutions include nearly three decades of SAS retail analytics experience and merchandising best practices. No other vendor offers such a comprehensive, integrated set of solutions for retailers.

- **SAS® Customer Intelligence** – Identify, acquire, activate, serve and retain profitable customers.
- **SAS® Merchandise Intelligence** – Drive revenue, protect margins and earn customer loyalty with optimized merchandise plans, assortments, demand forecasts, pricing, promotions, space plans and allocations.
- **SAS® Operational Intelligence** – Leverage organizational assets to serve customers and trade with vendors efficiently and profitably.

Key Features: SAS® Size Optimization Solution

Combining SAS® Size Profiling and SAS® Pack Optimization

- Intuitive user interface provides easy-to-use and flexible user environment.
- “True Demand” Determination accounts for lost sales in historical data to provide a true picture of size-level demand.
- Intelligent Store Clustering automatically identifies stores with similar size selling patterns to enable more granular profiles.
- Optimal Profile Generation automatically captures variance in size-demand ratio for different product groups within the same profiling project.
- Hierarchy- and Attribute-Based Profiling allows individual items to be analyzed and profiled independently within a broader merchandise set.
- Precise Size-Set Management delivers the capability to manage the intricacies of size-level demand that stem from test sizes, vendor sizing differences, stock-outs and more.
 - o Automatic Size Translation provides a standardized sizing classification hierarchy across vendors and brands.
 - o Automatic Size-Set Detection identifies appropriate core size sets and automatically assigns items to the best one.
- Non-Comparison Store Classifier assigns profiles to new stores and stores with very limited selling history.
- Profile Lookup and Apply systemically selects and applies the most relevant profile to determine size need for orders and allocations.
- SAS Pack Optimization automatically determines the most cost-effective mix of case packs and bulk to meet the size needs of all stores.
- SAS Size Optimization integrates with any order management, assortment planning, allocation or warehouse management system through a service-oriented or a batch interface.

- **SAS® for Performance Management** – Analyze, forecast and maximize profits across the entire value chain and monitor performance toward common goals.

SAS – A World Leader in Business Intelligence

Founded in 1976, SAS is the world's largest privately held software company and the industry leader in business intelligence. Today, SAS serves more than four million users at nearly 43,000 sites in 111 countries, including more than 80 percent of FORTUNE

Global 500® general merchandisers and specialty retailers. SAS is also an associate member of the National Retail Federation.

For nearly three decades, SAS has been giving retail organizations THE POWER TO KNOW®. SAS leverages the investments you've already made in operational and transactional systems, adding a layer of intelligence you can't get anywhere else.

For more information, visit us at www.sas.com.



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